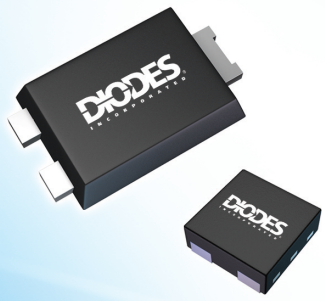


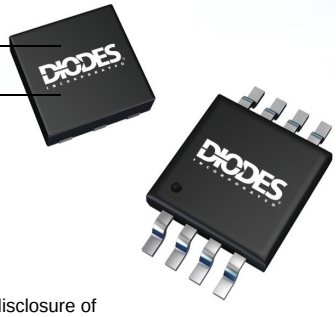
Diodes Incorporated
Discrete and Analog Semiconductors

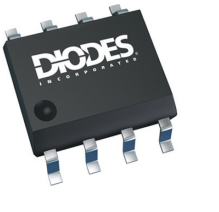
Qualification Report – PCN-2268

Manufacturer No.:	Qualification of Alternative Wafer Sources for Select Products Due to Closure of Diodes FabTech (KFAB) Facility
Revision:	0
Date:	April 21, 2017
Qualified By:	Diodes Incorporated
Also Applicable To:	The part numbers listed in the associated PCN are Qualified by Similarity (QBS) to the devices included in this report.

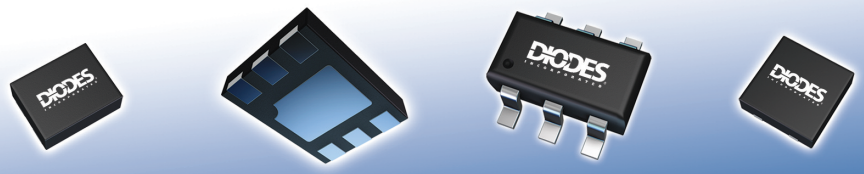
Please go to www.diodes.com for current data sheets on associated devices

Prepared By:	Diodes US Document Control	Date	April 21, 2017
Approved By:	Diodes US QRA Department	Date	April 21, 2017





DIODES INCORPORATED 4949 Hedgcoxe Road, Suite # 200, Plano, TX 75024 USA www.diodes.com



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Plastic encapsulated Diodes Incorporated semiconductor devices are not designed and are not warranted to be suitable for use in some military applications and/or military environments. Use of plastic encapsulated Diodes Incorporated semiconductor devices in military applications and/or military environments, in lieu of hermetically sealed ceramic devices, is understood to be fully at the risk of Buyer.

Quality and reliability data provided by Diodes Incorporated is intended to be an estimate of product performance based upon history only. It does not imply that any performance levels reflected in such data can be met if the product is operated outside the conditions expressly stated in the latest published data sheet for a device.

Existing industry standards for plastic encapsulated microcircuit qualification and reliability monitors are based upon historical data, experiments, and field experience with the use of these devices in commercial and industrial applications. The applicability of these standards in determining the suitability for use and safety performance in life support, military and aerospace applications has not been established. Due to the multiple variations in field operating conditions, a component manufacturer can only base estimates of product life on models and the results of package and die level qualification. The buyer's use of this data, and all consequences of such use, is solely the buyer's responsibility. Buyer assumes full responsibility to perform sufficient engineering and additional qualification testing in order to properly evaluate the buyer's application and determine whether a candidate device is suitable for use in that application. The information provided by Diodes Incorporated shall not be considered sufficient grounds on which to base any such determination.

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DATE: 21 April, 2017

PCN #: 2268

PCN Title: Qualification of Alternative Wafer Sources for Select Products Due to Closure of Diodes FabTech (KFAB) Facility

Dear Customer:

This is an announcement of change(s) to products that are currently being offered by Diodes Incorporated.

We request that you acknowledge receipt of this notification within 30 days of the date of this PCN. If you require samples for evaluation purposes, please make a request immediately. Please refer to the implementation date of this change as it is stated in the attached PCN form. Please contact your local Diodes sales representative to acknowledge receipt of this PCN and for any sample requests.

The changes announced in this PCN will be implemented immediately.

Previously agreed upon customer specific change process requirements or device specific requirements will be addressed separately.

For questions or clarification regarding this PCN, please contact your local Diodes sales representative.

Sincerely,

Diodes Incorporated PCN Team

PRODUCT CHANGE NOTICE PCN-2268 REV 00

Notification Date:	Implementation Date:	Product Family:	Change Type:	PCN #:
21 April, 2017	Immediately	Discrete	Alternative Wafer Sources	**2268**

TITLE

Qualification of Alternative Wafer Sources for Select Products Due to Closure of Diodes FabTech (KFAB) Facility

DESCRIPTION OF CHANGE

This PCN is being issued to notify customers that in order to assure continuity of supply due to the closure of the Diodes FabTech (KFAB) Facility (see link below), Diodes Incorporated has qualified, or is in the process of qualifying(*) alternative wafer sources for select part numbers.

http://investor.diodes.com/news-releases/news-release-details/diodes-incorporated-reports-fourth-quarter-and-fiscal-2016

Full electrical characterization and high reliability testing has been completed or will be completed(*) on representative part numbers to ensure there is no change to device functionality or electrical specifications in the datasheet.

(*)Shipment of production material built with alternate die sources will be gated by the successful completion of qualification.

There will be no change to the Form, Fit, or Function of products affected.

IMPACT

Continuity of Supply. No change in datasheet parameters or product performance.

PRODUCTS AFFECTED

Table 1 - Qualification of JMSC (JiLin Magic Semiconductor Company) as Alternate Die Source

Table 2 –Qualification of Diodes Internal SFAB1 (Shanghai SIM-BCD Semiconductor Manufacturing Company, Ltd.) as Alternate Die Source

Table 3 – Qualification of Diodes Internal OFAB (Diodes Zetex Semiconductors Limited) as Alternate Die Source

Table 4 – Qualification of Phenitec as Alternate Die Source

Table 5 - Qualification of Both Phenitec and Diodes Internal SFAB1 as Alternate Die Sources

Table 6 – Qualification of Both Diodes Internal SFAB1 and JMSC as Alternate Die Sources

Table 7 - Parts Affected by KFAB Shutdown but that Previously had an Alternate Die Source Qualified and Released to Production.

WEB LINKS

Manufacturer's Notice:	http://www.diodes.com/pcns
For More Information Contact:	http://www.diodes.com/contacts.html
Data Sheet:	http://www.diodes.com/catalog

DISCLAIMER

Unless a Diodes Incorporated Sales representative is contacted in writing within 30 days of the posting of this notice, all changes described in this announcement are considered approved.

Table 1 - Qualification of JMSC (JiLin Magic Semiconductor Company) as Alternate Die Sources					
1N5817-B	SB120-T	SB170-T	SB340-A	SB380-T	SB540-T
1N5817-T	SB130-B	SB180-T	SB340-T	SB390-T	SB550-T
1N5818-T	SB130-T	SB190-T	SB350-T	SB5100-T	SB560-A
1N5819-B	SB140-T	SB3100-A	SB360-A	SB520-T	SB560-T
1N5819-T	SB150-T	SB3100-T	SB360-T	SB530-T	SB570-T
SB1100-T	SB160-T	SB330-T	SB370-T	SB540-A	SB580-T

Table 2 – Diodes Internal SFAB1 (Shanghai SIM-BCD Semiconductor Manufacturing Company, Ltd.) as Alternate Die Source					
1N5711W-7-F	B380B-13-F	DFLZ24-7	PD3S230H-7	SDM2U20SD3-7	ZLLS1000TA
1N5711WS-7-F	B3L30LP-7	DFLZ27-7	PD3S230L-7	SDM2U30CSP-7	ZLLS2000TA
1N5819HW1-7-F	BAS40-05T-7-F	DFLZ30-7	QSG0115UDJ-7	SDM2U40CSP-7B	ZLLS350TA
1N5819HW-7-F	BAT1000-7-F	DFLZ33-7	SD101CWS-7-F	SK12-13-F	ZLLS400TA
1N6263W-7-F	BAT400D-7-F	DFLZ36-7	SD107WS-7-F	SK13-13-F	ZLLS400TC
1SMB5915B-13	BAT46W-7-F	DFLZ39-7	SDM02U30CSP-7	SK14-13-F	ZLLS410TA
1SMB5917B-13	BAT54WS-13-F	DFLZ5V1-7	SDM05U20CSP-7	SK16-13-F	ZLLS500TA
B0520WS-7-F	BAT54WS-7-F	DFLZ5V6-7	SDM05U20S3-7	SK32-7-F	ZLLS500TC
B0530W-7-F	BAT750-7-F	DFLZ62-7	SDM05U40CSP-7	SK33-7-F	BAT54LPS-7
B0530WS-13-F	BAT750TA	DFLZ6V2-7	SDM100K30L-7	SK34-7-F	B140HB-13-F
B0530WS-7-F	BAT760-7	DFLZ6V8-7	SDM10K45-7-F	SK35-7-F	SK15-13-F
B0540W-7-F	SDM01A20CP4-7	DFLZ7V5-7	SDM1100LP-7	SK36-7-F	SDM2U30CSP-7B
B0540WS-7	SDM02A20CP4-7	DFLZ8V2-7	SDM1A40LP8-7	SMAZ5V1-13-F	SDM1U20CSP-7
B0JCNE000010	SDM1A40CP3-7	DFLZ9V1-7	SDM1L30BLP-13	SMAZ5V6-13-F	SDM1A40CSP-7
B0JCRL000003	DFLZ10-7	MBR0580S1-7	SDM1L30CSP-7	ZHCS1000TA	SDM0230CSP-7
B130L-13-F	DFLZ11-7	MBR180S1-7	SDM1M40LP8-7	ZHCS1000TC	SK14T-01DL-F
B130LAW-7-F	DFLZ12-7	MBR230S1F-7	SDM1U100S1F-7	ZHCS2000TA	B130LBT-01-F
B130LB-13-F	DFLZ13-7	PD3S120L-7	SDM1U40CSP-7	ZHCS350TA	SDM2U20CSP-7B
B140HW-7	DFLZ15-7	PD3S130H-7	SDM20E40C-7-F	ZHCS400TA	SDM20N40A-7-F
B140WS-7	DFLZ16-7	PD3S130L-7	SDM20N40A-7	ZHCS400TC	SDM20N30C-7-F
B2100AF-13	DFLZ18-7	PD3S140-7	SDM2100S1F-7	ZHCS500TA	SDM1A40CSP-01-7
B240LA-13-F	DFLZ20-7	PD3S160-7	SDM2A20CSP-7	ZHCS506TA	
B360AM-13-F	DFLZ22-7	PD3S220L-7	SDM2U20CSP-7	ZHCS750TA	

Table 3 – Qualification of OFAB (Diodes Zetex Semiconductors Limited) as Alternate Die Source	
BC846BLP4-7B	MMBT2222ALP4-7B

Table 4 – Qualification of Phenitec as Alternate Die Source					
1N4148WSF-7	BAW56W-7-F	BZT52C36LP-7B	BZT52HC3V9WF-7	D3Z20BF-7	DDZ16-7
1N4448W-7-F	BZD27C3V3WF-7	BZT52C39LP-7	BZT52HC43WF-7	D3Z22BF-7	DDZ16B-7
1N4448WS-7-F	BZD27C3V6WF-7	BZT52C39LP-7B	BZT52HC47WF-7	D3Z24BF-7	DDZ16BSF-7
1SS361LPH4-7B	BZD27C3V9WF-7	BZT52C3V0-13-F	BZT52HC4V3WF-7	D3Z27BF-7	DDZ16CSF-7
AL5802-13	BZD27C4V3WF-7	BZT52C3V6LP-7B	BZT52HC4V7WF-7	D3Z30BF-7	DDZ16S-7
AL5802-7	BZD27C4V7WF-7	BZT52C5V1LP-7	BZT52HC5V1WF-7	D3Z5V6BF-7	DDZ17-7
AL5802LP-7	BZD27C5V1WF-7	BZT52C5V1LP-7B	BZT52HC5V6WF-7	D3Z7V5BF-7	DDZ18ASF-7
AL5802LPL-7	BZD27C5V6WF-7	BZT52C5V6LP-7	BZT52HC6V2WF-7	D3Z8V2BF-7	DDZ18C-7
AZ23C2V7-7-F	BZD27C6V0WF-7	BZT52C5V6LP-7B	BZT52HC6V8WF-7	DDZ10ASF-7	DDZ18CS-7
AZ23C43-7-F	BZD27C6V2WF-7	BZT52C6V2LP-7	BZT52HC7V5WF-7	DDZ10B-7	DDZ19-7
AZ23C47-7-F	BZT52B6V2-7-F	BZT52C6V2LP-7B	BZT52HC8V2WF-7	DDZ10BSF-7	DDZ20ASF-7
AZ23C51-7-F	BZT52C10LP-7	BZT52C6V8LP-7	BZT52HC9V1WF-7	DDZ10C-7	DDZ20BSF-7
BAS116LPH4-7B	BZT52C10LP-7B	BZT52C7V5LP-7	BZT585B10T-7	DDZ10CS-7	DDZ20C-7
BAS16-13-F	BZT52C11LP-7	BZT52C7V5LP-7B	BZT585B11T-7	DDZ10DSF-7	DDZ20CS-7
BAS16HTW-13	BZT52C11LP-7B	BZT52C8V2LP-7	BZT585B12T-7	DDZ11ASF-7	DDZ20CSF-7
BAS16HTW-13R	BZT52C12-13-F	BZT52C8V2LP-7B	BZT585B13T-7	DDZ11B-7	DDZ20DSF-7
BAS16TW-13-F	BZT52C12LP-7	BZT52C9V1LP-7	BZT585B16T-7	DDZ11BSF-7	DDZ21-7
BAS21DWA-7	BZT52C12LP-7B	BZT52C9V1LP-7B	BZT585B18T-7	DDZ11C-7	DDZ22ASF-7
BAS28-7	BZT52C13LP-7	BZT52HC10WF-7	BZT585B22T-7	DDZ11CS-7	DDZ22BSF-7
BAV116HWF-7	BZT52C13LP-7B	BZT52HC11WF-7	BZT585B24T-7	DDZ11CSF-7	DDZ22CSF-7
BAV116S92-7	BZT52C15-13-F	BZT52HC12WF-7	BZT585B27T-7	DDZ12ASF-7	DDZ22D-7
BAV116T-7	BZT52C15LP-7	BZT52HC13WF-7	BZT585B30T-7	DDZ12B-7	DDZ22DS-7
BAV116W-13-F	BZT52C15LP-7B	BZT52HC15WF-7	BZT585B33T-7	DDZ12BSF-7	DDZ23-7
BAV116W-7-F	BZT52C16-13-F	BZT52HC16WF-7	BZT585B36T-7	DDZ12C-7	DDZ24ASF-7
BAV116WS-7	BZT52C16LP-7	BZT52HC18WF-7	BZT585B43T-7	DDZ12CS-7	DDZ24BSF-7
BAV16S92-7	BZT52C16LP-7B	BZT52HC20WF-7	BZT585B47T-7	DDZ13ASF-7	DDZ24C-7
BAV21HWF-7	BZT52C18LP-7	BZT52HC22WF-7	BZT585B5V6T-7	DDZ13B-7	DDZ24CS-7
BAV5004LP-7B	BZT52C18LP-7B	BZT52HC24WF-7	BZT585B6V2T-7	DDZ13BS-7	DDZ24CSF-7
BAV5004W-7	BZT52C20-13-F	BZT52HC27WF-7	BZT585B6V8T-7	DDZ13BSF-7	DDZ24DSF-7
BAV5004WS-7	BZT52C20LP-7	BZT52HC2V4WF-7	BZT585B7V5T-7	DDZ13CSF-7	DDZ26-7
BAV5005LP-7B	BZT52C20LP-7B	BZT52HC2V7WF-7	BZT585B8V2T-7	DDZ14-7	DDZ27BSF-7
BAV70HDW-7	BZT52C22LP-7	BZT52HC30WF-7	BZT585B9V1T-7	DDZ14B-7	DDZ27D-7
BAV70T-7-F	BZT52C22LP-7B	BZT52HC33WF-7	BZX84C10TS-7-F	DDZ14S-7	DDZ27DS-7
BAV99HDW-13	BZT52C24LP-7	BZT52HC36WF-7	BZX84C12TS-7-F	DDZ15-7	DDZ28-7
BAW56-13-F	BZT52C24LP-7B	BZT52HC39WF-7	D3Z11BF-7	DDZ15ASF-7	DDZ30CSF-7
BAW56-7-F	BZT52C2V0-13-F	BZT52HC3V0WF-7	D3Z15BF-7	DDZ15BSF-7	DDZ30D-7
BAW56DW-7-F	BZT52C2V0-7-F	BZT52HC3V3WF-7	D3Z16BF-7	DDZ15CSF-7	DDZ30DS-7
BAW56HDW-13	BZT52C36LP-7	BZT52HC3V6WF-7	D3Z18BF-7	DDZ15S-7	DDZ30DSF-7

Table 4 – Qualification of Phenitec as Alternate Die Source , Cont'd					
DDZ31-7	DDZ6V8CSF-7	DDZ9692T-7	DDZ9708-7	DDZX13B-13	DDZX8V2C-13
DDZ33-7	DDZ7V5A-7	DDZ9693-7	DDZ9708S-7	DDZX13B-7	DDZX8V2C-7
DDZ33BSF-7	DDZ7V5ASF-7	DDZ9693S-7	DDZ9708T-7	DDZX14-13	DDZX9V1C-13
DDZ33CSF-7	DDZ7V5B-7	DDZ9693T-7	DDZ9709-7	DDZX14-7	DDZX9V1C-7
DDZ33DSF-7	DDZ7V5BSF-7	DDZ9694-7	DDZ9709S-7	DDZX15-13	DLP05LC-7-F
DDZ33S-7	DDZ7V5C-7	DDZ9694S-7	DDZ9709T-7	DDZX15-7	DLPT05W-7
DDZ34-7	DDZ7V5CS-7	DDZ9694T-7	DDZ9711-7	DDZX16-13	DVR5V0W-7
DDZ36-7	DDZ8V2ASF-7	DDZ9696-7	DDZ9711S-7	DDZX16-7	DVRN6056-7-F
DDZ36CSF-7	DDZ8V2B-7	DDZ9696S-7	DDZ9711T-7	DDZX18C-13	GDZ3V9LP3-7
DDZ36DSF-7	DDZ8V2BSF-7	DDZ9696T-7	DDZ9712-7	DDZX18C-7	GDZ4V3LP3-7
DDZ36S-7	DDZ8V2C-7	DDZ9697-7	DDZ9712S-7	DDZX20C-13	GDZ4V7LP3-7
DDZ39CSF-7	DDZ8V2C-7-71	DDZ9697S-7	DDZ9712T-7	DDZX20C-7	GDZ5V1LP3-7
DDZ39DSF-7	DDZ8V2CS-7	DDZ9697T-7	DDZ9713-7	DDZX22D-13	GDZ5V6LP3-7
DDZ39F-7	DDZ8V2CSF-7	DDZ9698-7	DDZ9713S-7	DDZX22D-7	GDZ6V0LP3-7
DDZ3V0BSF-7	DDZ9678-7	DDZ9698S-7	DDZ9713T-7	DDZX24C-13	GDZ6V2LP3-7
DDZ3V9BSF-7	DDZ9681-7	DDZ9698T-7	DDZ9714-7	DDZX24C-7	GDZ6V8LP3-7
DDZ43-7	DDZ9682-7	DDZ9699-7	DDZ9714S-7	DDZX27D-13	GDZ7V5LP3-7
DDZ43S-7	DDZ9683-7	DDZ9699S-7	DDZ9714T-7	DDZX27D-7	GDZ8V2BLP3-7
DDZ47S-7	DDZ9684-7	DDZ9699T-7	DDZ9715-7	DDZX30D-13	GDZ8V2LP3-7
DDZ4V3CSF-7	DDZ9685-7	DDZ9700-7	DDZ9715S-7	DDZX30D-7	GZ23C5V6-7
DDZ4V7ASF-7	DDZ9686-7	DDZ9700S-7	DDZ9715T-7	DDZX33-13	MMBD4148-13-F
DDZ5V1B-7	DDZ9686AT-7	DDZ9700T-7	DDZ9716-7	DDZX33-7	MMBD4148-7-F
DDZ5V1BS-7	DDZ9687-7	DDZ9701-7	DDZ9716S-7	DDZX36-13	MMBD4148PLM-7
DDZ5V1BSF-7	DDZ9687SF-7	DDZ9701S-7	DDZ9716T-7	DDZX36-7	MMBD4148TW-7-F
DDZ5V6ASF-7	DDZ9688-7	DDZ9701T-7	DDZ9717-7	DDZX39F-13	MMBD4448-7-F
DDZ5V6B-7	DDZ9689-13	DDZ9702-7	DDZ9717S-7	DDZX39F-7	MMBD4448DW-7-F
DDZ5V6BS-7	DDZ9689-7	DDZ9702S-7	DDZ9717T-7	DDZX43-13	MMBD4448HADW-7-F
DDZ5V6BSF-7	DDZ9689S-7	DDZ9702T-7	DDZ9V1ASF-7	DDZX43-7	MMBD4448HTW-7-F
DDZ5V6CSF-7	DDZ9689T-7	DDZ9703-7	DDZ9V1B-7	DDZX5V1B-13	MMBD5004BRM-7
DDZ6V2B-7	DDZ9690-7	DDZ9703S-7	DDZ9V1BSF-7	DDZX5V1B-7	MMBD5004C-7
DDZ6V2BS-7	DDZ9690AT-7	DDZ9703T-7	DDZ9V1C-7	DDZX5V6B-13	MMBD5004S-7
DDZ6V2BSF-7	DDZ9690S-7	DDZ9704-7	DDZ9V1CS-7	DDZX5V6B-7	MMBD7000-7-F
DDZ6V2CSF-7	DDZ9690T-7	DDZ9705-7	DDZX10C-13	DDZX6V2B-13	MMBD7000HC-7-F
DDZ6V8ASF-7	DDZ9691-7	DDZ9705S-7	DDZX10C-7	DDZX6V2B-7	MMBD7000HS-7-F
DDZ6V8B-7	DDZ9691S-7	DDZ9705T-7	DDZX11C-13	DDZX6V8C-13	MMBD914-13-F
DDZ6V8BSF-7	DDZ9691T-7	DDZ9707-7	DDZX11C-7	DDZX6V8C-7	MMBD914-7-F
DDZ6V8C-7	DDZ9692-7	DDZ9707S-7	DDZX12C-13	DDZX7V5C-13	MMBZ18VAL-7-F
DDZ6V8CS-7	DDZ9692S-7	DDZ9707T-7	DDZX12C-7	DDZX7V5C-7	MMDT2222A-7-F

Table 4 – Qualification of Phenitec as Alternate Die Source , Cont'd	
MMDT3904-7-F	UDZ12B-7
MMDT4124-7-F	UDZ13B-7
MMDT4401-7-F	UDZ15B-7
MMDTA06-7	UDZ3V6B-7
NMSD200B01-7	UDZ3V9B-7
PD3Z284C10-7	UDZ4V3B-7
PD3Z284C11-7	UDZ5V6B-13
PD3Z284C12-7	UDZ5V6B-7
PD3Z284C13-7	UDZ5V6B-7-F
PD3Z284C15-7	UDZ6V2B-7
PD3Z284C16-7	UDZ6V8B-7
PD3Z284C18-7	UDZ7V5B-7
PD3Z284C20-7	UDZ8V2B-7
PD3Z284C22-7	UDZ9V1B-7
PD3Z284C24-7	ZXTNS618MCTA
PD3Z284C27-7	ZXTPS718MCTA
PD3Z284C2V4-7	ZXTPS717MCTA
PD3Z284C2V7-7	ZXTPS720MCTA
PD3Z284C30-7	
PD3Z284C36-7	
PD3Z284C39-7	
PD3Z284C3V0-7	
PD3Z284C3V3-7	
PD3Z284C3V6-7	
PD3Z284C3V9-7	
PD3Z284C4V3-7	
PD3Z284C4V7-7	
PD3Z284C5V1-7	
PD3Z284C5V6-7	
PD3Z284C6V2-7	
PD3Z284C6V8-7	
PD3Z284C7V5-7	
PD3Z284C9V1-7	
QZX363C5V6-7-F	
TPD6V8LP-7	
TPD6V8LP-7B	
UDZ10B-7	
UDZ11B-7	

Table 5 - Qualification of Both Phenitec and Diodes Internal SFAB1 as Alternate Die Sources					
B0520LW-7-F	BAS70-06-7-F	BAS70DW-04-7-F	BAS70T-7-F	BAS70W-06-7-F	SDM40E20LC-7
BAS70-04-7-F	BAS70-06T-7-F	BAS70DW-05-7-F	BAS70TW-13-F	BAS70W-7-F	SDM40E20LS-7-F
BAS70-04T-7-F	BAS70-7-F	BAS70DW-06-7-F	BAS70TW-7-F	SDM02M30LP3-7B	
BAS70-05-7-F	BAS70BRW-7-F	BAS70JW-7-F	BAS70W-04-7-F	SDM02U30LP3-7B	
BAS70-05T-7-F	BAS70DW-04-13-F	BAS70LP-7B	BAS70W-05-7-F	SDM40E20LA-7	

Table 6 - Qualification of Diodes Internal SFAB1 and JMSC as Alternate Die Sources					
DFLS1100-7	DFLS140L-7	DFLS240-7	PDS1045-13	PDS4200H-13	PDS835L-13
DFLS1150-7	DFLS160-7	DFLS240L-7	PDS1240CTL-13	PDS5100-13	PDS835L-7
DFLS1200-7	DFLS2100-7	DFLS260-7	PDS3100-13	PDS5100H-13	
DFLS120L-7	DFLS220L-7	PDS1040-13	PDS3200-13	PDS540-13	
DFLS130-7	DFLS230-7	PDS1040CTL-13	PDS340-13	PDS540-13D	
DFLS130L-7	DFLS230L-7	PDS1040L-13	PDS360-13	PDS560-13	
DFLS140-7	DFLS230LH-7	PDS1040S-13	PDS4150-13	PDS760-13	

Table 7 - Parts Affected by KFAB Shutdown but that Previously had an Alternate Die Source Qualified and Released to Production					
1N4148W-13-F	AZ23C36-7-F	B2100-13-F	B390-13-F	BAS40-06T-7-F	BAT54CW-13-F
1N4148W-7-F	AZ23C39-7-F	B2100A-13-F	B520C-13-F	BAS40-7-F	BAT54CW-7-F
1N4148WS-13-F	AZ23C3V0-7-F	B220-13-F	B530C-13-F	BAS40BRW-7-F	BAT54DW-7-F
1N4148WS-7-F	AZ23C3V3-7-F	B220A-13-F	B540C-13-F	BAS40DW-04-7-F	BAT54JW-7-F
1N4148WT-13	AZ23C3V6-7-F	B230-13-F	B550C-13-F	BAS40DW-05-7-F	BAT54LP-7
1N4148WT-7	AZ23C3V9-7-F	B230A-13-F	B560C-13-F	BAS40DW-06-7-F	BAT54LP-7B
1N4448HWS-13-F	AZ23C4V3-7-F	B240-13-F	BAL99-7-F	BAS40LP-7	BAT54S-7-F
1N4448HWS-7-F	AZ23C4V7-7-F	B240-13-G	BAS116-7-F	BAS40LP-7B	BAT54SDW-7-F
1N4448HWT-13	AZ23C5V1-13-F	B240A-13-F	BAS116T-7-F	BAS40T-7-F	BAT54ST-7-F
1N4448W-13-F	AZ23C5V1-7-F	B240T-01DL-F	BAS116V-7	BAS40TW-7-F	BAT54STA
1N4448WSF-7	AZ23C5V6-7-F	B250-13-F	BAS16-7-F	BAS40V-7	BAT54SW-13-F
2DA1797-13	AZ23C5V6W-7-F	B250A-13-F	BAS16HLP-7	BAS40W-04-7-F	BAT54SW-7-F
2DA1971-13	AZ23C6V2-7-F	B260-13-F	BAS16LP-7	BAS40W-05-7-F	BAT54T-7-F
2DA1971-7	AZ23C6V8-7-F	B260A-13-F	BAS16LP-7B	BAS40W-06-7-F	BAT54TA
2DB1694-7	AZ23C6V8W-7-F	B270-13-F	BAS16T-7-F	BAS40W-13-F	BAT54TW-7-F
2DB1697-13	AZ23C7V5-7-F	B280-13-F	BAS16TW-7-F	BAS40W-7-F	BAT54V-7
2DB1713-13	AZ23C8V2-7-F	B290-13-F	BAS16V-7	BAS521-13	BAT54W-13-F
2DC4672-13	AZ23C9V1-7-F	B3100-13-F	BAS16W-13-F	BAS521-7	BAT54W-7-F
2DC4672-13R	B0JDDD000003	B3100B-13-F	BAS16W-7-F	BAS521LP-7	BAT54WT-7
2DD2661-13	B1100-13-F	B320-13-F	BAS19-7-F	BAS521LP-7B	BAV16W-7-F
2DD2678-13	B1100B-13-F	B320A-13-F	BAS19W-7-F	BAT42W-7-F	BAV16WS-7-F
AZ23C10-7-F	B1100LB-13-F	B320B-13-F	BAS20-7-F	BAT42WS-7-F	BAV170-7-F
AZ23C10W-7-F	B120-13-F	B330-13-F	BAS20DW-7	BAT43W-7-F	BAV170T-7-F
AZ23C11-7-F	B120B-13-F	B330A-13-F	BAS20W-7-F	BAT43WS-7-F	BAV199-7-F
AZ23C12-7-F	B130-13-F	B330B-13-F	BAS21-13-F	BAT54-13-F	BAV199DW-7-F
AZ23C13-7-F	B130B-13-F	B340-13-F	BAS21-7-F	BAT54-7-F	BAV199T-7-F
AZ23C15-7-F	B140-13-F	B340A-13-F	BAS21DW-7	BAT54A-13-F	BAV199W-7
AZ23C16-7-F	B140B-13-F	B340B-13-F	BAS21T-7-F	BAT54A-7-F	BAV19W-7-F
AZ23C18-7-F	B150-13-F	B340LA-13-F	BAS21TM-7	BAT54ADW-7-F	BAV19WS-13-F
AZ23C18W-7-F	B150B-13-F	B340LB-13-F	BAS21TW-7	BAT54AT-7-F	BAV19WS-7-F
AZ23C20-13-F	B160-13-F	B350-13-F	BAS21W-13-F	BAT54ATA	BAV20W-7-F
AZ23C20-7-F	B160B-13-F	B350A-13-F	BAS21W-7-F	BAT54AW-13-F	BAV20WS-7-F
AZ23C22-7-F	B170-13-F	B350B-13-F	BAS40-04-7-F	BAT54AW-7-F	BAV21W-7-F
AZ23C24-7-F	B170B-13-F	B360-13-F	BAS40-04T-7-F	BAT54BRW-7-F	BAV21WS-13-F
AZ23C27-7-F	B180-13-F	B360A-13-F	BAS40-05-13-F	BAT54C-7-F	BAV21WS-7-F
AZ23C30-7-F	B180B-13-F	B360B-13-F	BAS40-05-7-F	BAT54CDW-7-F	BAV23-7
AZ23C33-7-F	B190-13-F	B370-13-F	BAS40-06-13-F	BAT54CT-7-F	BAV23A-7-F
AZ23C36-13-F	B190B-13-F	B380-13-F	BAS40-06-7-F	BAT54CTA	BAV23C-7-F

Table 7 - Parts Affected by KFAB Shutdown but that Previously had an Alternate Die Source Qualified and Released to Production, Cont'd					
BAV23S-7-F	BC847B-7-F	BC858AW-7-F	BCX53TC	BZT52C20-7-F	BZT52C39S-7-F
BAV3004W-7-F	BC847BLP-7	BC858BW-7-F	BCX5416-13R	BZT52C20S-7-F	BZT52C3V0-7-F
BAV3004WS-7	BC847BLP-7B	BC858CW-7-F	BCX5416TA	BZT52C20T-7	BZT52C3V0LP-7
BAV70-13-F	BC847BS-13-F	BCP5116TA	BCX5416TC	BZT52C22-13-F	BZT52C3V0LP-7B
BAV70-7-F	BC847BS-7-F	BCP5116TC	BCX54TA	BZT52C22-7-F	BZT52C3V0S-7-F
BAV70W-13-F	BC847BT-7-F	BCP51TA	BCX54TC	BZT52C22S-7-F	BZT52C3V3-13-F
BAV70W-7-F	BC847BW-13-F	BCP5216TA	BCX5516TA	BZT52C22T-7	BZT52C3V3-7-F
BAV756DW-7-F	BC847BW-7-F	BCP52TA	BCX5516TC	BZT52C24-13-F	BZT52C3V3LP-7
BAV99-13-F	BC847C-13-F	BCP5316TA	BCX55TA	BZT52C24-7-F	BZT52C3V3LP-7B
BAV99-7-F	BC847C-7-F	BCP5316TC	BCX55TC	BZT52C24S-7-F	BZT52C3V3S-7-F
BAV99BRLP-7	BC847CT-7-F	BCP53TA	BCX5616TA	BZT52C24T-7	BZT52C3V3T-7
BAV99BRW-7-F	BC847CW-13-F	BCP5410TA	BCX5616TC	BZT52C27-13-F	BZT52C3V6-13-F
BAV99DW-13-F	BC847CW-7-F	BCP5416TA	BCX56TA	BZT52C27-7-F	BZT52C3V6-7-F
BAV99DW-7-F	BC847PN-13-F	BCP54TA	BCX56TC	BZT52C27S-7-F	BZT52C3V6LP-7
BAV99T-13-F	BC847PN-7-F	BCP5510TA	BZT52C10-13-F	BZT52C2V0S-7-F	BZT52C3V6S-7-F
BAV99T-7-F	BC847PN-7R-F	BCP5516TA	BZT52C10-7-F	BZT52C2V4-13-F	BZT52C3V9-13-F
BAV99W-13-F	BC848A-7-F	BCP55TA	BZT52C10S-7-F	BZT52C2V4-7-F	BZT52C3V9-7-F
BAV99W-7-F	BC848AW-7-F	BCP5610TA	BZT52C10T-7	BZT52C2V4LP-7	BZT52C3V9LP-7
BAW101-7	BC848B-13-F	BCP5616TA	BZT52C11-13-F	BZT52C2V4LP-7B	BZT52C3V9LP-7B
BAW101S-7	BC848B-7-F	BCP5616TC	BZT52C11-7-F	BZT52C2V4S-7-F	BZT52C3V9S-7-F
BAW101V-7	BC848BW-7-F	BCP56TA	BZT52C11S-7-F	BZT52C2V4T-7	BZT52C3V9T-7
BAW156-7-F	BC848C-7-F	BCV46TA	BZT52C11T-7	BZT52C2V7-13-F	BZT52C43-13-F
BAW156T-7-F	BC848CW-7-F	BCV47TA	BZT52C12-7-F	BZT52C2V7-7-F	BZT52C43-7-F
BAW567DW-7-F	BC856A-7-F	BCV47TC	BZT52C12S-7-F	BZT52C2V7LP-7	BZT52C47-13-F
BAW56T-7-F	BC856AS-7	BCW66HTA	BZT52C12T-7	BZT52C2V7LP-7B	BZT52C47-7-F
BC817-40-7-F	BC856BW-13-F	BCW68HTA	BZT52C13-13-F	BZT52C2V7S-7-F	BZT52C4V3-13-F
BC846A-7-F	BC856BW-7-F	BCX41TA	BZT52C13-7-F	BZT52C2V7T-7	BZT52C4V3-7-F
BC846AS-7	BC857AT-7-F	BCX5116TA	BZT52C13S-7-F	BZT52C30-13-F	BZT52C4V3LP-7
BC846AW-7-F	BC857AW-7-F	BCX5116TC	BZT52C13T-7	BZT52C30-7-F	BZT52C4V3LP-7B
BC846B-13-F	BC857BS-13-F	BCX51TA	BZT52C15-7-F	BZT52C30S-7-F	BZT52C4V3S-7-F
BC846B-7-F	BC857BS-7-F	BCX51TC	BZT52C15S-7-F	BZT52C33-13-F	BZT52C4V3T-7
BC846BW-13-F	BC857BT-7-F	BCX5216TA	BZT52C15T-7	BZT52C33-7-F	BZT52C4V7-13-F
BC846BW-7-F	BC857BV-13	BCX5216TC	BZT52C16-7-F	BZT52C33S-7-F	BZT52C4V7-7-F
BC847A-13-F	BC857BV-7	BCX52TA	BZT52C16S-7-F	BZT52C36-13-F	BZT52C4V7LP-7
BC847A-7-F	BC857BW-13-F	BCX52TC	BZT52C16T-7	BZT52C36-7-F	BZT52C4V7LP-7B
BC847AT-7-F	BC857BW-7-F	BCX5316TA	BZT52C18-7-F	BZT52C36S-7-F	BZT52C4V7S-7-F
BC847AW-7-F	BC857CT-7-F	BCX5316TC	BZT52C18S-7-F	BZT52C39-13-F	BZT52C4V7T-7
BC847B-13-F	BC857CW-7-F	BCX53TA	BZT52C18T-7	BZT52C39-7-F	BZT52C51-13-F

Table 7 - Parts Affected by KFAB Shutdown but that Previously had an Alternate Die Source Qualified and Released to Production, Cont'd					
BZT52C51-7-F	BZX84C10W-7-F	BZX84C24-13-F	BZX84C39S-7-F	BZX84C4V7S-7-F	BZX84C8V2W-7-F
BZT52C51S-7	BZX84C11-13-F	BZX84C24-7-F	BZX84C39T-7-F	BZX84C4V7T-7-F	BZX84C9V1-13-F
BZT52C5V1-13-F	BZX84C11-7-F	BZX84C24S-7-F	BZX84C39W-7-F	BZX84C4V7TS-7-F	BZX84C9V1-7-F
BZT52C5V1-7-F	BZX84C11S-7-F	BZX84C24T-7-F	BZX84C3V0-7-F	BZX84C4V7W-7-F	BZX84C9V1S-7-F
BZT52C5V1S-7-F	BZX84C11T-7-F	BZX84C24W-7-F	BZX84C3V0S-7-F	BZX84C51-13-F	BZX84C9V1T-7-F
BZT52C5V1T-7	BZX84C11W-7-F	BZX84C27-13-F	BZX84C3V0T-7-F	BZX84C51-7-F	BZX84C9V1W-7-F
BZT52C5V6-13-F	BZX84C12-13-F	BZX84C27-7-F	BZX84C3V0TS-7-F	BZX84C5V1-13-F	CTA2N1P-7-F
BZT52C5V6-7-F	BZX84C12-7-F	BZX84C27S-7-F	BZX84C3V0W-7-F	BZX84C5V1-7-F	D3Z12BF-7
BZT52C5V6S-7-F	BZX84C12S-7-F	BZX84C27T-7-F	BZX84C3V3-13-F	BZX84C5V1S-7-F	D3Z13BF-7
BZT52C5V6T-7	BZX84C12T-7-F	BZX84C27W-7-F	BZX84C3V3-7-F	BZX84C5V1T-7-F	D3Z33BF-7
BZT52C6V2-13-F	BZX84C12W-7-F	BZX84C2V4-13-F	BZX84C3V3S-7-F	BZX84C5V1TS-7-F	D3Z36BF-7
BZT52C6V2-7-F	BZX84C13-7-F	BZX84C2V4-7-F	BZX84C3V3T-7-F	BZX84C5V1W-7-F	D3Z3V0BF-7
BZT52C6V2S-7-F	BZX84C13S-7-F	BZX84C2V4S-7-F	BZX84C3V3TS-7-F	BZX84C5V6-13-F	D3Z3V3BF-7
BZT52C6V2T-7	BZX84C13T-7-F	BZX84C2V4T-7-F	BZX84C3V3W-7-F	BZX84C5V6-7-F	D3Z3V9BF-7
BZT52C6V8-13-F	BZX84C13W-7-F	BZX84C2V4TS-7-F	BZX84C3V6-13-F	BZX84C5V6S-7-F	D3Z4V7BF-7
BZT52C6V8-7-F	BZX84C15-7-F	BZX84C2V4W-7-F	BZX84C3V6-7-F	BZX84C5V6T-7-F	DCP69-13
BZT52C6V8S-7-F	BZX84C15S-7-F	BZX84C2V7-13-F	BZX84C3V6S-7-F	BZX84C5V6TS-7-F	DCP69-16-13
BZT52C6V8T-7	BZX84C15T-7-F	BZX84C2V7-7-F	BZX84C3V6T-7-F	BZX84C5V6W-7-F	DCP69-25-13
BZT52C7V5-13-F	BZX84C15W-7-F	BZX84C2V7S-7-F	BZX84C3V6TS-7-F	BZX84C6V2-13-F	DDZ10CSF-7
BZT52C7V5-7-F	BZX84C16-13-F	BZX84C2V7T-7-F	BZX84C3V6W-7-F	BZX84C6V2-7-F	DDZ12CSF-7
BZT52C7V5S-7-F	BZX84C16-7-F	BZX84C2V7TS-7-F	BZX84C3V9-13-F	BZX84C6V2S-7-F	DDZ16ASF-7
BZT52C7V5T-7	BZX84C16S-7-F	BZX84C2V7W-7-F	BZX84C3V9-7-F	BZX84C6V2T-7-F	DDZ18BSF-7
BZT52C8V2-13-F	BZX84C16T-7-F	BZX84C30-13-F	BZX84C3V9S-7-F	BZX84C6V2TS-7-F	DDZ18CSF-7
BZT52C8V2-7-F	BZX84C16W-7-F	BZX84C30-7-F	BZX84C3V9T-7-F	BZX84C6V2W-7-F	DDZ22DSF-7
BZT52C8V2S-7-F	BZX84C18-7-F	BZX84C30S-7-F	BZX84C3V9TS-7-F	BZX84C6V8-13-F	DDZ27DSF-7
BZT52C8V2T-7	BZX84C18S-7-F	BZX84C30T-7-F	BZX84C3V9W-7-F	BZX84C6V8-7-F	DDZ30BSF-7
BZT52C9V1-13-F	BZX84C18T-7-F	BZX84C30W-7-F	BZX84C43-13-F	BZX84C6V8S-7-F	DDZ3V6BSF-7
BZT52C9V1-7-F	BZX84C18W-7-F	BZX84C33-13-F	BZX84C43-7-F	BZX84C6V8T-7-F	DDZ4V7BSF-7
BZT52C9V1S-7-F	BZX84C20-13-F	BZX84C33-7-F	BZX84C47-13-F	BZX84C6V8W-7-F	DDZ7V5CSF-7
BZT52C9V1T-13	BZX84C20-7-F	BZX84C33S-7-F	BZX84C47-7-F	BZX84C7V5-13-F	DDZ9V1CSF-7
BZT52C9V1T-7	BZX84C20S-7-F	BZX84C33T-7-F	BZX84C4V3-13-F	BZX84C7V5-7-F	DFLT10A-7
BZT585B15T-7	BZX84C20T-7-F	BZX84C33W-7-F	BZX84C4V3-7-F	BZX84C7V5S-7-F	DFLT11A-7
BZT585B39T-7	BZX84C20W-7-F	BZX84C36-7-F	BZX84C4V3S-7-F	BZX84C7V5T-7-F	DFLT12A-7
BZX84B5V6-7-F	BZX84C22-13-F	BZX84C36S-7-F	BZX84C4V3T-7-F	BZX84C7V5W-7-F	DFLT13A-7
BZX84C10-13-F	BZX84C22-7-F	BZX84C36T-7-F	BZX84C4V3TS-7-F	BZX84C8V2-13-F	DFLT14A-7
BZX84C10-7-F	BZX84C22S-7-F	BZX84C36W-7-F	BZX84C4V3W-7-F	BZX84C8V2-7-F	DFLT15A-7
BZX84C10S-7-F	BZX84C22T-7-F	BZX84C39-13-F	BZX84C4V7-13-F	BZX84C8V2S-7-F	DFLT16A-7
BZX84C10T-7-F	BZX84C22W-7-F	BZX84C39-7-F	BZX84C4V7-7-F	BZX84C8V2T-7-F	DFLT17A-7

Table 7 - Parts Affected by KFAB Shutdown but that Previously had an Alternate Die Source Qualified and Released to Production, Cont'd					
DFLT18A-7	DRDN005W-7	DZ23C6V8-7-F	FCX491ATA	FMMT560-7	FMMTL618TA
DFLT20A-7	DRDP006W-7	DZ23C7V5-7-F	FCX495TA	FMMT560TA	FMMTL619TA
DFLT22A-7	DSM80100M-7	DZ23C8V2-7-F	FCX605TA	FMMT560TC	FMMTL718TA
DFLT24A-7	DSM80101M-7	DZ23C9V1-7-F	FCX617TA	FMMT589TA	FZT1047ATA
DFLT26A-7	DSS4320T-7	DZ9F10S92-7	FCX619-13R	FMMT591ATA	FZT1048ATA
DFLT27A-7	DSS4540X-13	DZ9F11S92-7	FCX619TA	FMMT591ATC	FZT1049ATA
DFLT28A-7	DSS5320T-7	DZ9F12S92-7	FCX688BTA	FMMT591TA	FZT1049ATC
DFLT30A-7	DSS60600MZ4-13	DZ9F13S92-7	FCX690BTA	FMMT593TA	FZT1051ATA
DFLT33A-7	DSS60601MZ4-13	DZ9F15S92-7	FCX705TA	FMMT593TC	FZT1051ATC
DFLT36A-7	DT955-7	DZ9F16S92-7	FCX717TA	FMMT596TA	FZT1053ATA
DFLT40A-7	DXT2222A-13	DZ9F18S92-7	FCX718TA	FMMT597TA	FZT1147ATA
DFLT43A-7	DXT2907A-13	DZ9F20S92-7	FCX789ATA	FMMT617TA	FZT1149ATA
DFLT45A-7	DXT3904-13	DZ9F22S92-7	FCX790ATA	FMMT617TC	FZT1151ATA
DFLT48A-7	DXT3906-13	DZ9F2V4S92-7	FMMT38CTA	FMMT618TA	FZT458TA
DFLT51A-7	DXT690BP5-13	DZ9F2V7S92-7	FMMT449TA	FMMT619-7	FZT489TA
DFLT5V0A-7	DXT790AP5-13	DZ9F3V0S92-7	FMMT451TA	FMMT619TA	FZT491ATA
DFLT6V0A-7	DXTN07100BP5-13	DZ9F3V3S92-7	FMMT455TA	FMMT619TC	FZT491TA
DFLT6V5A-7	DZ23C10-7-F	DZ9F3V6S92-7	FMMT458TA	FMMT619USTC	FZT493TA
DFLT7V0A-7	DZ23C11-7-F	DZ9F3V9S92-7	FMMT459TA	FMMT620TA	FZT549TA
DFLT7V5A-7	DZ23C12-7-F	DZ9F4V1S92-7	FMMT489TA	FMMT624TA	FZT560TA
DFLT8V0A-7	DZ23C13-7-F	DZ9F4V3S92-7	FMMT491ATA	FMMT624TC	FZT560TC
DFLT8V5A-7	DZ23C15-7-F	DZ9F4V7S92-7	FMMT491ATC	FMMT625TA	FZT589TA
DFLT9V0A-7	DZ23C18-7-F	DZ9F5V1S92-7	FMMT491TA	FMMT634TA	FZT591ATA
DJT4030P-13	DZ23C20-7-F	DZ9F5V6S92-7	FMMT491TC	FMMT6520TA	FZT591TA
DJT4031N-13	DZ23C22-7-F	DZ9F6V2S92-7	FMMT493ATA	FMMT717TA	FZT593TA
DLPT05-7-F	DZ23C24-7-F	DZ9F6V8S92-7	FMMT493TA	FMMT718TA	FZT600BTA
DMB53D0UV-13	DZ23C27-7-F	DZ9F7V5S92-7	FMMT493TC	FMMT718TC	FZT600TA
DMB53D0UV-7	DZ23C2V7-7-F	DZ9F8V2S92-7	FMMT494TA	FMMT720-7	FZT603TA
DMB54D0UDW-7	DZ23C33-7-F	DZ9F9V1S92-7	FMMT494TC	FMMT720TA	FZT605TA
DMB54D0UV-13	DZ23C3V0-7-F	DZT2222A-13	FMMT495TA	FMMT722TA	FZT605TC
DMB54D0UV-7	DZ23C3V3-7-F	DZT2907A-13	FMMT495TC	FMMT723TA	FZT649TA
DMMT2907A-7	DZ23C3V9-7-F	FCX1047ATA	FMMT497TA	FMMT734TA	FZT649TC
DMMT3904W-13-F	DZ23C43-7-F	FCX1051ATA	FMMT549ATA	FMMTA06TA	FZT651TA
DMMT3904W-7-F	DZ23C4V3-7-F	FCX1053A-13R	FMMT549TA	FMMTA13TA	FZT651TC
DMMT3906W-13-F	DZ23C4V7-7-F	FCX1053ATA	FMMT551TA	FMMTA14TA	FZT653TA
DMMT3906W-7-F	DZ23C5V1-7-F	FCX1147ATA	FMMT555TA	FMMTA42TA	FZT653TC
DMOZ20V-7	DZ23C5V6-7-F	FCX1149ATA	FMMT555TC	FMMTA42TC	FZT655TA
DMOZ33V-7	DZ23C6V2-7-F	FCX1151ATA	FMMT558TA	FMMTA56TA	FZT657TA

Table 7 - Parts Affected by KFAB Shutdown but that Previously had an Alternate Die Source Qualified and Released to Production, Cont'd					
FZT658TA	FZT953TA	MMBD4448HTC-7-F	MMBZ33VAL-7-F	MMBZ5230BT-7-F	MMBZ5237BW-7-F
FZT688BTA	FZT955TA	MMBD4448HTM-7-F	MMBZ5221B-7-F	MMBZ5230BTS-7-F	MMBZ5238B-7-F
FZT689BTA	FZT956TA	MMBD4448HTS-7-F	MMBZ5221BS-7-F	MMBZ5230BW-7-F	MMBZ5238BS-7-F
FZT690BTA	FZT957TA	MMBD4448HW-7-F	MMBZ5221BT-7-F	MMBZ5231B-13-F	MMBZ5238BTS-7-F
FZT692BTA	FZT957TC	MMBD4448V-7	MMBZ5221BTS-7-F	MMBZ5231B-7-F	MMBZ5239B-7-F
FZT694BTA	FZT958TA	MMBD4448W-7-F	MMBZ5221BW-7-F	MMBZ5231BS-7-F	MMBZ5239BS-7-F
FZT696BTA	FZT968TA	MMBT2222A-13	MMBZ5222B-7-F	MMBZ5231BT-7-F	MMBZ5239BT-7-F
FZT696BTC	GDZ10LP3-7	MMBT2222A-13-F	MMBZ5223B-7-F	MMBZ5231BTS-7-F	MMBZ5239BTS-7-F
FZT7053TA	GDZ11LP3-7	MMBT2222A-7-F	MMBZ5223BS-7-F	MMBZ5231BW-7-F	MMBZ5239BW-7-F
FZT705TA	GDZ12LP3-7	MMBT2222AT-7-F	MMBZ5223BT-7-F	MMBZ5232B-7-F	MMBZ5240B-7-F
FZT705TC	GDZ13LP3-7	MMBT2907A-13-F	MMBZ5223BTS-7-F	MMBZ5232BS-7-F	MMBZ5240BS-7-F
FZT717TA	GDZ15LP3-7	MMBT2907A-7-F	MMBZ5223BW-7-F	MMBZ5232BT-7-F	MMBZ5240BT-7-F
FZT749TA	GDZ16LP3-7	MMBT2907AT-7-F	MMBZ5225B-7-F	MMBZ5232BTS-7-F	MMBZ5240BTS-7-F
FZT749TC	GDZ18LP3-7	MMBT3904-13-F	MMBZ5225BS-7-F	MMBZ5232BW-7-F	MMBZ5240BW-7-F
FZT751TA	GDZ20LP3-7	MMBT3904-7-F	MMBZ5225BT-7-F	MMBZ5233B-7-F	MMBZ5241B-7-F
FZT751TC	GDZ2V4LP3-7	MMBT3904T-13-F	MMBZ5225BW-7-F	MMBZ5233BS-7-F	MMBZ5241BS-7-F
FZT753TA	GDZ2V5LP3-7	MMBT3904T-7-F	MMBZ5226B-7-F	MMBZ5233BTS-7-F	MMBZ5241BT-7-F
FZT753TC	GDZ2V7LP3-7	MMBT3906-13-F	MMBZ5226BS-7-F	MMBZ5233BW-7-F	MMBZ5241BW-7-F
FZT755TA	GDZ3V0LP3-7	MMBT3906-7-F	MMBZ5226BT-7-F	MMBZ5234B-7-F	MMBZ5242B-7-F
FZT757TA	GDZ3V3LP3-7	MMBT3906T-13-F	MMBZ5226BTS-7-F	MMBZ5234BS-7-F	MMBZ5242BS-7-F
FZT758TA	GDZ3V6LP3-7	MMBT3906T-7-F	MMBZ5226BW-7-F	MMBZ5234BT-7-F	MMBZ5242BT-7-F
FZT788BTA	GDZ6V8BLP3-7	MMBT4124-7-F	MMBZ5227B-7-F	MMBZ5234BTS-7-F	MMBZ5242BTS-7-F
FZT789ATA	GDZ9V1LP3-7	MMBT4126-7-F	MMBZ5227BS-7-F	MMBZ5234BW-7-F	MMBZ5242BW-13-F
FZT790ATA	GZ23C5V6T-7	MMBT4401-13-F	MMBZ5227BT-7-F	MMBZ5235B-7-F	MMBZ5242BW-7-F
FZT790ATC	LBN150B01-7	MMBT4401-7-F	MMBZ5227BTS-7-F	MMBZ5235BS-7-F	MMBZ5243B-7-F
FZT792ATA	MJD340-13	MMBT4401T-7-F	MMBZ5227BW-7-F	MMBZ5235BT-7-F	MMBZ5243BS-7-F
FZT795ATA	MJD350-13	MMBT4403-13-F	MMBZ5228B-7-F	MMBZ5235BTS-7-F	MMBZ5243BT-7-F
FZT849TA	MMBD2004S-7-F	MMBT4403-7-F	MMBZ5228BS-7-F	MMBZ5235BW-7-F	MMBZ5243BTS-7-F
FZT851TA	MMBD2004SW-7-F	MMBTA05-7-F	MMBZ5228BT-7-F	MMBZ5236B-7-F	MMBZ5243BW-7-F
FZT853TA	MMBD3004A-7-F	MMBTA06-7-F	MMBZ5228BTS-7-F	MMBZ5236BS-7-F	MMBZ5244B-7-F
FZT855TA	MMBD3004C-7-F	MMBTA42-7-F	MMBZ5228BW-7-F	MMBZ5236BT-7-F	MMBZ5245B-7-F
FZT857TA	MMBD3004S-13-F	MMBTA55-7-F	MMBZ5229B-7-F	MMBZ5236BTS-7-F	MMBZ5245BS-7-F
FZT869TA	MMBD3004S-7-F	MMBTA56-7-F	MMBZ5229BS-7-F	MMBZ5236BW-7-F	MMBZ5245BT-7-F
FZT948TA	MMBD4448H-7-F	MMBTA92-7-F	MMBZ5229BT-7-F	MMBZ5237B-13-F	MMBZ5245BTS-7-F
FZT949TA	MMBD4448HCDW-7-F	MMBZ15VAL-7-F	MMBZ5229BTS-7-F	MMBZ5237B-7-F	MMBZ5245BW-7-F
FZT951TA	MMBD4448HSDW-7-F	MMBZ15VDL-7-F	MMBZ5229BW-7-F	MMBZ5237BS-7-F	MMBZ5246B-7-F
FZT951TC	MMBD4448HT-7-F	MMBZ27VAL-7-F	MMBZ5230B-7-F	MMBZ5237BT-7-F	MMBZ5246BS-7-F
FZT953-7	MMBD4448HTA-7-F	MMBZ27VCL-7-F	MMBZ5230BS-7-F	MMBZ5237BTS-7-F	MMBZ5246BT-7-F

Table 7 - Parts Affected by KFAB Shutdown but that Previously had an Alternate Die Source Qualified and Released to Production, Cont'd					
MMBZ5246BTS-7-F	MMBZ5257B-7-F	MMSTA06-7-F	MMSZ5237BS-7-F	MMSZ5259BS-7-F	TBZ363C7V0-7-F
MMBZ5246BW-7-F	MMBZ5257BS-7-F	MMSTA42-7-F	MMSZ5238B-7-F	PD3S0230-7	ZDT1048TA
MMBZ5248B-7-F	MMBZ5257BT-7-F	MMSTA55-7-F	MMSZ5238BS-7-F	PD3SD2580-7	ZDT1049TA
MMBZ5248BS-7-F	MMBZ5257BTS-7-F	MMSTA56-7-F	MMSZ5239B-7-F	SD103ASDM-7-F	ZDT1053TA
MMBZ5248BT-7-F	MMBZ5257BW-7-F	MMSTA92-7-F	MMSZ5239BS-7-F	SD103ATW-7-F	ZDT6753TA
MMBZ5248BTS-7-F	MMBZ5258B-7-F	MMSZ5221B-7-F	MMSZ5240B-7-F	SD103AW-13-F	ZDT6753TC
MMBZ5248BW-13-F	MMBZ5258BS-7-F	MMSZ5221BS-7-F	MMSZ5240BS-7-F	SD103AW-7-F	ZDT6790TA
MMBZ5248BW-7-F	MMBZ5258BT-7-F	MMSZ5223B-7-F	MMSZ5241B-7-F	SD103AWS-7-F	ZDT6790TC
MMBZ5250B-7-F	MMBZ5258BTS-7-F	MMSZ5223BS-13-F	MMSZ5241BS-7-F	SD103BW-7-F	ZDT694TA
MMBZ5250BS-7-F	MMBZ5258BW-7-F	MMSZ5223BS-7-F	MMSZ5242B-7-F	SD103BWS-7-F	ZDT749TA
MMBZ5250BT-7-F	MMBZ5259B-7-F	MMSZ5225B-7-F	MMSZ5242BS-7-F	SD103CW-13-F	ZDT749TC
MMBZ5250BTS-7-F	MMBZ5259BS-7-F	MMSZ5225BS-7-F	MMSZ5243B-7-F	SD103CW-7-F	ZDT751TA
MMBZ5250BW-7-F	MMBZ5259BT-7-F	MMSZ5226B-7-F	MMSZ5243BS-7-F	SD103CWS-7-F	ZDT753TA
MMBZ5251B-7-F	MMBZ5259BTS-7-F	MMSZ5226BS-7-F	MMSZ5245B-7-F	SDA004-7	ZDT795ATA
MMBZ5251BS-7-F	MMBZ5259BW-7-F	MMSZ5227B-7-F	MMSZ5245BS-7-F	SDA006-7	ZHB6790TA
MMBZ5251BT-7-F	MMBZ5V6AL-7-F	MMSZ5227BS-7-F	MMSZ5246B-7-F	SDM10P45-7-F	ZHB6792TA
MMBZ5251BTS-7-F	MMBZ6V8AL-7-F	MMSZ5228B-7-F	MMSZ5246BS-7-F	SDM20U30-7	ZTX1048A
MMBZ5251BW-7-F	MMBZ9V1AL-7-F	MMSZ5228BS-7-F	MMSZ5248B-7-F	SDM20U30LP-7	ZTX1048ASTZ
MMBZ5252B-7-F	MMDT2227-7-F	MMSZ5229B-7-F	MMSZ5248BS-7-F	SMAZ10-13-F	ZTX1049A
MMBZ5252BS-7-F	MMDT2227M-7	MMSZ5229BS-7-F	MMSZ5250B-7-F	SMAZ12-13-F	ZTX1049ASTZ
MMBZ5252BT-7-F	MMDT2907A-7-F	MMSZ5230B-13-F	MMSZ5250BS-7-F	SMAZ15-13-F	ZTX1051A
MMBZ5252BW-13-F	MMDT3906-7-F	MMSZ5230B-7-F	MMSZ5251B-7-F	SMAZ16-13-F	ZTX1051ASTZ
MMBZ5252BW-7-F	MMDT3946-7-F	MMSZ5230BS-7-F	MMSZ5251BS-7-F	SMAZ18-13-F	ZTX1053A
MMBZ5254B-7-F	MMDT3946-7R-F	MMSZ5231B-13-F	MMSZ5252B-13-F	SMAZ20-13-F	ZTX1053ASTZ
MMBZ5254BS-7-F	MMDT4126-7-F	MMSZ5231B-7-F	MMSZ5252B-7-F	SMAZ22-13-F	ZTX1147A
MMBZ5254BT-7-F	MMDT4146-7-F	MMSZ5231BS-7-F	MMSZ5252BS-7-F	SMAZ24-13-F	ZTX1149A
MMBZ5254BTS-7-F	MMDT4413-7-F	MMSZ5232B-7-F	MMSZ5254B-7-F	SMAZ27-13-F	ZTX1149ASTZ
MMBZ5254BW-7-F	MMDT5451-7-F	MMSZ5232BS-7-F	MMSZ5254BS-7-F	SMAZ30-13-F	ZTX1151A
MMBZ5255B-7-F	MMST2222A-7-F	MMSZ5233B-7-F	MMSZ5255B-7-F	SMAZ33-13-F	ZTX449
MMBZ5255BS-7-F	MMST2907A-7-F	MMSZ5233BS-7-F	MMSZ5255BS-7-F	SMAZ36-13-F	ZTX449STZ
MMBZ5255BT-7-F	MMST3904-7-F	MMSZ5234B-7-F	MMSZ5256B-13-F	SMAZ39-13-F	ZTX455
MMBZ5255BTS-7-F	MMST3906-7-F	MMSZ5234BS-13-F	MMSZ5256B-7-F	SMAZ6V2-13-F	ZTX455STZ
MMBZ5255BW-7-F	MMST4124-7-F	MMSZ5234BS-7-F	MMSZ5256BS-7-F	SMAZ6V8-13-F	ZTX458
MMBZ5256B-7-F	MMST4126-7-F	MMSZ5235B-7-F	MMSZ5257B-7-F	SMAZ7V5-13-F	ZTX458STZ
MMBZ5256BS-7-F	MMST4401-7-F	MMSZ5235BS-7-F	MMSZ5257BS-7-F	SMAZ8V2-13-F	ZTX549
MMBZ5256BT-7-F	MMST5551-7-F	MMSZ5236B-7-F	MMSZ5258B-7-F	SMAZ9V1-13-F	ZTX549STZ
MMBZ5256BTS-7-F	MMST6427-7-F	MMSZ5236BS-7-F	MMSZ5258BS-7-F	TBZ363C5V5-7-F	ZTX555
MMBZ5256BW-7-F	MMSTA05-7-F	MMSZ5237B-7-F	MMSZ5259B-7-F	TBZ363C6V4-7-F	ZTX558

Table 7 - Parts Affected by KFAB Shutdown but that Previously had an Alternate Die Source Qualified and Released to Production, Cont'd				
ZTX558STZ	ZUMT591TA	ZXT790AKTC	ZXTN25012EFHTA	ZXTP25020CFHTA
ZTX560	ZUMT618TA	ZXT849KTC	ZXTN25012EZTA	ZXTP25020DGTA
ZTX560STZ	ZUMT619TA	ZXT951KTC	ZXTN25015DFHTA	ZXTP25020DZTA
ZTX618	ZUMT619TC	ZXT953KTC	ZXTN25020BFHTA	ZXTP25040DFHTA
ZTX618STZ	ZUMT717TA	ZXTC2045E6TA	ZXTN25020CFHTA	ZXTP25040DFLTA
ZTX651STZ	ZUMT718TA	ZXTC2061E6TA	ZXTN25020DGTA	ZXTP25040DZTA
ZTX718	ZUMT720TA	ZXTC2062E6TA	ZXTN25020DZTA	ZXTP25060BFHTA
ZTX718STZ	ZX5T1951GTA	ZXTC2063E6TA	ZXTN25040DFHTA	ZXTP25100CZTA
ZTX849	ZX5T2E6TA	ZXTC6717MCTA	ZXTN25060BFHTA	ZXTP25140BFHTA
ZTX849STZ	ZX5T849GTA	ZXTC6718MCTA	ZXTN25100DGTA	ZXTP5401FLTA
ZTX851	ZX5T851GTA	ZXTC6719MCTA	ZXTN4004KTC	ZXTP5401GTA
ZTX851STZ	ZX5T853GTA	ZXTC6720MCTA	ZXTN5551FLTA	ZXTP717MATA
ZTX853	ZX5T949GTA	ZXTD09N50DE6TA	ZXTN617MATA	ZXTP718MATA
ZTX853STZ	ZX5T951GTA	ZXTD2090E6TA	ZXTN618MATA	ZXTP720MATA
ZTX855	ZX5T953GTA	ZXTD4591E6TA	ZXTN619MATA	ZXTP722MATA
ZTX855STZ	ZX5T955GTA	ZXTD617MCTA	ZXTN620MATA	
ZTX857	ZX5T955GTC	ZXTD618MCTA	ZXTP03200BGTA	
ZTX857STZ	ZXGD3001E6TA	ZXTD619MCTA	ZXTP19020DGTA	
ZTX869	ZXGD3002E6TA	ZXTD6717E6TA	ZXTP19020DZTA	
ZTX869STZ	ZXGD3003E6TA	ZXTD717MCTA	ZXTP19060CGTA	
ZTX948	ZXGD3004E6TA	ZXTD718MCTA	ZXTP19060CZTA	
ZTX948STZ	ZXT1053AKTC	ZXTD720MCTA	ZXTP19100CGTA	
ZTX949	ZXT10N15DE6TA	ZXTN04120HKTC	ZXTP2006E6TA	
ZTX949STZ	ZXT10N20DE6TA	ZXTN04120HP5TC	ZXTP2008GTA	
ZTX951	ZXT10N50DE6TA	ZXTN19020DGTA	ZXTP2012GTA	
ZTX951STZ	ZXT10P12DE6TA	ZXTN19020DZTA	ZXTP2013G-7	
ZTX953	ZXT10P20DE6TA	ZXTN19055DZTA	ZXTP2013GTA	
ZTX953STZ	ZXT10P20DE6TC	ZXTN19060CGTA	ZXTP2013ZTA	
ZTX955	ZXT10P40DE6TA	ZXTN19100CGTA	ZXTP2014GTA	
ZTX955STZ	ZXT12P12DXTA	ZXTN19100CZTA	ZXTP2014GTC	
ZTX956	ZXT12P40DXTA	ZXTN2005GTA	ZXTP2014ZTA	
ZTX956STZ	ZXT13N15DE6TA	ZXTN2005ZTA	ZXTP2039FTA	
ZTX957	ZXT13N20DE6TA	ZXTN2007GTA	ZXTP2039FTC	
ZTX957STZ	ZXT13N50DE6TA	ZXTN2010GTA	ZXTP2041FTA	
ZTX958	ZXT13P12DE6TA	ZXTN2011GTA	ZXTP25012EFHTA	
ZTX958STZ	ZXT13P20DE6TA	ZXTN2038FTA	ZXTP25012EZTA	
ZTX968	ZXT13P40DE6TA	ZXTN2040FTA	ZXTP25015DFHTA	
ZTX968STZ	ZXT690BKTC	ZXTN2097F-7	ZXTP25020BFHTA	

Certificate of Design, Construction & Qualification

Description: Qualification of B345AF

	Category				Qual Device 1		QBS Device 1	
	Product	Part Number			B345AF-13		B340AF-13	
	Assembly	Package Type			SMAF		SMAF	
	Assembly	Package Size			2.6*5.0*1.0 mm^3		2.6*5.0*1.0 mm^3	
	Wafer	Die Name(s)			DS004T		DS004T	
	Wafer	Die Size (W/L/Thickness) - After Saw			1354*1354*250mm		1354*1354*250mm	
	Wafer	Die Process / Technology			SKY		SKY	
	Wafer	Wafer FAB/ Location			SFAB		SFAB	
	Wafer	Wafer Diameter			6inch		6inch	
	Wafer	Front Metal Type			Ti/Ni/Ag		Ti/Ni/Ag	
	Wafer	Front Metal Layer Number/ Thickness			2.9um		2.9um	
	Wafer	Back Metal Type (All Layers)			Ti/Ni/Ag		Ti/Ni/Ag	
	Wafer	No of masks Steps			3		3	
	Assembly	Die quantity per package (e.g. single or dual dies)			Single		Single	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			Solder		Solder	
	Assembly	Die Attach Material/ Supplier			Solder Paste/REDSUN		Solder Paste/REDSUN	
	Assembly	Bond Wire/Clip Bond Material/ Supplier			Cu Clip/JIH LONG		Cu Clip/JIH LONG	
	Assembly	Bond Type (at Die)			Soldering		Soldering	
	Assembly	Bond Type (at LF)			Soldering		Soldering	
	Assembly	No. of bond over active area			1 clip		1 clip	
	Assembly	Glass Transistion Temp			150 ℃		150 ℃	
	Assembly	Terminal Finish (Plating) Material			Tin		Tin	
	Assembly	Wire Diameter			clip		clip	
	Assembly	Leadframe Type			CDA19400		CDA19400	
	Assembly	Leadframe Material			Cu		Cu	
	Assembly	Lead Frame Manufacturer			JIH LONG INDUSTRY CO., LTD.		JIH LONG INDUSTRY CO., LTD.	
	Assembly	Molding Compound Type			EME-E110G		EME-E110G	
	Assembly	Mold Compound Material Manufacturer			Tsu Kong Co.,Ltd		Tsu Kong Co.,Ltd	
	Assembly	Green Compound (Yes/No)			Yes		Yes	
	Assembly	Lead-Free (Yes/No)			Yes		Yes	
	Assembly	Assembly Site/ Location			ERIS/TW		ERIS/TW	
	Assembly	Test Site/ Location			ERIS/TW		ERIS/TW	
	Product	Max Junction Temp			150*C		150*C	
	Product	DataSheet			DS38974		DS38974	
	Product	DataSheet			DS38974		DS38974	

Reliability and Characterization Testing

# in AEC-Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	Pass	QBS by qual device 1	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass	QBS by qual device 1	Pass
		IR reflow 260C	3 cycles			X	Pass	QBS by qual device 1	Pass
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass	QBS by qual device 1	Pass
4	PARAMETRIC VERIFICATION (PV)	-55C, 25C, 85C, 125C, 150C	Operating Range, Per Data Sheet	0/25	3 wafer lots	X	Pass	QBS by qual device 1	Pass
	FORWARD SURGE	MIL-750D, METHOD 4066	PER DATA SHEET	0/45	3 wafer lots	X	Pass	QBS by qual device 1	Pass
5	HTRB	Ta=150℃ or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots	X	Pass	QBS by qual device 1	Pass
			500 Hrs	0/77		X	Pass	QBS by qual device 1	Pass
			1000 Hrs	0/77		X	Pass	QBS by qual device 1	Pass
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass	QBS by qual device 1	Pass
			500 Cycles	0/77		X	Pass	QBS by qual device 1	Pass
			1000 Cycles	0/77		X	Pass	QBS by qual device 1	Pass
8	PCT/AC	Ta=121℃ 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	Pass	QBS by qual device 1	Pass
9 alt	H3TRB	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias. JESD22A-101	168 Hrs	0/77	3 wafer lots	X	Pass	QBS by qual device 1	Pass
			500 Hrs	0/77		X	Pass	QBS by qual device 1	Pass
			1000 Hrs	0/77		X	Pass	QBS by qual device 1	Pass
10	IOL	MIL-STD-750 Method 1037 (N/A for TVS)	2520 Cycles	0/77	3 wafer lots	X	Pass	QBS by qual device 1	Pass
			7560 Cycles	0/77		X	Pass	QBS by qual device 1	Pass
			15000 Cycles	0/77		X	Pass	QBS by qual device 1	Pass
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot	X	Pass	QBS by qual device 1	Pass
		CDM (AEC-Q100-005)	PER DATA SHEET	0/30	1 wafer lot	X	Pass	QBS by qual device 1	Pass
		MM (AEC-Q101-002)	PER DATA SHEET	0/30	1 wafer lot				
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot	X	Pass	QBS by qual device 1	Pass
13	Package Physical Dimemsions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot	X	Pass	QBS by qual device 1	Pass
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	X	Pass	QBS by qual device 1	Pass
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	Pass	QBS by qual device 1	Pass
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	Pass	QBS by qual device 1	Pass
25	Die Shear	MIL-STD-750 (2017)	Cpk>1.66	0/5	1 Assembly lot	X	Pass	QBS by qual device 1	Pass

Summary:

Submitted By: Chen HongLiang

Approved By:

Certificate of Design, Construction & Qualification

Description: Qualification of SFAB die at Eris TW

	Category					Qual Device 1		QBS Source Device 1	
	Product	Part Number				B340AE-13		B345AF-13	
	Assembly	Package Type				SMA		SMAF	
	Assembly	Package Size				2.92*5.59*2.3mm		2.6*5.0*1.0 mm^3	
	Wafer	Die Name(s)				DS004		DS004T	
	Wafer	Die Size (W/L/Thickness) - After Saw				1.354*1.354*0.29mm		1.354*1.354*0.25mm	
	Wafer	Die Process / Technology				SKY		SKY	
	Wafer	Wafer FAB/ Location				SFAB		SFAB	
	Wafer	Wafer Diameter				6inch		6inch	
	Wafer	Front Metal Type				Ti/Ni/Ag		Ti/Ni/Ag	
	Wafer	Front Metal Layer Number/ Thickness				2.9um		2.9um	
	Wafer	Back Metal Type (All Layers)				Ti/Ni/Ag		Ti/Ni/Ag	
	Wafer	Back Metal Thickness (All Layers)				N/A		N/A	
	Wafer	Die Conforming Coating (Passivation)				None		None	
	Wafer	Die passivation thickness range				N/A		N/A	
	Wafer	No of masks Steps				3		3	
	Assembly	Die quantity per package (e.g. single or dual dies)				Single		Single	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)				Solder		Solder	
	Assembly	Die Attach Material/ Supplier				Solder Paste/REDSUN		Solder Paste/REDSUN	
	Assembly	Bond Wire/Clip Bond Material/ Supplier				Cu Clip/JIH LONG		Cu Clip/JIH LONG	
	Assembly	Bond Type (at Die)				Soldering		Soldering	
	Assembly	Bond Type (at LF)				Soldering		Soldering	
	Assembly	No. of bond over active area				1 clip		1 clip	
	Assembly	Glass Transistion Temp				150 ℃		150 ℃	
	Assembly	Terminal Finish (Plating) Material				Tin		Tin	
	Assembly	Header plating (Die Land Area)				N/A		N/A	
	Assembly	Wire Diameter				clip		clip	
	Assembly	Leadframe Type				CDA19210		CDA19400	
	Assembly	Leadframe Material				Cu		Cu	
	Assembly	Lead Frame Manufacturer				JIH LONG INDUSTRY CO., LTD.		JIH LONG INDUSTRY CO., LTD.	
	Assembly	Molding Compound Type				EME-E110G		EME-E110G	
	Assembly	Mold Compound Material Manufacturer				Tsu Kong Co.,Ltd		Tsu Kong Co.,Ltd	
	Assembly	Green Compound (Yes/No)				Yes		Yes	
	Assembly	Lead-Free (Yes/No)				Yes		Yes	
	Assembly	Assembly Site/ Location				ERIS/TW		ERIS/TW	
	Assembly	Test Site/ Location				ERIS/TW		ERIS/TW	
	Product	Max Junction Temp				150°C		150*C	
	Product	DataSheet				DS39236		DS38974	

Reliability and Characterization Testing

# in AEC-Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	pass	X	Pass
		IR reflow 260C	3 cycles			X	pass	X	Pass
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	pass	X	Pass
4	PARAMETRIC VERIFICATION (PV)	-55C, 25C, 85C, 125C, 150C	Operating Range, Per Data Sheet	0/25	3 wafer lots	X	pass	X	Pass
	FORWARD SURGE	MIL-750D, METHOD 4066	PER DATA SHEET	0/45	3 wafer lots	X	pass	X	Pass
5	HTRB	Ta=150°C or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots	X	pass	X	Pass
			500 Hrs	0/77		X	pass	X	Pass
			1000 Hrs	0/77		X	pass	X	Pass
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	pass	X	Pass
			500 Cycles	0/77		X	pass	X	Pass
			1000 Cycles	0/77		X	pass	X	Pass
7b	Wire Bond Integrity	MIL-STD-750, Method 2037 (For bonding of dissimilar metals, eg: Au/Al)	500 Hrs	0/5	3 Assembly lots			X	Pass
8	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	pass	X	Pass
9 alt	H3TRB	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias. JESD22A-101	168 Hrs	0/77	3 wafer lots	X	pass	X	Pass
			500 Hrs	0/77		X	pass	X	Pass
			1000 Hrs	0/77		X	pass	X	Pass
10	IOL	MIL-STD-750 Method 1037 (N/A for TVS)	2520 Cycles	0/77	3 wafer lots	X	pass	X	Pass
			7560 Cycles	0/77		X	pass	X	Pass
			15000 Cycles	0/77		X	pass	X	Pass
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot	X	pass	X	Pass
		CDM (AEC-Q100-005)	PER DATA SHEET	0/30	1 wafer lot	X	pass	X	Pass
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot	X	pass	X	Pass
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	X	pass	X	Pass
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	pass	X	Pass
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	pass	X	Pass
25	Die Shear	MIL-STD-750 (2017)	Cpk>1.66	0/5	1 Assembly lot	X	pass	X	Pass

Summary: ___ _____Chen HongLiang 2016/11/10_____

Submitted By: Chen HongLiang 2016/11/10

Approved By:

Certificate of Design, Constuction & Qualification

Description: Qualification of SFAB SKY devices at Eris TW

	Category				Qual Device 1		Qual Device 2		QBS Source Device 1		QBS Source Device 2	
	Product	Part Number			B3100BE-13		B540CE-13		B345AF-13		B340AE-13	
	Assembly	Package Type			SMB		SMC		SMAF		SMA	
	Assembly	Package Size			3.6mm*5.3mm*2.1mm		5.8mm*8mm*2.1mm		2.6*5.0*1.0 mm^3		2.92*5.59*2.3mm	
	Wafer	Die Name(s)			DM022		DM028		DS004T		DS004	
	Wafer	Die Size (W/L/Thickness) - After Saw			1.394*1.394*0.28mm		1.778*1.778*0.28mm		1.354*1.354*0.25mm		1.354*1.354*0.29mm	
	Wafer	Die Process / Technology			SKY		SKY		SKY		SKY	
	Wafer	Wafer FAB/ Location			SFAB		SFAB		SFAB		SFAB	
	Wafer	Wafer Diameter			6inch		6inch		6inch		6inch	
	Wafer	Front Metal Type			Ti/Ni/Ag		Ti/Ni/Ag		Ti/Ni/Ag		Ti/Ni/Ag	
	Wafer	Front Metal Layer Number/ Thickness			2.9um		2.9um		2.9um		2.9um	
	Wafer	Back Metal Type (All Layers)			Ti/Ni/Ag		Ti/Ni/Ag		Ti/Ni/Ag		Ti/Ni/Ag	
	Wafer	No of masks Steps			3		3		3		3	
	Assembly	Die quantity per package (e.g. single or dual dies)			Single		single		Single		Single	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			Solder		Solder		Solder		Solder	
	Assembly	Die Attach Material/ Supplier			Solder Paste/Everteam		Solder Paste/Everteam		Solder Paste/REDSUN		Solder Paste/REDSUN	
	Assembly	Bond Wire/Clip Bond Material/ Supplier			Cu Clip/JIH LONG		Cu Clip/JIH LONG		Cu Clip/JIH LONG		Cu Clip/JIH LONG	
	Assembly	Bond Type (at Die)			Soldering		solder		Soldering		Soldering	
	Assembly	Bond Type (at LF)			Soldering		solder		Soldering		Soldering	
	Assembly	No. of bond over active area			1 clip		1 clip		1 clip		1 clip	
	Assembly	Glass Transistion Temp			150 ℃		150 ℃		150 ℃		150 ℃	
	Assembly	Terminal Finish (Plating) Material			Tin		Tin		Tin		Tin	
	Assembly	Wire Diameter			clip		clip		clip		clip	
	Assembly	Leadframe Type			CDA19210		CDA19210		CDA19400		CDA19210	
	Assembly	Leadframe Material			Cu		Cu		Cu		Cu	
	Assembly	Lead Frame Manufacturer			JIH LONG INDUSTRY CO., LTD.		JIH LONG INDUSTRY CO., LTD.		JIH LONG INDUSTRY CO., LTD.		JIH LONG INDUSTRY CO., LTD.	
	Assembly	Molding Compound Type			EME-E110G		EME-E110G		EME-E110G		EME-E110G	
	Assembly	Mold Compound Material Manufacturer			Tsu Kong Co.,Ltd		Tsu Kong Co.,Ltd		Tsu Kong Co.,Ltd		Tsu Kong Co.,Ltd	
	Assembly	Green Compound (Yes/No)			Yes		Yes		Yes		Yes	
	Assembly	Lead-Free (Yes/No)			Yes		Yes		Yes		Yes	
	Assembly	Assembly Site/ Location			ERIS/TW		Eris/Taiwan		ERIS/TW		ERIS/TW	
	Assembly	Test Site/ Location			ERIS/TW		Eris/Taiwan		ERIS/TW		ERIS/TW	
	Product	Max Junction Temp			150°C		150°C		150°C		150°C	
	Product	DataSheet			DS39460		DS39459		DS38974		DS39236	

Reliability and Characterization Testing

# in AEC-Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	pass
		Soak 85C, 85% RH	168Hrs			X	Pass	X	Pass	X	Pass	X	pass
		IR reflow 260C	3 cycles			X	Pass	X	Pass	X	Pass	X	pass
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass	X	Pass	X	Pass	X	pass
4	PARAMETRIC VERIFICATION (PV)	-55C, 25C, 85C, 125C, 150C	Operating Range, Per Data Sheet	0/25	3 wafer lots	X	Pass	X	Pass	X	Pass	X	pass
	FORWARD SURGE	MIL-750D, METHOD 4066	PER DATA SHEET	0/45	3 wafer lots	X	Pass	X	Pass	X	Pass	X	pass
5	HTRB	Ta=150°C or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	pass
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	pass
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	pass
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	pass
			500 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	pass
			1000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	pass
8	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	pass
9 alt	H3TRB	Ta=85°C, 85% RH, with 80% Maximum Reverse Bias. JESD22A-101	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	pass
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	pass
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	pass
10	IOL	MIL-STD-750 Method 1037 (N/A for TVS)	2520 Cycles	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	pass
			7560 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	pass
			15000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	pass
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot	X	Pass	X	Pass	X	Pass	X	pass
		CDM (AEC-Q100-005)	PER DATA SHEET	0/30	1 wafer lot	X	Pass	X	Pass	X	Pass	X	pass
		MM (AEC-Q101-002)	PER DATA SHEET	0/30	1 wafer lot								
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	pass
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	pass
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	pass
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	pass
25	Die Shear	MIL-STD-750 (2017)	Cpk>1.66	0/5	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	pass

Summary:
Submitted By: Chen HongLiang 2017-2/24
Approved By: Chen HongLiang

Certificate of Design, Construction & Qualification

Description: Qualification of Phenitec switching diodes

	Category				Qual Device 1		Qual Device 2		Qual Device 3		Qual Device 4	
	Product	Part Number			BAV199DW-7-F		BAV199Q-7-F		BAS116V-7		BAS521LP-7	
	Assembly	Package Type			SOT363		SOT23		SOT563		DFN1006-2	
	Assembly	Package Size			2.15*2.1*1.0		2.9*2.4*1.0		1.6*1.6*0.6		1.0*0.6*0.5	
	Wafer	Die Name(s)			5DS11MT (new die name: 5DS11DTJ)		5DS11M (new die name: 5DS11DHJ)		5DS11MT (new die name: 5DS11DTJ)		5DS31MT (new die name: 5DS31DTJ)	
	Wafer	Die Size (W/L/Thickness) - After Saw			0.28*0.28*0.15mm		0.28*0.28*0.23mm		0.28*0.28*0.15mm		0.41*0.41*0.15mm	
	Wafer	Die Process / Technology			bipolar		bipolar		bipolar		bipolar	
	Wafer	Wafer FAB/ Location			Phenitec/Okayama		Phenitec/Okayama		Phenitec/Okayama		Phenitec/Okayama	
	Wafer	Wafer Diameter			5''		5''		5''		5''	
	Wafer	Front Metal Type			AlSiCu		AlSiCu		AlSiCu		AlSiCu	
	Wafer	Front Metal Layer Number/ Thickness			1/2.5um		1/2.5um		1/2.5um		1/2.5um	
	Wafer	Number of Poly Layers			0		0		0		0	
	Wafer	Back Metal Type (All Layers)			AuAs-Au		AuAs-Au		AuAs-Au		AuAs-Au	
	Wafer	Back Metal Thickness (All Layers)			0.9um		0.9um		0.9um		0.9um	
	Wafer	Die Conforming Coating (Passivation)			PSG+NSG		PSG+NSG		PSG+NSG		PSG+NSG	
	Wafer	Die passivation thickness range			8000A		8000A		8000A		8000A	
	Wafer	No of masks Steps			4		4		4		4	
	Assembly	Die quantity per package (e.g. single or dual dies)			4		2		2		1	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			EUTECTIC		Eutectic		Eutectic		EPOXY	
	Assembly	Die Attach Material/ Supplier			Eutectic Au		Eutectic Au		Eutectic Au		QMI519	
	Assembly	Bond Wire/Clip Bond Material/ Supplier			Cu		Au		Au		Au	
	Assembly	Bond Type (at Die)			Thermo-Ultrasonic		Thermo-Ultrasonic		Thermo-Ultrasonic		Thermo-Ultrasonic	
	Assembly	Bond Type (at LF)			Thermo-Ultrasonic		Thermo-Ultrasonic		Thermo-Ultrasonic		Thermo-Ultrasonic	
	Assembly	No. of bond over active area			1		1		1		1	
	Assembly	Glass Transistion Temp			120C		160℃		120C		135C	
	Assembly	Terminal Finish (Plating) Material			100% Matte Tin		100% Matte Tin		100% Matte Tin		NiPdAu	
	Assembly	Header plating (Die Land Area)			Ag		Ag		Ag		Ag	
	Assembly	Wire Diameter			1.0mil		0.7 mil		0.8 mil		0.8 mil	
	Assembly	Leadframe Type			SOT-363G		SOT23A		SOT563D		SLP1006P2	
	Assembly	Leadframe Material			Alloy 42		Alloy 42		EFTEC-64T		C7025HH	
	Assembly	Lead Frame Manufacturer			PBE/MHT		PBE/MHT		MHT/VAST		PBE/MHT	
	Assembly	Molding Compound Type			CEL-1702HF9 SK		KTMC1050G		CEL-1702HF9 SKF		EME-G770HCD	
	Assembly	Mold Compound Material Manufacturer			HITACHI		KCC		HITACHI		SUMITOMO	
	Assembly	Green Compound (Yes/No)			YES		YES		YES		YES	
	Assembly	Lead-Free (Yes/No)			YES		YES		YES		YES	
	Assembly	Assembly Site/ Location			SAT/Shanghai		SAT/Shanghai		SAT/Shanghai		SAT/Shanghai	
	Assembly	Test Site/ Location			SAT/Shanghai		SAT/Shanghai		SAT/Shanghai		SAT/Shanghai	
	Product	Max Junction Temp			150℃		150℃		150℃		150℃	
	Product	Max Thermal resistance Junc (amibent)			625℃/W		500℃/W		833℃/W		312℃/W	
	Product	DataSheet			ds30417		DS30232		DS30562		DS32176	

Reliability and Characterization Testing

# in AEC-Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	PASS	X	PASS	X	PASS	X	PASS
		Soak 85C, 85% RH	168Hrs			X	PASS	X	PASS	X	PASS	X	PASS
		IR reflow 260C	3 cycles			X	PASS	X	PASS	X	PASS	X	PASS
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	PASS	X	PASS	X	PASS	X	PASS
4	PARAMETRIC VERIFICATION (PV)	-55C, 25C, 85C, 125C, 150C	Operating Range, Per Data Sheet	0/25	3 wafer lots	X	PASS	X	PASS	X	PASS	X	PASS
	FORWARD SURGE	MIL-750D, METHOD 4066	PER DATA SHEET	0/45	3 wafer lots	X	PASS	X	PASS	X	PASS	X	PASS
5	HTRB	Ta=150℃ or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots	X	PASS	X	PASS	X	PASS	X	PASS
			500 Hrs	0/77		X	PASS	X	PASS	X	PASS	X	PASS
			1000 Hrs	0/77		X	PASS	X	PASS	X	PASS	X	PASS
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	PASS	X	PASS	X	PASS	X	PASS
			500 Cycles	0/77		X	PASS	X	PASS	X	PASS	X	PASS
			1000 Cycles	0/77		X	PASS	X	PASS	X	PASS	X	PASS
7b	Wire Bond Integrity	MIL-STD-750, Method 2037 (For bonding of dissimilar metals, eg: Au/Al)	500 Hrs	0/5	3 Assembly lots			X	PASS	X	PASS	X	PASS
8	PCT/AC	Ta=121℃ 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	PASS	X	PASS	X	PASS	X	PASS
9	HAST	Ta=130C, 85%RH 33.3 psia 80% Bias; PER JESD22-A110	96 Hrs	0/77	3 wafer lots	X	PASS						
9 alt	H3TRB	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias. JESD22A-101	168 Hrs	0/77	3 wafer lots			X	PASS	X	PASS	X	PASS
			500 Hrs	0/77				X	PASS	X	PASS	X	PASS
			1000 Hrs	0/77				X	PASS	X	PASS	X	PASS
10	IOL	MIL-STD-750 Method 1037 (N/A for TVS)	2520 Cycles	0/77	3 wafer lots	X	PASS	X	PASS	X	PASS	X	PASS
			7560 Cycles	0/77		X	PASS	X	PASS	X	PASS	X	PASS
			15000 Cycles	0/77		X	PASS	X	PASS	X	PASS	X	PASS
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot	X	PASS	X	PASS	X	PASS	X	PASS
		CDM (AEC-Q100-005)	PER DATA SHEET	0/30	1 wafer lot			X	PASS	X	PASS		
		MM (AEC-Q101-002)	PER DATA SHEET	0/30	1 wafer lot	X	PASS					X	PASS
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot	X	Pass	X	PASS	X	PASS	X	PASS
13	Package Physical Dimemsions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS
23	Wire Bond Strength	MIL-STD-750 METHOD 2037 (JESD22-B116B)	Cpk>1.66	0/ min of 5	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS
24	BOND SHEAR	AEC-Q101-003	Cpk>1.66	0/ min of 5	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS
25	Die Shear	MIL-STD-750 (2017)	Cpk>1.66	0/5	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS

Summary: _____

Submitted By: Kaiyuan Luo

Approved By: Frank Chen, 12/12/2016

Certificate of Design, Construction & Qualification

Description: Adding Phenitec wafer

	Category				Qual Source Device 1		Qual Source Device 2		Qual Source Device 3		Qual Source Device 4	
	Product	Part Number			MMBZ15VDL-7-F		BZT52C2V4LP-7B-G		BZT585B39T-7		DZ9F4V1S92-7	
	Assembly	Package Type			SOT-23		DFN1006-2		SOD-523		SOD923	
	Assembly	Package Size			2.9*2.4*1.0		1.0*0.6*0.5		1.6*0.8*0.6		1.0*0.6*0.37	
	Wafer	Die Name(s)			RYN15VC		RAN2V4B		MWB39VM		NHN4V1J	
	Wafer	Die Size (W/L/Thickness) - After Saw			0.45*0.45*0.200mm		0.35*0.35*0.14mm		0.33*0.33*0.14mm		0.2*0.2*0.085mm	
	Wafer	Die Process / Technology			TVS		Bipolar		Bipolar/Planar		Zener	
	Wafer	Wafer FAB/ Location			Phenitc		Phenitec		Phinetec		Phenitec	
	Wafer	Wafer Diameter			5"		5"		5"		5"	
	Wafer	Front Metal Type			AlSiCu		AlSiCu		AlSiCu		AlSiCu	
	Wafer	Front Metal Layer Number/ Thickness			3.5um		3.5um		2.5um		2um	
	Wafer	Number of Poly Layers			0		0		0		1	
	Wafer	Back Metal Type (All Layers)			AuAs-Au		AuAs-Au		Au/As		AuAs	
	Wafer	Back Metal Thickness (All Layers)			1.2um		0.9um		0.9um		0.9um	
	Wafer	Die Conforming Coating (Passivation)			SiN		SiN		SiN		NSG	
	Wafer	Die passivation thickness range			3000Å		3000Å		3000Å		3000Å	
	Wafer	No of masks Steps			4		5		4		5	
	Assembly	Die quantity per package (e.g. single or dual dies)			1		1		1		1	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			EUTECTIC		Epoxy		EUTECTIC		EUTECTIC	
	Assembly	Die Attach Material/ Supplier			N/A		QMI519		N/A		N/A	
	Assembly	Bond Wire/Clip Bond Material/ Supplier			Au		Cu		Cu		Cu 0.8mil/NBKQ	
	Assembly	Bond Type (at Die)			Ball		Ball		Ball		Ball	
	Assembly	Bond Type (at LF)			Wedge		Wedge		Wedge		Wedge	
	Assembly	No. of bond over active area			1		1		1		1	
	Assembly	Glass Transistion Temp			160℃		125℃		120C		130℃	
	Assembly	Terminal Finish (Plating) Material			Matte Tin		Matte Tin		Matte Tin		100% Tin	
	Assembly	Header plating (Die Land Area)			Ag		Ag		Ag		Ag	
	Assembly	Wire Diameter			1.0mil		1.0mil		1.0mil		0.8mil	
	Assembly	Leadframe Type			SOT-23C		SLP1006P2		SOD-523B		SOD-923 A	
	Assembly	Leadframe Material			Alloy 42		Alloy 42		Alloy 42		Alloy 42	
	Assembly	Lead Frame Manufacturer			PBE/VAST/MHT		NBKQ		PBE		NBKQ	
	Assembly	Molding Compound Type			KTMC1050G		EME-G770HCD		CEL-1702HF9SK		EME-E500 F	
	Assembly	Mold Compound Material Manufacturer			KCC		SUMITOMO		Hitachi		Sumitomo	
	Assembly	Green Compound (Yes/No)			YES		Yes		YES		Yes	
	Assembly	Lead-Free (Yes/No)			YES		Yes		YES		Yes	
	Assembly	Assembly Site/ Location			SAT/Shanghai		SAT/Shanghai, China		SAT/Shanghai		SAT/Shanghai	
	Assembly	Test Site/ Location			SAT/Shanghai		SAT/Shanghai, China		SAT/Shanghai		SAT/Shanghai	
	Product	Max Junction Temp			150C		150°C		150C		150C	
	Product	Max Thermal resistance Junc (amibent)			305C/W		338°C/W		357°C/W		500C/W	
	Product	DataSheet			DS30352		DS30506		DS36638		DS37439	

Reliability and Characterization Testing

# in AEC-Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	PASS	X	PASS	X	PASS	X	PASS
		Soak 85C, 85% RH	168Hrs			X	PASS	X	PASS	X	PASS	X	PASS
		IR reflow 260C	3 cycles			X	PASS	X	PASS	X	PASS	X	PASS
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	PASS	X	PASS	X	PASS	X	PASS
4	PARAMETRIC VERIFICATION (PV)	-55C, 25C, 85C, 125C, 150C	Operating Range, Per Data Sheet	0/25	3 wafer lots	X	PASS	X	PASS	X	PASS	X	PASS
	FORWARD SURGE	MIL-750D, METHOD 4066	PER DATA SHEET	0/45	3 wafer lots							X	PASS
5	HTRB	Ta=150°C or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots	X	PASS	X	PASS	X	PASS		
			500 Hrs	0/77		X	PASS	X	PASS	X	PASS		
			1000 Hrs	0/77		X	PASS	X	PASS	X	PASS		
5c	Steady State Operational (Zeners Only)	MIL-STD-750-1, M1038 Condition B (Zeners), at rated IZ max, TA to rated TJ, TEST before and after SSOP as a minimum.	168 Hrs	0/77	3 wafer lots							X	PASS
			500 Hrs	0/77								X	PASS
			1000 Hrs	0/77								X	PASS
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	PASS	X	PASS	X	PASS	X	PASS
			500 Cycles	0/77		X	PASS	X	PASS	X	PASS	X	PASS
			1000 Cycles	0/77		X	PASS	X	PASS	X	PASS	X	PASS
7b	Wire Bond Integrity	MIL-STD-750, Method 2037 (For bonding of dissimilar metals, eg: Au/Al)	500 Hrs	0/5	3 Assembly lots							X	PASS
8	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	PASS	X	PASS	X	PASS	X	PASS
9	HAST	Ta=130C, 85%RH 33.3 psia 80% Bias; PER JESD22-A110	96 Hrs	0/77	3 wafer lots			X	PASS	X	PASS	X	PASS
9 alt	H3TRB	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias. JESD22A-101	168 Hrs	0/77	3 wafer lots	X	PASS						
			500 Hrs	0/77		X	PASS						
			1000 Hrs	0/77		X	PASS						
10	IOL	MIL-STD-750 Method 1037 (N/A for TVS)	2520 Cycles	0/77	3 wafer lots			X	PASS	X	PASS	X	PASS
			7560 Cycles	0/77				X	PASS	X	PASS	X	PASS
			15000 Cycles	0/77				X	PASS	X	PASS	X	PASS
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot	X	PASS	X	PASS	X	PASS	X	PASS
		MM (AEC-Q101-002)	PER DATA SHEET	0/30	1 wafer lot	X	PASS	X	PASS	X	PASS	X	PASS
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot			X	PASS	X	PASS	X	PASS
13	Package Physical Dimemsions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot			X	PASS	X	PASS	X	PASS
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS
23	Wire Bond Strength	MIL-STD-750 METHOD 2037 (JESD22-B116B)	Cpk>1.66	0/ min of 5	1 Assembly lot			X	PASS	X	PASS	X	pass
24	BOND SHEAR	AEC-Q101-003	Cpk>1.66	0/ min of 5	1 Assembly lot			X	PASS	X	PASS	X	pass
25	Die Shear	MIL-STD-750 (2017)	Cpk>1.66	0/5	1 Assembly lot			X	PASS	X	PASS	X	pass

Summary: _____

Submitted By: Kaiyuan Luo

Approved By: Frank Chen, 12/5/2016

Qual Plan Submission Form

Description: Qualified OFAB wafer process

	Category				QBS Source Device 1		QBS Source Device 2		QBS Source Device 3		QBS Source Device 4	
	Product	Part Number			DST3904DJ-7		MMBT3904LP-7		BC847BFA-7B		ZXTN55120HE6	
	Assembly	Package Type			SOT963		DFN1006-3		DFN0806H4-3		SOT26	
	Assembly	Package Size			1.0 x 0.8 x 0.45		1.0 x 0.6 x 0.5		0.8 x 0.6 x 0.4		3.0*2.8*1.15mm	
	Wafer	Die Name(s)			ZXTN3904N		ZXTN3904N		ZXTN847BN		X55N120AD	
	Wafer	Die Size (W/L/Thickness) - After Saw			0.25 x 0.25 x 0.14mm		0.25 x 0.25 x 0.14mm		0.25 x 0.25 x 0.14mm		900x900x203um	
	Wafer	Die Process / Technology			Shallow base NPN		Shallow base NPN		Shallow base NPN		BJT/NPN	
	Wafer	Wafer FAB/ Location			OFAB		OFAB		OFAB		OFab/UK	
	Wafer	Wafer Diameter			150mm		150mm		150mm		6"	
	Wafer	Front Metal Type			AlSi		AlSi		AlSi		AlSiCu	
	Wafer	Front Metal Layer Number/ Thickness			2um		2um		2um		3um	
	Wafer	Number of Poly Layers			n/a		n/a		n/a		1	
	Wafer	Back Metal Type (All Layers)			Au		Au		Au		Ti/NiV/Ag	
	Wafer	Back Metal Thickness (All Layers)			5500A		5500A		5500A		300/2600/5500A	
	Wafer	Die Conforming Coating (Passivation)			Ox/Nit		Ox/Nit		Ox/Nit		Ox/Nitride	
	Wafer	Die passivation thickness range			5000A / 5000A		5000A / 5000A		5000A / 5000A		5000A/5000A	
	Wafer	No of masks Steps			5		5		5		6	
	Assembly	Die quantity per package (e.g. single or dual dies)			2		1		1		Single	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			Eutectic		Epoxy		Epoxy		Epoxy	
	Assembly	Die Attach Material/ Supplier			n/a		QMI519		QMI519		8200TI	
	Assembly	Bond Wire/Clip Bond Material/ Supplier			Au		Au		Au		Cu	
	Assembly	Bond Type (at Die)			Thermosonic		Thermosonic		Thermosonic		Ball Thermosonic	
	Assembly	Bond Type (at LF)			Thermosonic		Thermosonic		Thermosonic		Stitch Thermosonic	
	Assembly	No. of bond over active area			4		2		2		2	
	Assembly	Glass Transistion Temp			155°C		135°C		135°C		110°C	
	Assembly	Terminal Finish (Plating) Material			Matte Sn		NiPdAu		NiPdAu		Matte Sn	
	Assembly	Header plating (Die Land Area)			Spot Ag		NiPdAu		NiPdAu		Spot Ag	
	Assembly	Wire Diameter			0.8um		0.8um		0.8um		1 mil	
	Assembly	Leadframe Type			SOT-963		SLP1006P3		SLP0806P3		SOT-26C	
	Assembly	Leadframe Material			EFTEC64T		C7025HH		C7025HH		EFTEC-64T	
	Assembly	Lead Frame Manufacturer			ASM		MHT		MHT		Mitsui	
	Assembly	Molding Compound Type			EME-E500 F		EME-G770HCD		EME-G770HCD		CEL1702HF9	
	Assembly	Mold Compound Material Manufacturer			Sumitomo		Sumitomo		Sumitomo		Hitachi	
	Assembly	Green Compound (Yes/No)			Yes		Yes		Yes		Yes	
	Assembly	Lead-Free (Yes/No)			Yes		Yes		Yes		Yes	
	Assembly	Assembly Site/ Location			SAT		SAT		SAT		SAT/China	
	Assembly	Test Site/ Location			SAT		SAT		SAT		SAT/China	
	Product	Max Junction Temp			150°C		150°C		150°C		150°C	
	Product	Max Thermal resistance Junc (amibent)			417°C/W		310°C/W		287°C/W		112°C/W	
	Product	DataSheet			DS32038		DS31835		DS36019		DS39345	
		Reliability and Characterization Testing										

# in AEC-Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	QBS Test Completed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass	X	Pass	X	Pass	X	Pass
		IR reflow 260C	3 cycles			X	Pass	X	Pass	X	Pass	X	Pass
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass	X	Pass	X	Pass	X	Pass
4	PARAMETRIC VERIFICATION (PV)	-55C, 25C, 85C, 125C, 150C	Operating Range, Per Data Sheet	0/25	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass
5	HTRB	Ta=150°C or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots							X	Pass
			500 Hrs	0/77								X	Pass
			1000 Hrs	0/77								X	Pass
5 alt	HTRB	Ta=150°C or Max Tj, Vd/Vr/Vcbo=80%, MIL-STD-750-1 / PER JESD22 A-108	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass		
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass		
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass		
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass
			500 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass
			1000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass
7b	Wire Bond Integrity	MIL-STD-750, Method 2037 (For bonding of dissimilar metals, eg: Au/Al)	500 Hrs	0/5	3 Assembly lots							X	Pass
8	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass
9 alt	H3TRB	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias. JESD22A-101	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass
10	IOL	MIL-STD-750 Method 1037 (N/A for TVS)	2520 Cycles	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass
			7560 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass
			15000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot							X	Pass
		CDM (AEC-Q100-005)	PER DATA SHEET	0/30	1 wafer lot							X	Pass
		MM (AEC-Q101-002)	PER DATA SHEET	0/30	1 wafer lot							X	Pass
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot			X	Pass			X	Pass
13	Package Physical Dimemsions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot							X	Pass
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	Pass	X	Pass			X	Pass
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot							X	Pass
23	Wire Bond Strength	MIL-STD-750 METHOD 2037 (JESD22-B116B)	Cpk>1.66	0/ min of 5	1 Assembly lot			X	Pass			X	Pass
24	BOND SHEAR	AEC-Q101-003	Cpk>1.66	0/ min of 5	1 Assembly lot			X	Pass			X	Pass
25	Die Shear	MIL-STD-750 (2017)	Cpk>1.66	0/5	1 Assembly lot			X	Pass			X	Pass

Summary:

Submitted By: Jon Stocker

Approved By:

Certificate of Design, Construction & Qualification

Description: BAT46W Qualification of SFAB die

	Category				Qual Device 1		Qual Device 2	
	Product	Part Number			BAT46W		BAT46W	
	Assembly	Package Type			SOD-123		SOD-123	
	Assembly	Package Size			2.7mm*1.55*1.12		2.7mm*1.55*1.12	
	Wafer	Die Name(s)			SY018AA0100ATAX		SY018AA0100ATAX	
	Wafer	Die Size (W/L/Thickness) - After Saw			0.46/0.46/0.21 mm		0.46/0.46/0.21 mm	
	Wafer	Die Process / Technology			SKY		SKY	
	Wafer	Wafer FAB/ Location			SFAB/SH		SFAB/SH	
	Wafer	Wafer Diameter			6"		6"	
	Wafer	Front Metal Type			AlSiCu		AlSiCu	
	Wafer	Front Metal Layer Number/ Thickness			2um		2um	
	Wafer	Back Metal Type (All Layers)			Au		TiNiAg	
	Wafer	Back Metal Thickness (All Layers)			4um		4um	
	Wafer	No of masks Steps			3		3	
	Assembly	Die quantity per package (e.g. single or dual dies)			single		single	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			Epoxy		Epoxy	
	Assembly	Die Attach Material/ Supplier			9005SP/翌驊电子		9005SP/翌驊电子	
	Assembly	Bond Wire/Clip Bond Material/ Supplier			Au		Au	
	Assembly	Bond Type (at Die)			Thermo Sonic		Thermo Sonic	
	Assembly	Bond Type (at LF)			Thermo Sonic		Thermo Sonic	
	Assembly	No. of bond over active area			1		1	
	Assembly	Glass Transistion Temp			135 °C		135 °C	
	Assembly	Terminal Finish (Plating) Material			Sn		Sn	
	Assembly	Header plating (Die Land Area)			Spot Ag		Spot Ag	
	Assembly	Wire Diameter			1.0 mil		1.0 mil	
	Assembly	Leadframe Type			SOD-123A		SOD-123A	
	Assembly	Leadframe Material			Alloy42		Alloy42	
	Assembly	Lead Frame Manufacturer			VAST/MHT/XMYH/NBKQ		VAST/MHT/XMYH/NBKQ	
	Assembly	Molding Compound Type			GR640HV-L1		GR640HV-L1	
	Assembly	Mold Compound Material Manufacturer			HENKEL		HENKEL	
	Assembly	Green Compound (Yes/No)			Y		Y	
	Assembly	Lead-Free (Yes/No)			Y		Y	
	Assembly	Assembly Site/ Location			SAT/SH		SAT/SH	
	Assembly	Test Site/ Location			SAT/SH		SAT/SH	
	Product	Max Junction Temp			150 ℃		150 ℃	
	Product	DataSheet			DS38295		DS38295	

Reliability and Characterization Testing

# in AEC Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass	X	Pass
		IR reflow 260C	3 cycles			X	Pass	X	Pass
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass	QBS to qual device 1	
4	PARAMETRIC VERIFICATION (PV)	-55C, 25C, 85C, 125C, 150C	Operating Range, Per Data Sheet	0/25	3 wafer lots	X	Pass	X	Pass
	FORWARD SURGE	MIL-750D, METHOD 4066	PER DATA SHEET	0/45	3 wafer lots	X	Pass	X	Pass
5	HTRB	Ta=150℃ or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass
			500 Hrs	0/77		X	Pass	X	Pass
			1000 Hrs	0/77		X	Pass	X	TBD
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass	X	Pass
			500 Cycles	0/77		X	Pass	X	Pass
			1000 Cycles	0/77		X	Pass	X	TBD
7b	Wire Bond Integrity	MIL-STD-750, Method 2037 (For bonding of dissimilar metals, eg: Au/Al)	500 Hrs	0/5	3 Assembly lots	X	Pass	X	TBD
8	PCT/AC	Ta=121℃ 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	Pass	X	Pass
9 alt	H3TRB	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias. JESD22A-101	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass
			500 Hrs	0/77		X	Pass	X	Pass
			1000 Hrs	0/77		X	Pass	X	TBD
10	IOL	MIL-STD-750 Method 1037 (N/A for TVS)	2520 Cycles	0/77	3 wafer lots	X	Pass	X	Pass
			7560 Cycles	0/77		X	Pass	X	Pass
			15000 Cycles	0/77		X	Pass	X	TBD
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot	X	Pass	X	Pass
		CDM (AEC-Q100-005)	PER DATA SHEET	0/30	1 wafer lot	X	Pass	X	Pass
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot	X	Pass	QBS to qual device 1	
13	Package Physical Dimemsions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot	X	Pass	QBS to qual device 1	
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	X	Pass	X	Pass
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	Pass	QBS to qual device 1	
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	Pass	X	Pass
23	Wire Bond Strength	MIL-STD-750 METHOD 2037 (JESD22-B116B)	Cpk>1.66	0/ min of 5	1 Assembly lot	X	Pass	QBS to qual device 1	
24	BOND SHEAR	AEC-Q101-003	Cpk>1.66	0/ min of 5	1 Assembly lot	X	Pass	QBS to qual device 1	
25	Die Shear	MIL-STD-750 (2017)	Cpk>1.66	0/5	1 Assembly lot	X	Pass	QBS to qual device 1	

Summary:	William_Lai 4/14/2017
Submitted By:	William_Lai 3/28/2017
Approved By:	Aya Chan (QRA), 2017-03-30

Certificate of Design, Construction & Qualification

Description: Qualification of Lite-On's LT2MxxA TVS wafer series second source for DFLTxxA TVS Products

	Category				Qual Device 1	
	Product	Part Number			DFLT220A	
	Assembly	Package Type			PDi-123	
	Assembly	Package Size			3.70*1.78*0.98 mm	
	Wafer	Die Name(s)			LT2M220A	
	Wafer	Die Size (W/L/Thickness) - After Saw			1.143*1.143*0.24 mm	
	Wafer	Die Process / Technology			TVS	
	Wafer	Wafer FAB/ Location			Liteon/Taiwan	
	Wafer	Wafer Diameter			100 mm	
	Wafer	Front Metal Type			Al-Ti-Ni-Ag	
	Wafer	Front Metal Layer Number/ Thickness			50KA/1KA/4KA/20KA	
	Wafer	Back Metal Type (All Layers)			Al-Ti-Ni-Ag	
	Wafer	Back Metal Thickness (All Layers)			50KA/1KA/4KA/20KA	
	Wafer	Die Conforming Coating (Passivation)			Nitride Layer (Si3N4)	
	Wafer	No of masks Steps			3	
	Assembly	Die quantity per package (e.g. single or dual dies)			single	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			Solder	
	Assembly	Die Attach Material/ Supplier			ES-500-SPA	
	Assembly	Bond Wire/Clip Bond Material/ Supplier			Clip B new clip	
	Assembly	Bond Type (at Die)			Solder	
	Assembly	Bond Type (at LF)			Solder	
	Assembly	No. of bond over active area			1	
	Assembly	Glass Transistion Temp			135 °C	
	Assembly	Terminal Finish (Plating) Material			Silver Spot Plate	
	Assembly	Header plating (Die Land Area)			Sliver Spot Plate	
	Assembly	Wire Diameter			N/A	
	Assembly	Leadframe Type			CDA194HH	
	Assembly	Leadframe Material			CDA194HH	
	Assembly	Lead Frame Manufacturer			Hitachi	
	Assembly	Molding Compound Type			EME-G700LA	
	Assembly	Mold Compound Material Manufacturer			Sumitomo	
	Assembly	Green Compound (Yes/No)			Yes	
	Assembly	Lead-Free (Yes/No)			Yes	
	Assembly	Assembly Site/ Location			SAT/Shanghai	
	Assembly	Test Site/ Location			SAT/Shanghai	
	Product	Max Junction Temp			150 °C	
	Product	Max Thermal resistance Junc (case)			6 °C/W	
	Product	Max Thermal resistance Junc (amibent)			125 °C/W	
	Product	DataSheet			ds30581 Rev. 8 - 2	

Reliability and Characterization Testing

# in AEC-Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass
		IR reflow 260C	3 cycles			X	Pass
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass
4	PARAMETRIC VERIFICATION (PV)	-55C, 25C, 85C, 125C, 150C	Operating Range, Per Data Sheet	0/25	3 wafer lots	X	Pass
	FORWARD SURGE	MIL-750D, METHOD 4066	PER DATA SHEET	0/45	3 wafer lots	X	Pass
5	HTRB	Ta=150°C or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots	X	Pass
			500 Hrs	0/77		X	Pass
			1000 Hrs	0/77		X	Pass
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass
			500 Cycles	0/77		X	Pass
			1000 Cycles	0/77		X	Pass
8	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	Pass
9	HAST	Ta=130C, 85%RH 33.3 psia 80% Bias; PER JESD22-A110	96 Hrs	0/77	3 wafer lots	X	Pass
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot	X	Pass
		MM (AEC-Q101-002)	PER DATA SHEET	0/30	1 wafer lot	X	Pass
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot	X	Pass
13	Package Physical Dimemsions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot	X	Pass
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	X	Pass
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	Pass
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	Pass

Summary: _____

Submitted By: Yuan Dai, 1/9/2017

Approved By: Frank Chen, 1/12/2017

Certificate of Design, Construction & Qualification

Description: Phenitec SKY die qualification

	Category				QBS Source Device 1		QBS Source Device 2		QBS Source Device 3		QBS Source Device 4		QBS Source Device 5		QBS Source Device 6		QBS Source Device 7		QBS Source Device 8	
	Product	Part Number			SDM20U40		SDMG0340L		SDM10U45		BAT54LPS		BAT54S		SDM03U40Q-7		SDM03U40Q-7		SDM03U40Q-7	
	Assembly	Package Type			SOD-523		SOT-323		SOD523		DFN1006H4-2		SOT-23		SOD-523		SOD-523		SOD-523	
	Assembly	Package Size			1.6*0.8*0.6mm		2.15*2.1*1.0mm		1.6*0.8*0.6mm		1.0*0.6*0.4mm		2.9*2.4*1.0mm		1.6*0.8*0.6mm		1.6*0.8*0.6mm		1.6*0.8*0.6mm	
	Wafer	Die Name(s)			XHH097		YHF017		XHZ05N		XFA05S		MFA054		YHF014		YHF014		YHF014	
	Wafer	Die Size (W/L/Thickness) - After Saw			0.47*0.47*0.15mm		0.23*0.23*0.15mm		0.35*0.35*0.14mm		0.35*0.35*0.1mm		0.35*0.35*0.2mm		0.23*0.23*0.15mm		0.23*0.23*0.15mm		0.23*0.23*0.15mm	
	Wafer	Die Process / Technology			SKY		SKY		SKY		SKY		SKY		SKY		SKY		SKY	
	Wafer	Wafer FAB/ Location			PHENITEC		PHENITEC		PHENITEC		PHENITEC		PHENITEC		PHENITEC		PHENITEC		PHENITEC	
	Wafer	Wafer Diameter			5 inch		5 inch		5 inch		5 inch		4 inch		5 inch		5 inch		5 inch	
	Wafer	Front Metal Type			Al		Al		Al		Al		Al		Al		Al		Al	
	Wafer	Front Metal Layer Number/ Thickness			3 um		2 um		1.3um		N/A		N/A		2um		2um		2um	
	Wafer	Back Metal Type (All Layers)			Au		Au		Au		Au		TiAu		Au		Au		Au	
	Wafer	Back Metal Thickness (All Layers)			0.9 um		0.9 um		1.2um		1.2um		1.2um		0.9 um		0.9 um		0.9 um	
	Wafer	No of masks Steps			3		4		3		3		N/A		4		4		4	
	Assembly	Die quantity per package (e.g. single or dual dies)			Single		Single		1		Single		2		Single		Single		Single	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			EUTECTIC		EUTECTIC		Eutectic		Epoxy		EUTECTIC		EUTECTIC		EUTECTIC		EUTECTIC	
	Assembly	Bond Wire/Clip Bond Material/ Supplier			Au/HERAEUS&NBKQ		Au/HERAEUS&NBKQ		Au / na		Au / na		Au / na		Cu/NBKQ		Cu/NBKQ		Cu/NBKQ	
	Assembly	Bond Type (at Die)			Thermo sonic		Thermo sonic		Thermo ultrasonic		Thermo ultrasonic		Thermo ultrasonic		Thermo sonic		Thermo sonic		Thermo sonic	
	Assembly	Bond Type (at LF)			Thermo sonic		Thermo sonic		Thermo ultrasonic		Thermo ultrasonic		Eutectic bonding		Thermo sonic		Thermo sonic		Thermo sonic	
	Assembly	No. of bond over active area			1		1		1		1		2		1		1		1	
	Assembly	Glass Transistion Temp			130*C		130*C		110C		135*C		160C		130*C		130*C		130*C	
	Assembly	Terminal Finish (Plating) Material			Pbfree		Pbfree		Pbfree		Pbfree		Pbfree		Pure Sn		Pure Sn		Pure Sn	
	Assembly	Header plating (Die Land Area)			Spot Plating		Spot Plating		Ag		Ag		Spot Ag		Spot Plate		Spot Plate		Spot Plate	
	Assembly	Wire Diameter			0.7mil		0.7mil		0.8		0.8mil		0.7mil		0.8mil		0.8mil		0.8mil	
	Assembly	Leadframe Type			SOD-523		SOT-323		SOD523		SLP1006P2		Alloy 42		SOD-523		SOD-523		SOD-523	
	Assembly	Leadframe Material			Alloy 42		Alloy 42		Alloy 42		NiPdAu plated Cu		Alloy 42		ALLOY42		ALLOY42		ALLOY42	
	Assembly	Lead Frame Manufacturer			MHT&PBE		VAST&PBE&JihLin&ASM		PBE/3M/MHT		PBE/VAST/MHT		PBE/MHT/XMYH/VAST		PBE		PBE		PBE	
	Assembly	Molding Compound Type			CEL-1702HF9 SK		CEL-1702HF9 SK		CEL-1702HF9 SK		EME-G770HCD		KTMC1050G		CEL-1702HF9 SK		CEL-1702HF9 SK		CEL-1702HF9 SK	
	Assembly	Mold Compound Material Manufacturer			HITACHI		HITACHI		HITACHI		Sumitomo		KCC		HITACHI		HITACHI		HITACHI	
	Assembly	Green Compound (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Lead-Free (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Assembly Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Assembly	Test Site/ Location			SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Product	Max Junction Temp			125C		125C		125C		N/A		125C		125℃		125℃		125℃	
	Product	Max Thermal resistance Junc (amibent)			667°C/W		667°C/W		469C/W		N/A		N/A		667ºC/W		667ºC/W		667ºC/W	
	Product	DataSheet			DS30393		DS30248		ds30394		ds30810		ds11005		DS38986		DS38986		DS38986	

Reliability and Characterization Testing

# in AEC-Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed						X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	pass	X	pass	X (PC)	pass			X (PC)	pass	X	Pass	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	pass	X	pass	X (PC)	pass			X (PC)	pass	X	Pass	X	Pass	X	Pass
		IR reflow 260C	3 cycles			X	pass	X	pass	X (PC)	pass			X (PC)	pass	X	Pass	X	Pass	X	Pass
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	pass	X	pass	X	pass	X	pass	X	pass	X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass
4	PARAMETRIC VERIFICATION (PV)	-55C, 25C, 85C, 125C, 150C	Operating Range, Per Data Sheet	0/25	3 wafer lots	X	pass	X	pass	X	pass	X	pass	X	pass	X	Pass	X	Pass	X	Pass
	FORWARD SURGE	MIL-750D, METHOD 4066	PER DATA SHEET	0/45	3 wafer lots	X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass
5	HTRB	Ta=150°C or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots	X	pass	X	pass							X	Pass	X	Pass	X	Pass
			500 Hrs	0/77		X	pass	X	pass							X	Pass	X	Pass	X	Pass
			1000 Hrs	0/77		X	pass	X	pass							X	Pass	X	Pass	X	Pass
5 alt	HTRB	Ta=150°C or Max Tj, Vd/Vr/Vcbo=80%, MIL-STD-750-1 / PER JESD22 A-108	168 Hrs	0/77	3 wafer lots					X	pass	X	pass								
			500 Hrs	0/77						X	pass	X	pass								
			1000 Hrs	0/77						X	pass	X	pass								
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass
			500 Cycles	0/77		X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass
			1000 Cycles	0/77		X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass
8	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	pass	X	pass							X	Pass	X	Pass	X	Pass
9 alt	H3TRB	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias. JESD22A-101	168 Hrs	0/77	3 wafer lots	X	pass	X	pass					X	pass	X	Pass	X	Pass	X	Pass
			500 Hrs	0/77		X	pass	X	pass					X	pass	X	Pass	X	Pass	X	Pass
			1000 Hrs	0/77		X	pass	X	pass					X	pass	X	Pass	X	Pass	X	Pass
10	IOL	MIL-STD-750 Method 1037 (N/A for TVS)	2520 Cycles	0/77	3 wafer lots	X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass
			7560 Cycles	0/77		X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass
			15000 Cycles	0/77		X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot	X	pass	X	pass	X	pass	X	pass			X	Pass				
		CDM (AEC-Q100-005)	PER DATA SHEET	0/30	1 wafer lot	X	pass	X	pass							X	Pass				
		MM (AEC-Q101-002)	PER DATA SHEET	0/30	1 wafer lot	X	pass	X	pass	X	pass	X	pass			X	Pass				
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot	X	pass	X	pass	X	pass			X	pass	X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass
13	Package Physical Dimensions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot	X	pass	X	pass	X	pass					X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	pass	X	pass	X	pass					X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	pass	X	pass	X	pass	X	pass								
23	Wire Bond Strength	MIL-STD-750 METHOD 2037 (JESD22-B116B)	Cpk>1.66	0/ min of 5	1 Assembly lot	X	pass	X	pass	X	pass			X	pass	X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass
24	BOND SHEAR	AEC-Q101-003	Cpk>1.66	0/ min of 5	1 Assembly lot	X	pass	X	pass	X	pass			X	pass	X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass
25	Die Shear	MIL-STD-750 (2017)	Cpk>1.66	0/5	1 Assembly lot	X	pass	X	pass	X	pass					X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass

Summary: Kylie Hwong, 12/15/16
Submitted By: Kylie Hwong, 12/15/16
Approved By: Frank Chen, 12/20/2016

Certificate of Design, Construction & Qualification

Description: Adding Phenitec wafer to Switching diodes in SAT

	Category					QBS Source Device 1		QBS Source Device 2		QBS Source Device 3		QBS Source Device 4		QBS Source Device 5		QBS Source Device 6	
	Product	Part Number				BAV199DW-7-F		BAV199Q-7-F		BAS116V-7		BAS521LP-7		DLLFSD01LP3-7		DLLFSD01LPH4-7B	
	Assembly	Package Type				SOT363		SOT23		SOT563		DFN1006-2		DFN0603H3-2		X2-DFN1006-2	
	Assembly	Package Size				2.15*2.1*1.0		2.9*2.4*1.0		1.6*1.6*0.6		1.0*0.6*0.5		0.6*0.3 mm		1.0*0.6*0.5	
	Wafer	Die Name(s)				5DS11MT (new die name: 5DS11DTJ)		5DS11M (new die name: 5DS11DHJ)		5DS11MT (new die name: 5DS11DTJ)		5DS31MT (new die name: 5DS31DTJ)		5DS07DNJ		5DS07DNJ	
	Wafer	Die Size (W/L/Thickness) - After Saw				0.28*0.28*0.15mm		0.28*0.28*0.23mm		0.28*0.28*0.15mm		0.41*0.41*0.15mm		0.23*0.23*0.10 mm		0.23*0.23*0.10 mm	
	Wafer	Die Process / Technology				bipolar		bipolar		bipolar		bipolar		Switching diode		Bipolar	
	Wafer	Wafer FAB/ Location				Phenitec/Okayama		Phenitec/Okayama		Phenitec/Okayama		Phenitec/Okayama		Phenitec		Phenitec	
	Wafer	Wafer Diameter				5''		5''		5''		5''		5"		5"	
	Wafer	Front Metal Type				AlSiCu		AlSiCu		AlSiCu		AlSiCu		AlSiCu		AlSiCu	
	Wafer	Front Metal Layer Number/ Thickness				1/2.5um		1/2.5um		1/2.5um		1/2.5um		2.5 um		2.5 um	
	Wafer	Back Metal Type (All Layers)				AuAs-Au		AuAs-Au		AuAs-Au		AuAs-Au		Au/As-Au		Au/As-Au	
	Wafer	Back Metal Thickness (All Layers)				0.9um		0.9um		0.9um		0.9um		0.9 um		0.9 um	
	Wafer	Die Conforming Coating (Passivation)				PSG+NSG		PSG+NSG		PSG+NSG		PSG+NSG		PSG+NSG		PSG+NSG	
	Wafer	Die passivation thickness range				8000A		8000A		8000A		8000A		8000A		8000A	
	Wafer	No of masks Steps				4		4		4		4		4		4	
	Assembly	Die quantity per package (e.g. single or dual dies)				4		2		2		1		1		1	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)				EUTECTIC		Eutectic		Eutectic		EPOXY		EUTECTIC		Epoxy	
	Assembly	Die Attach Material/ Supplier				Eutectic Au		Eutectic Au		Eutectic Au		QMI519		EUTECTIC		KSP00031	
	Assembly	Bond Wire/Clip Bond Material/ Supplier				Cu		Au		Au		Au		Cu		Cu	
	Assembly	Bond Type (at Die)				Thermo-Ultrasonic		Thermo-Ultrasonic		Thermo-Ultrasonic		Thermo-Ultrasonic		Thermo Sonic		Thermo Sonic	
	Assembly	Bond Type (at LF)				Thermo-Ultrasonic		Thermo-Ultrasonic		Thermo-Ultrasonic		Thermo-Ultrasonic		Thermo Sonic		Thermo Sonic	
	Assembly	No. of bond over active area				1		1		1		1		1		1	
	Assembly	Glass Transistion Temp				120C		160℃		120C		135C		135 ℃		135 ℃	
	Assembly	Terminal Finish (Plating) Material				100% Matte Tin		100% Matte Tin		100% Matte Tin		NiPdAu		Sn		N/A	
	Assembly	Header plating (Die Land Area)				Ag		Ag		Ag		Ag		Ag		NiPdAu	
	Assembly	Wire Diameter				1.0mil		0.7 mil		0.8 mil		0.8 mil		0.8 mil		0.8 mil	
	Assembly	Leadframe Type				SOT-363G		SOT23A		SOT563D		SLP1006P2		SLP0603P2-D		SLP1006P2	
	Assembly	Leadframe Material				Alloy 42		Alloy 42		EFTEC-64T		C7025HH		EFTEC64		C7025HH	
	Assembly	Lead Frame Manufacturer				PBE/MHT		PBE/MHT		MHT/VAST		PBE/MHT		DNP/ASM/PBE		PBE/MHT	
	Assembly	Molding Compound Type				CEL-1702HF9 SK		KTMC1050G		CEL-1702HF9 SKF		EME-G770HCD		EME-G770HCD		EME-G770HCD	
	Assembly	Mold Compound Material Manufacturer				HITACHI		KCC		HITACHI		SUMITOMO		SUMITOMO		SUMITOMO	
	Assembly	Green Compound (Yes/No)				YES		YES		YES		YES		Yes		Yes	
	Assembly	Lead-Free (Yes/No)				YES		YES		YES		YES		Yes		Yes	
	Assembly	Assembly Site/ Location				SAT/Shanghai		SAT/Shanghai		SAT/Shanghai		SAT/Shanghai		SAT / Shanghai		SAT	
	Assembly	Test Site/ Location				SAT/Shanghai		SAT/Shanghai		SAT/Shanghai		SAT/Shanghai		SAT / Shanghai		SAT	
	Product	Max Junction Temp				150℃		150℃		150℃		150℃		150 ℃		150 ℃	
	Product	Max Thermal resistance Junc (amibent)				625℃/W		500℃/W		833℃/W		312℃/W		500 ℃/W		357 ℃/W	
	Product	DataSheet				ds30417		DS30232		DS30562		DS32176		ds35233		ds37663	
		Reliability and Characterization Testing															

# in AEC-Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
		IR reflow 260C	3 cycles			X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
4	PARAMETRIC VERIFICATION (PV)	-55C, 25C, 85C, 125C, 150C	Operating Range, Per Data Sheet	0/25	3 wafer lots	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
	FORWARD SURGE	MIL-750D, METHOD 4066	PER DATA SHEET	0/45	3 wafer lots	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
5	HTRB	Ta=150℃ or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots	X	PASS	X	PASS	X	PASS	X	PASS			X	Pass
			500 Hrs	0/77		X	PASS	X	PASS	X	PASS	X	PASS			X	Pass
			1000 Hrs	0/77		X	PASS	X	PASS	X	PASS	X	PASS			X	Pass
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
			500 Cycles	0/77		X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
			1000 Cycles	0/77		X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
7b	Wire Bond Integrity	MIL-STD-750, Method 2037 (For bonding of dissimilar metals, eg: Au/Al)	500 Hrs	0/5	3 Assembly lots			X	PASS	X	PASS	X	PASS			X	Pass
8	PCT/AC	Ta=121℃ 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
9	HAST	Ta=130C, 85%RH 33.3 psia 80% Bias; PER JESD22-A110	96 Hrs	0/77	3 wafer lots	X	PASS							X	Pass	X	Pass
9 alt	H3TRB	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias. JESD22A-101	168 Hrs	0/77	3 wafer lots			X	PASS	X	PASS	X	PASS				
			500 Hrs	0/77				X	PASS	X	PASS	X	PASS				
			1000 Hrs	0/77				X	PASS	X	PASS	X	PASS				
10	IOL	MIL-STD-750 Method 1037 (N/A for TVS)	2520 Cycles	0/77	3 wafer lots	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
			7560 Cycles	0/77		X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
			15000 Cycles	0/77		X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
		CDM (AEC-Q100-005)	PER DATA SHEET	0/30	1 wafer lot			X	PASS	X	PASS						
		MM (AEC-Q101-002)	PER DATA SHEET	0/30	1 wafer lot	X	PASS					X	PASS	X	Pass	X	Pass
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot	X	Pass	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
13	Package Physical Dimemsions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS			X	Pass
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
23	Wire Bond Strength	MIL-STD-750 METHOD 2037 (JESD22-B116B'	Cpk>1.66	0/ min of 5	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
24	BOND SHEAR	AEC-Q101-003	Cpk>1.66	0/ min of 5	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass
25	Die Shear	MIL-STD-750 (2017)	Cpk>1.66	0/5	1 Assembly lot	X	PASS	X	PASS	X	PASS	X	PASS	X	Pass	X	Pass

Summary:

Submitted By: Kaiyuan Luo

Approved By: Frank Chen, 1/17/2017

Certificate of Design, Construction & Qualification

Description: Qualification of B Series Rectifiers Using JMSC Die and Eris for Assembly/Test

	Category				Qual Device (Lot 1)		Qual Device 1 (Lot 2)		Qual Device 1 (Lot 3)		Qual Device 2		Qual Device 3		Qual Device 4		Qual Device 5	
	Product	Part Number			B3100		B3100		B3100		B560C		B360B		B1100		B140	
	Assembly	Package Type			SMC		SMC		SMC		SMC		SMB		SMA		SMA	
	Assembly	Package Size			5.8mm*8mm*2.1mm		5.8mm*8mm*2.1mm		5.8mm*8mm*2.1mm		5.8mm*8mm*2.1mm		3.6mm*5.3mm*2.1mm		2.6mm*5.0mm*2.0mm		2.6mm*5.0mm*2.0mm	
	Wafer	Die Name(s)			HMBRS03105		HMBRS03105		HMBRS03105		NMBRS0565AG		NMBRS0365SUAG		HMBRS01105SAG		NMBRS0145SAG	
	Wafer	Die Size (W/L/Thickness) - After Saw			1.52*1.52*0.26 mm3		1.52*1.52*0.26 mm3		1.52*1.52*0.26 mm3		1.73*1.73*0.26 mm3		1.4*1.4*0.26 mm3		0.838*0.838*0.26 mm3		0.838*0.838*0.26 mm3	
	Wafer	Die Process / Technology			SKY		SKY		SKY		SKY		SKY		SKY		SKY	
	Wafer	Wafer FAB/ Location			JMSC/china		JMSC/china		JMSC/china		JMSC/china		JMSC/china		JMSC/china		JMSC/china	
	Wafer	Wafer Diameter			5 INCH		5 INCH		5 INCH		5 INCH		5 INCH		5 INCH		5 INCH	
	Wafer	Front Metal Type			Ti-Ni-Ag		Ti-Ni-Ag		Ti-Ni-Ag		Ti-Ni-Ag		Ti-Ni-Ag		Ti-Ni-Ag		Ti-Ni-Ag	
	Wafer	Front Metal Layer Number/ Thickness			3/4.4μm		3/4.4μm		3/4.4μm		3/4.4μm		3/4.4um		3/2.9um		3/2.9um	
	Wafer	Back Metal Type (All Layers)			Ti-Ni-Ag		Ti-Ni-Ag		Ti-Ni-Ag		Ti-Ni-Ag		Ti-Ni-Ag		Ti-Ni-Ag		Ti-Ni-Ag	
	Wafer	Back Metal Thickness (All Layers)			1.5μm		1.5μm		1.5μm		1.5μm		1.5μm		1.5μm		1.5μm	
	Wafer	Die Conforming Coating (Passivation)			None		None		None		None		None		None		None	
	Wafer	No of masks Steps			3		3		3		3		3		3		3	
	Assembly	Die quantity per package (e.g. single or dual			1		1		1		1		1		1		1	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)			Solder		Solder		Solder		Solder		Solder		Solder		Solder	
	Assembly	Die Attach Material/ Supplier			Solder Paste/REDSUN		Solder Paste/REDSUN		Solder Paste/REDSUN		Solder Paste/REDSUN		Solder Paste/REDSUN		Solder Paste/REDSUN		Solder Paste/REDSUN	
	Assembly	Bond Wire/Clip Bond Material/ Supplier			Cu Clip/JIH LONG		Cu Clip/JIH LONG		Cu Clip/JIH LONG		Cu Clip/JIH LONG		Cu Clip/JIH LONG		Cu Clip/JIH LONG		Cu Clip/JIH LONG	
	Assembly	Bond Type (at Die)			solder		solder		solder		solder		solder		solder		solder	
	Assembly	Bond Type (at LF)			solder		solder		solder		solder		solder		solder		solder	
	Assembly	No. of bond over active area			1 clip		1 clip		1 clip		1 clip		1 clip		1 clip		1 clip	
	Assembly	Glass Transistion Temp			150 ℃		150 ℃		150 ℃		150 ℃		150 ℃		150 ℃		150 ℃	
	Assembly	Terminal Finish (Plating) Material			Sn		Sn		Sn		Sn		Sn		Sn		Sn	
	Assembly	Wire Diameter			clip		clip		clip		clip		clip		clip		clip	
	Assembly	Leadframe Type			CDA19210		CDA19210		CDA19210		CDA19210		CDA19210		CDA19210		CDA19210	
	Assembly	Leadframe Material			Cu		Cu		Cu		Cu		Cu		Cu		Cu	
	Assembly	Lead Frame Manufacturer			JIH LONG INDUSTRY CO., LTD.		JIH LONG INDUSTRY CO., LTD.		JIH LONG INDUSTRY CO., LTD.		JIH LONG INDUSTRY CO., LTD.		JIH LONG INDUSTRY CO., LTD.		JIH LONG INDUSTRY CO., LTD.		JIH LONG INDUSTRY CO., LTD.	
	Assembly	Molding Compound Type			EME-E110G		EME-E110G		EME-E110G		EME-E110G		EME-E110G		EME-E110G		EME-E110G	
	Assembly	Mold Compound Material Manufacturer			Tsu Kong Co., Ltd		Tsu Kong Co., Ltd		Tsu Kong Co., Ltd		Tsu Kong Co., Ltd		Tsu Kong Co., Ltd		Tsu Kong Co., Ltd		Tsu Kong Co., Ltd	
	Assembly	Green Compound (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Lead-Free (Yes/No)			Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Assembly Site/ Location			ERIS		ERIS		ERIS		ERIS		ERIS		ERIS		ERIS	
	Assembly	Test Site/ Location			ERIS		ERIS		ERIS		ERIS		ERIS		ERIS		ERIS	
	Product	Max Junction Temp			150		150		150		150		150		150		150	
	Product	DataSheet			DS30020		DS30020		DS30020		DS13012		DS30924		DS30018		DS13002	

Reliability and Characterization Testing

# in AEC Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		IR reflow 260C	3 cycles			X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
4	PARAMETRIC VERIFICATION (PV)	-55C, 25C, 85C, 125C, 150C	Operating Range, Per Data Sheet	0/25	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
	FORWARD SURGE	MIL-750D, METHOD 4066	PER DATA SHEET	0/45	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
5	HTRB	Ta=150°C or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
8	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
9 alt	H3TRB	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias. JESD22A-101	168 Hrs	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			500 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			1000 Hrs	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
10	IOL	MIL-STD-750 Method 1037 (N/A for TVS)	2520 Cycles	0/77	3 wafer lots	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			7560 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
			15000 Cycles	0/77		X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
		CDM (AEC-Q100-005)	PER DATA SHEET	0/30	1 wafer lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
13	Package Physical Dimemsions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass
25	Die Shear	MIL-STD-750 (2017)	Cpk>1.66	0/5	1 Assembly lot	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass	X	Pass

Summary:	
Submitted By:	William Lai 2016/12/29
Approved By:	William Lai 2016/12/29

Certificate of Design, Construction & Qualification

Description: QBS Parts based on qualified Phenitec SKY die

	Category					QBS Source Device 1		QBS Source Device 2		QBS Source Device 3		QBS Source Device 4		QBS Source Device 5		QBS Source Device 6		QBS Source Device 7		QBS Source Device 8		QBS Device (KEY)	
	Product	Part Number				SDM20U40		SDMG0340L		SDM10U45		BAT54LPS		BAT54S		SDM03U40Q-7		SDM03U40Q-7		SDM03U40Q-7		BAS40V-7	
	Assembly	Package Type				SOD-523		SOT-323		SOD523		DFN1006H4-2		SOT-23		SOD-523		SOD-523		SOD-523		SOT-563	
	Assembly	Package Size				1.6*0.8*0.6mm		2.15*2.1*1.0mm		1.6*0.8*0.6mm		1.0*0.6*0.4mm		2.9*2.4*1.0mm		1.6*0.8*0.6mm		1.6*0.8*0.6mm		1.6*0.8*0.6mm		1.6*1.6*0.6mm	
	Wafer	Die Name(s)				XHH097		YHF017		XHZ05N		XFA05S		MFA054		YHF014		YHF014		YHF014		XHP037	
	Wafer	Die Size (W/L/Thickness) - After Saw				0.47*0.47*0.15mm		0.23*0.23*0.15mm		0.35*0.35*0.14mm		0.35*0.35*0.1mm		0.35*0.35*0.2mm		0.23*0.23*0.15mm		0.23*0.23*0.15mm		0.23*0.23*0.15mm		0.3*0.3*0.15mm	
	Wafer	Die Process / Technology				SKY		SKY		SKY		SKY		SKY		SKY		SKY		SKY		SKY	
	Wafer	Wafer FAB/ Location				PHENITEC		PHENITEC		PHENITEC		PHENITEC		PHENITEC		PHENITEC		PHENITEC		PHENITEC		PHENITEC	
	Wafer	Wafer Diameter				5 inch		5 inch		5 inch		4 inch		5 inch		5 inch		5 inch		5 inch		5 inch	
	Wafer	Front Metal Type				Al		Al		Al		Al		Al		Al		Al		Al		Al	
	Wafer	Front Metal Layer Number/ Thickness				3 um		2 um		1.3um		N/A		N/A		2um		2um		2um		3um	
	Wafer	Back Metal Type (All Layers)				Au		Au		Au		Au		TiAu		Au		Au		Au		Au	
	Wafer	Back Metal Thickness (All Layers)				0.9 um		0.9 um		1.2um		1.2um		1.2um		0.9 um		0.9 um		0.9 um		0.9 um	
	Wafer	Die Conforming Coating (Passivation)				N/A		N/A		SiN		SiN		N/A		N/A		N/A		N/A		SiN	
	Wafer	No of masks Steps				3		4		3		3		N/A		4		4		4		N/A	
	Assembly	Die quantity per package (e.g. single or dual dies)				Single		Single		1		Single		2		Single		Single		Single		2	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)				EUTECTIC		EUTECTIC		Eutectic		Epoxy		EUTECTIC		EUTECTIC		EUTECTIC		EUTECTIC		EUTECTIC	
	Assembly	Bond Wire/Clip Bond Material/ Supplier				Au/HERAEUS&NBKQ		Au/HERAEUS&NBKQ		Au / na		Au / na		Au / na		Cu/NBKQ		Cu/NBKQ		Cu/NBKQ		Au	
	Assembly	Bond Type (at Die)				Thermo sonic		Thermo sonic		Thermo ultrasonic		Thermo ultrasonic		Thermo ultrasonic		Thermo sonic		Thermo sonic		Thermo sonic		Ultrasonic	
	Assembly	Bond Type (at LF)				Thermo sonic		Thermo sonic		Thermo ultrasonic		Thermo ultrasonic		Eutectic bonding		Thermo sonic		Thermo sonic		Thermo sonic		Ultrasonic	
	Assembly	No. of bond over active area				1		1		1		1		2		1		1		1		2	
	Assembly	Glass Transistion Temp				130°C		130°C		110C		135°C		160C		130°C		130°C		130°C		140C	
	Assembly	Terminal Finish (Plating) Material				Pbfree		Pbfree		Pbfree		Pbfree		Pbfree		Pure Sn		Pure Sn		Pure Sn		Matt Tin	
	Assembly	Header plating (Die Land Area)				Spot Plating		Spot Plating		Ag		Ag		Spot Ag		Spot Plate		Spot Plate		Spot Plate		Ag	
	Assembly	Wire Diameter				0.7mil		0.7mil		0.8		0.8mil		0.7mil		0.8mil		0.8mil		0.8mil		1.0mil	
	Assembly	Leadframe Type				SOD-523		SOT-323		SOD523		SLP1006P2		Alloy 42		SOD-523		SOD-523		SOD-523		SOT-563D	
	Assembly	Leadframe Material				Alloy 42		Alloy 42		Alloy 42		NiPdAu plated Cu		Alloy 42		ALLOY42		ALLOY42		ALLOY42		EFTEC-64T	
	Assembly	Lead Frame Manufacturer				MHT&PBE		VAST&PBE&JihLin&ASM		PBE/3M/MHT		PBE/VAST/MHT		PBE/MHT/XMYH/VAST		PBE		PBE		PBE		MHT	
	Assembly	Molding Compound Type				CEL-1702HF9 SK		CEL-1702HF9 SK		CEL-1702HF9 SK		EME-G770HCD		KTMC1050G		CEL-1702HF9 SK		CEL-1702HF9 SK		CEL-1702HF9 SK		CEL-1702HF9 SK	
	Assembly	Mold Compound Material Manufacturer				HITACHI		HITACHI		HITACHI		Sumitomo		KCC		HITACHI		HITACHI		HITACHI		Hitachi	
	Assembly	Green Compound (Yes/No)				Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Lead-Free (Yes/No)				Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
	Assembly	Assembly Site/ Location				SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Assembly	Test Site/ Location				SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT		SAT	
	Product	Max Junction Temp				125C		125C		125C		N/A		125C		125℃		125℃		125℃		150C	
	Product	Max Thermal resistance Junc (case)				N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	
	Product	Max Thermal resistance Junc (amibent)				667°C/W		667°C/W		469C/W		N/A		N/A		667ºC/W		667ºC/W		667ºC/W		833C/W	
	Product	DataSheet				DS30393		DS30248		ds30394		ds30810		ds11005		DS38986		DS38986		DS38986		ds30561	
		Reliability and Characterization Testing																					
# in AEC-Q101 (D)	**Test**	**Test Conditions**	**Duration / Limits**	**Accept on # Failed/ Sample Size per Lot**	**# of Lots**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**	**X = Test Needed**	**Results Pass/Fail**
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass		
		Soak 85C, 85% RH	168Hrs			X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass		
		IR reflow 260C	3 cycles			X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass		
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	pass	X	pass	X	pass	X	pass	X	pass	X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass		
4	PARAMETRIC VERIFICATION (PV)	-55C, 25C, 85C, 125C, 150C	Operating Range, Per Data Sheet	0/25	3 wafer lots	X	pass	X	pass	X	pass	X	pass	X	pass	X	Pass	X	Pass	X	Pass	QBS	
	FORWARD SURGE	MIL-750D, METHOD 4066	PER DATA SHEET	0/45	3 wafer lots	X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass		
5	HTRB	Ta=150°C or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots	X	pass	X	pass							X	Pass	X	Pass	X	Pass	QBS	
			500 Hrs	0/77		X	pass	X	pass							X	Pass	X	Pass	X	Pass	QBS	
			1000 Hrs	0/77		X	pass	X	pass							X	Pass	X	Pass	X	Pass	QBS	
5 alt	HTRB	Ta=150°C or Max Tj, Vd/Vr/Vcbo=80%, MIL-STD-750-1 / PER JESD22 A-108	168 Hrs	0/77	3 wafer lots					X	pass	X	pass										
			500 Hrs	0/77						X	pass	X	pass										
			1000 Hrs	0/77						X	pass	X	pass										
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass	QBS	
			500 Cycles	0/77		X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass	QBS	
			1000 Cycles	0/77		X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass	QBS	
7b	Wire Bond Integrity	MIL-STD-750, Method 2037 (For bonding of dissimilar metals, eg: Au/Al)	500 Hrs	0/5	3 Assembly lots											X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass		
8	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	pass	X	pass							X	Pass	X	Pass	X	Pass	QBS	
9 alt	H3TRB	Ta=85ºC, 85% RH, with 80% Maximum Reverse Bias. JESD22A-101	168 Hrs	0/77	3 wafer lots	X	pass	X	pass					X	pass	X	Pass	X	Pass	X	Pass	QBS	
			500 Hrs	0/77		X	pass	X	pass					X	pass	X	Pass	X	Pass	X	Pass	QBS	
			1000 Hrs	0/77		X	pass	X	pass					X	pass	X	Pass	X	Pass	X	Pass	QBS	
10	IOL	MIL-STD-750 Method 1037 (N/A for TVS)	2520 Cycles	0/77	3 wafer lots	X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass	QBS	
			7560 Cycles	0/77		X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass	QBS	
			15000 Cycles	0/77		X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass	QBS	
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot	X	pass	X	pass	X	pass	X	pass			X	Pass						
		CDM (AEC-Q100-005)	PER DATA SHEET	0/30	1 wafer lot	X	pass	X	pass							X	Pass						
		MM (AEC-Q101-002)	PER DATA SHEET	0/30	1 wafer lot	X	pass	X	pass	X	pass	X	pass			X	Pass						
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot	X	pass	X	pass	X	pass			X	pass	X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass	QBS	
13	Package Physical Dimensions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot	X	pass	X	pass	X	pass					X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass	QBS	
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	X	pass	X	pass	X	pass			X	pass	X	Pass	X	Pass	X	Pass	QBS	
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	pass	X	pass	X	pass					X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass	QBS	
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	pass	X	pass	X	pass	X	pass										
23	Wire Bond Strength	MIL-STD-750 METHOD 2037 (JESD22-B116B)	Cpk>1.66	0/ min of 5	1 Assembly lot	X	pass	X	pass	X	pass			X	pass	X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass	QBS	
24	BOND SHEAR	AEC-Q101-003	Cpk>1.66	0/ min of 5	1 Assembly lot	X	pass	X	pass	X	pass			X	pass	X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass	QBS	
25	Die Shear	MIL-STD-750 (2017)	Cpk>1.66	0/5	1 Assembly lot	X	pass	X	pass	X	pass					X	Pass	QBS to qual device 6	Pass	QBS to qual device 6	Pass	QBS	

Summary: Kylie Hwong, 12/15/16
Submitted By: Kylie Hwong, 12/15/16
Approved By: Frank Chen, 12/20/2016

SHANGHAI KAIHONG ELECTRONIC CO.,LTD

Hi-Reliability Test Summary Report

FACTORY:		PART NUMBER: BC817-16Q-7-F SWR1507218 Package: SOT-23			CUSTOMER: DIODES INC.:	
LABORATORY (If Different):		PART DESCRIPTION: Phenitec Wafer:D5016S BIN2 5ACR-6107,Cu wire 1.0mil+GR640HV-L1				
DW-008 (AEC Q101) Test#	Test Description	Test Conditions	#Lots	#To Test	**Results**	REMARKS
7.3.2 (1)	PRE- AND POST- STRESS ELECTRICAL TEST (TEST)	Per Spec				
7.3.3 (2)	PRECONDITIONING (PC)	JSED22 A-113 N/A for Axial	1	308	0/308	
7.3.5.1 (3)	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	0/500	
7.3.5.2 (4)	PARAMETRIC VERIFICATION (PV)	Per Data Sheet Ta1=25C, Ta2=85C, Ta3=125C, Ta4=150C BVCBO @IC=100uA BVCEO @IC=10mA BVEBO @IE=100uA ICES @VCE=25V ICES @VCE=45V	1 of 3	25	0/25	
	Lot #2		N/A	N/A		
	Lot #3		N/A	N/A		
7.3.5.3	FORWARD SURGE	MIL-750D, Method 4066	N/A	N/A		
7.3.5.4 (5)	HIGH TEMP. REVERSE BIAS (HTRB)	T=150°C Vc=50V, PER JESD22 A-108	1	77		
	Pretest		1	77	0/77	
	@ 500 Hours	T=150°C Vc=50V, PER JESD22 A-108	1	77	0/77	
	Final 1000Hours	T=150°C Vc=50V, PER JESD22 A-108	1	77	0/77	
7.3.5.4 (6)	HIGH TEMP. STORAGE LIFE (HTS)	T=150°C , PER JESD22A-103	N/A	N/A		
	Pretest		N/A	N/A		
	@ 500 Hours	T=150°C , PER JESD22A-103	N/A	N/A		
	Final 1000Hours	T=150°C , PER JESD22A-103	N/A	N/A		
(6)	HIGH TEMP GATE BIAS (HTGB)	N/A for Diode	N/A	N/A		
7.3.5.5 (7)	TEMPERATURE CYCLING (TC)	T=-65°C-150°C, PER JESD22 A-104	1	77		
	Pretest		1	77	0/77	
	@ 500 Cycles	T=-65°C-150°C, PER JESD22 A-104	1	77	0/77	
	Final 1000 Cycles	T=-65°C-150°C, PER JESD22 A-104	1	77	0/77	
7.3.5.6 (8)	AUTOCLAVE (AC)	T=121°C 15PSIG 100%RH	1	77	0/77	
7.3.5.7 (9)	H^3TRB	T=85°C RH=85% Vc=40V	1	77		
	Pretest		1	77	0/77	
	@ 500 Hours	T=85°C RH=85% Vc=40V	1	77	0/77	
	Final 1000 Hours	T=85°C RH=85% Vc=40V	1	77	0/77	
7.3.5.7 (9a)	Highly Accelerated Stress Test(HAST)	T=130°C RH=85% Vc=40V,PER JESD22 A-110	N/A	N/A		
	Pretest		N/A	N/A		
	After 96hrs	T=130°C RH=85% Vc=40V	N/A	N/A		
7.3.5.8 (10)	INTERMITTENTOPERATING LIFE (IOL)	Vc=30V Ic=10mA, PER MIL-STD-750 METHOD 1037	1	77		15000cycles@2mins on/off
	Pretest	MIL-STD-750 METHOD 1037	1	77	0/77	
	Midpoint	MIL-STD-750 METHOD 1037	1	77	0/77	
	After	MIL-STD-750 METHOD 1037	1	77	0/77	
(10a)	POWER AND TEMP. CYCLE (PTC)	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
(Optional)	Pretest	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
	Midpoint	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
	After	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
7.3.5.9 (11)	ESD CHARACTERIZATION (ESD)	PER AEC-Q101-001 & -002	N/A	N/A	0/60	MM 400V HBM 8KV
7.3.5.10 (12)	Destructive Physical Analysis (DPA)	AEC Q101-004 Section 4	1	4	0/4	
7.3.5.11 (13)	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	N/A	N/A		
7.3.5.12 (14)	TERMINAL STRENGTH (TS)	MIL-STD-750, Method 2036	N/A	N/A		
7.3.5.13 (15)	RESISTANCE TO SOLVENTS (RTS)	JESD22 B-107	N/A	N/A		
(16)	CONSTANT ACCELERATION (CA)	N/A, not hermetically sealed device.	N/A	N/A		
(17)	VIBRATION VARIABLE FREQUENCY (VVF)	N/A, not hermetically sealed device.	N/A	N/A		
(18)	MECHANICAL SHOCK (MS)	N/A, not hermetically sealed device.	N/A	N/A		
(19)	HERMETICITY (HER)	N/A, not hermetically sealed device.	N/A	N/A		
7.3.5.14 (20)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 B-106	1	30	0/30	260°C@30sec
7.3.5.15 (21)	SOLDERABILITY (SD)	J-STD-002	N/A	N/A		
7.3.5.16 (22)	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	N/A	N/A		
7.3.5.17 (23)	WIRE BOND STRENGTH (WBS)	MIL-STD-750 METHOD 2037	1	30	0/30	
7.3.5.18 (24)	BOND SHEAR (BS)	AEC-Q101-003	1	30	0/30	
7.3.5.19 (25)	DIE SHEAR (DS)	MIL-STD-750 METHOD 2017	1	30	0/30	
(26)	UNCLAMPED INDUCTIVE SWITCHING (UIS	N/A, not for Diode	N/A	N/A		
(27)	DIELECTRIC INTEGRITY (DI)	N/A, not for Diode	N/A	N/A		
Summary:	This lot has passed 1000hrs hi-rel test.					
Submitted by:	Sean Huang 11/12/15	Approved by: Adam Gu 11/12/15				

SHANGHAI KAIHONG ELECTRONIC CO.,LTD

Hi-Reliability Test Summary Report

FACTORY:		PART NUMBER: BC817-25-7-F SWR1509098 Package: SOT-23			CUSTOMER: DIODES INC.:	
LABORATORY (If Different):		PART DESCRIPTION: Phenitec Wafer:D5016S BIN3 5ACT-8135,Cu wire 1.0mil+GR640HV-L1				
DW-008 (AEC Q101) Test#	Test Description	Test Conditions	#Lots	#To Test	**Results**	REMARKS
7.3.2 (1)	PRE- AND POST- STRESS ELECTRICAL TEST (TEST)	Per Spec				
7.3.3 (2)	PRECONDITIONING (PC)	JSED22 A-113 N/A for Axial	1	308	0/308	
7.3.5.1 (3)	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	0/500	
7.3.5.2 (4)	PARAMETRIC VERIFICATION (PV)	Per Data Sheet Ta1=25C, Ta2=85C, Ta3=125C, Ta4=150C BVCBO @IC=100uA BVCEO @IC=10mA BVEBO @IE=100uA ICES @VCE=25V ICES @VCE=45V IEBO @VEB=5V HFE @Vce=1V,Ic=100mA	1 of 3	25	0/25	
	Lot #2		2 of 3	25	N/A	
	Lot #3		3 of 3	25	N/A	
7.3.5.3	FORWARD SURGE	MIL-750D, Method 4066	N/A	N/A		
7.3.5.4 (5)	HIGH TEMP. REVERSE BIAS (HTRB)	T=150°C Vc=50V, PER JESD22 A-108	1	77		
	Pretest		1	77	0/77	
	@ 500 Hours	T=150°C Vc=50V, PER JESD22 A-108	1	77	0/77	
	Final 1000Hours	T=150°C Vc=50V, PER JESD22 A-108	1	77	0/77	
7.3.5.4 (6)	HIGH TEMP. STORAGE LIFE (HTS)	T=150°C , PER JESD22A-103	N/A	N/A		
	Pretest		N/A	N/A		
	@ 500 Hours	T=150°C , PER JESD22A-103	N/A	N/A		
	Final 1000Hours	T=150°C , PER JESD22A-103	N/A	N/A		
(6)	HIGH TEMP GATE BIAS (HTGB)	N/A for Diode	N/A	N/A		
7.3.5.5 (7)	TEMPERATURE CYCLING (TC)	T=-65°C-150°C, PER JESD22 A-104	1	77		
	Pretest		1	77	0/77	
	@ 500 Cycles	T=-65°C-150°C, PER JESD22 A-104	1	77	0/77	
	Final 1000 Cycles	T=-65°C-150°C, PER JESD22 A-104	1	77	0/77	
7.3.5.6 (8)	AUTOCLAVE (AC)	T=121°C 15PSIG 100%RH	1	77	0/77	
7.3.5.7 (9)	H^3TRB	T=85°C RH=85% Vc=40V	N/A	N/A		
	Pretest		N/A	N/A		
	@ 500 Hours	T=85°C RH=85% Vc=40V	N/A	N/A		
	Final 1000 Hours	T=85°C RH=85% Vc=40V	N/A	N/A		
7.3.5.7 (9a)	Highly Accelerated Stress Test(HAST)	T=130°C RH=85% Vc=40V,PER JESD22 A-110	1	77		
	Pretest		1	77	0/77	
	After 96hrs	T=130°C RH=85% Vc=40V	1	77	0/77	
7.3.5.8 (10)	INTERMITTENTOPERATING LIFE (IOL)	Vc=30V Ic=10mA, PER MIL-STD-750 METHOD 1037	1	77		15000cycles@2mins on/off
	Pretest	MIL-STD-750 METHOD 1037	1	77	0/77	
	Midpoint	MIL-STD-750 METHOD 1037	1	77	0/77	
	After	MIL-STD-750 METHOD 1037	1	77	0/77	
(10a)	POWER AND TEMP. CYCLE (PTC)	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
(Optional)	Pretest	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
	Midpoint	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
	After	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
7.3.5.9 (11)	ESD CHARACTERIZATION (ESD)	PER AEC-Q101-001 & -002	N/A	N/A	0/60	MM 400V HBM 8KV
7.3.5.10 (12)	Destructive Physical Analysis (DPA)	AEC Q101-004 Section 4	1	4	0/4	
7.3.5.11 (13)	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	N/A	N/A		
7.3.5.12 (14)	TERMINAL STRENGTH (TS)	MIL-STD-750, Method 2036	N/A	N/A		
7.3.5.13 (15)	RESISTANCE TO SOLVENTS (RTS)	JESD22 B-107	N/A	N/A		
(16)	CONSTANT ACCELERATION (CA)	N/A, not hermetically sealed device.	N/A	N/A		
(17)	VIBRATION VARIABLE FREQUENCY (VVF)	N/A, not hermetically sealed device.	N/A	N/A		
(18)	MECHANICAL SHOCK (MS)	N/A, not hermetically sealed device.	N/A	N/A		
(19)	HERMETICITY (HER)	N/A, not hermetically sealed device.	N/A	N/A		
7.3.5.14 (20)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 B-106	1	30	0/30	260°C@30sec
7.3.5.15 (21)	SOLDERABILITY (SD)	J-STD-002	N/A	N/A		
7.3.5.16 (22)	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	N/A	N/A		
7.3.5.17 (23)	WIRE BOND STRENGTH (WBS)	MIL-STD-750 METHOD 2037	1	30	0/30	
7.3.5.18 (24)	BOND SHEAR (BS)	AEC-Q101-003	1	30	0/30	
7.3.5.19 (25)	DIE SHEAR (DS)	MIL-STD-750 METHOD 2017	1	30	0/30	
(26)	UNCLAMPED INDUCTIVE SWITCHING (UIS	N/A, not for Diode	N/A	N/A		
(27)	DIELECTRIC INTEGRITY (DI)	N/A, not for Diode	N/A	N/A		
Summary:	This lot has passed 1000hrs hi-rel test.					
Submitted by:	Sean Huang 11/20/15	Approved by: Susan Ding 11/20/15				

SHANGHAI KAIHONG ELECTRONIC CO.,LTD

Reliability Test Summary

FACTORY:		PART NUMBER : BC847PNQ-7-F SWR1602134 Package Description : SOT-363			CUSTOMER: DIODES INC.:	
LABORATORY (If Different):		PART DESCRIPTION :Phenitec wafer:C5334D23H BIN2+A5335G23H_856 BIN2 5ACP-4409+5ACZ-3078				
DW-008 (AEC Q101) Test#	Test Description	Test Conditions	#Lots	#To Test	**Results**	REMARKS
7.3.2 (1)	Pre- and Post- Stress Electrical Test (TEST)	Per Spec	1	500	0/500	
7.3.3 (2)	Pre-conditioning (PC)	PER JSED22 A-113 N/A for Axial	1	308	0/308	
7.3.5.1 (3)	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	0/500	
7.3.5.4 (5)	High Temperature Reverse Bias (HTRB)	T=150℃ Vc=50V, PER MIL-STD-750-1 M1038 Method A				
	Pretest		1	77	0/77	
	@ 500 Hours	T=150℃ Vc=50V, PER MIL-STD-750-1 M1038 Method A	1	77	0/77	
	Final 1000 Hours	T=150℃ Vc=50V, PER MIL-STD-750-1 M1038 Method A	1	77	0/77	
	Steady State Operational(SSOP)	Iz max, PER MIL-STD-750-1 M1038 Condition B(Zeners)	1	77	N/A	For Zeners only
(6)	High Temperature Gate Bias (HTGB)	T=175℃ Vg=20V, PER JESD22 A-108				
	Pretest		1	77	N/A	
	@ 500 Hours	T=175℃ Vg=20V, PER JESD22 A-108	1	77	N/A	
	Final 1000 Hours	T=175℃ Vg=20V, PER JESD22 A-108	1	77	N/A	
7.3.5.5 (7)	Temperature Cycling (TC)	T=-65℃-150℃, PER JESD22 A-104				
	Pretest		1	77	0/77	
	@ 500 Cycles	T=-65℃-150℃, PER JESD22 A-104	1	77	0/77	
	Final 1000 Cycles	T=-65℃-150℃, PER JESD22 A-104	1	77	0/77	
	Temperature Cycling Hot Test (TCHT)	125℃ test after TC, followed by decap and wire pull from 5 devices, PER JESD22 A-104 Appendix6	1	77	N/A	For MOSFET with internal bond wire sizes 5mil diameter and less.
	Wire Bond Integrity(WBI)	PER MIL-STD-750, Method 2037	1	5	0/5	
7.3.5.6 (8-1)	Autoclave (AC)	T=121℃, RH=100%, 15psig, PER JESD22 A-102	1	77	0/77	96hrs
	Unbiased Highly Accelerated Stress Test(UHAST)	t=96hrs, TA=130℃, RH=85%, PER JESD22 A-118	1	77	N/A	(Optional)
7.3.5.7 (9a)	Highly Accelerated Stress Test(HAST)	T=130℃, RH=85%, Vd=40V, PER JESD22 A-110	1	77	N/A	96hrs
7.3.5.7 (9)	High Humidity High Temp. Reverse Bias(H^3TRB)	T=85℃, RH=85%, Vc=40V, PER JESD22 A-101	1	77		(Optional)
	Pretest		1	77	0/77	
	@ 500 Hours	T=85℃, RH=85%, Vc=40V, PER JESD22 A-101	1	77	0/77	
	Final 1000 Hours	T=85℃, RH=85%, Vc=40V, PER JESD22 A-101	1	77	0/77	
7.3.5.8 (10)	Intermittent Operational Life(IOL)	Vc=20V , Ic=10mA; PER MIL-STD-750 METHOD 1037				2mins on/off 15000cycles
	Pretest		1	77	0/77	
	@ 7560 Cycles	PER MIL-STD-750 METHOD 1037	1	77	0/77	
	Final 15000 Cycles	PER MIL-STD-750 METHOD 1037	1	77	0/77	
(10a)	Power and Temperature Cycle (PTC)	PER JESD22 A-105	1	77	N/A	(Optional)
7.3.5.10 (12)	Destructive Physical Analysis (DPA)	PER AEC-Q101-004 Section 4	1	4	0/4	
7.3.5.14 (16)	Resistance to Solder Heat (RSH)	PER JESD22 A-111 (SMD), B-106 (PTH)	1	30	0/30	260℃@30sec
7.3.5.15 (17)	Solderability (SD)	PER J-STD-002	1	10	0/10	245℃@5sec
Summary: The lot has passed 1000hrs hi-rel tests.						
Submitted by: Sean Huang 05/26/16		**Approved by: Adam Gu 05/26/16**				

Q-Form Q014-4,Rev.L

SHANGHAI KAIHONG ELECTRONIC CO.,LTD

Reliability Test Summary

FACTORY:		PART NUMBER : BC847PNQ-7-F SWR1603047 Package Description : SOT-363			CUSTOMER: DIODES INC.:	
LABORATORY (If Different):		PART DESCRIPTION :Phenitec wafer:X93342+A5335G23H_857 BIN2 50180822NI+5ACY-2575, 1.0mil Cu wire				
DW-008 (AEC Q101) Test#	Test Description	Test Conditions	#Lots	#To Test	**Results**	REMARKS
7.3.2 (1)	Pre- and Post- Stress Electrical Test (TEST)	Per Spec	1	500	0/500	
7.3.3 (2)	Pre-conditioning (PC)	PER JSED22 A-113 N/A for Axial	1	308	0/308	
7.3.5.1 (3)	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	0/500	
7.3.5.4 (5)	High Temperature Reverse Bias (HTRB)	T=150℃ Vc=50V, PER MIL-STD-750-1 M1038 Method A				
	Pretest		1	77	0/77	
	@ 500 Hours	T=150℃ Vc=50V, PER MIL-STD-750-1 M1038 Method A	1	77	0/77	
	Final 1000 Hours	T=150℃ Vc=50V, PER MIL-STD-750-1 M1038 Method A	1	77	0/77	
	Steady State Operational(SSOP)	Iz max, PER MIL-STD-750-1 M1038 Condition B(Zeners)	1	77	N/A	For Zeners only
(6)	High Temperature Gate Bias (HTGB)	T=175℃ Vg=20V, PER JESD22 A-108				
	Pretest		1	77	N/A	
	@ 500 Hours	T=175℃ Vg=20V, PER JESD22 A-108	1	77	N/A	
	Final 1000 Hours	T=175℃ Vg=20V, PER JESD22 A-108	1	77	N/A	
7.3.5.5 (7)	Temperature Cycling (TC)	T=-65℃-150℃, PER JESD22 A-104				
	Pretest		1	77	0/77	
	@ 500 Cycles	T=-65℃-150℃, PER JESD22 A-104	1	77	0/77	
	Final 1000 Cycles	T=-65℃-150℃, PER JESD22 A-104	1	77	0/77	
	Temperature Cycling Hot Test (TCHT)	125℃ test after TC, followed by decap and wire pull from 5 devices, PER JESD22 A-104 Appendix6	1	77	N/A	For MOSFET with internal bond wire sizes 5mil diameter and less.
	Wire Bond Integrity(WBI)	PER MIL-STD-750, Method 2037	1	5	0/5	
7.3.5.6 (8-1)	Autoclave (AC)	T=121℃, RH=100%, 15psig, PER JESD22 A-102	1	77	0/77	96hrs
	Unbiased Highly Accelerated Stress Test(UHAST)	t=96hrs, TA=130℃, RH=85%, PER JESD22 A-118	1	77	N/A	(Optional)
7.3.5.7 (9a)	Highly Accelerated Stress Test(HAST)	T=130℃, RH=85%, Vd=40V, PER JESD22 A-110	1	77	0/77	96hrs
7.3.5.7 (9)	High Humidity High Temp. Reverse Bias(H^3TRB)	T=85℃, RH=85%, Vc=40V, PER JESD22 A-101	1	77	N/A	(Optional)
	Pretest		1	77	N/A	
	@ 500 Hours	T=85℃, RH=85%, Vc=40V, PER JESD22 A-101	1	77	N/A	
	Final 1000 Hours	T=85℃, RH=85%, Vc=40V, PER JESD22 A-101	1	77	N/A	
7.3.5.8 (10)	Intermittent Operational Life(IOL)	Vc=20V , Ic=10mA; PER MIL-STD-750 METHOD 1037				2mins on/off 15000cycles
	Pretest		1	77	0/77	
	@ 7560 Cycles	PER MIL-STD-750 METHOD 1037	1	77	0/77	
	Final 15000 Cycles	PER MIL-STD-750 METHOD 1037	1	77	0/77	
(10a)	Power and Temperature Cycle (PTC)	PER JESD22 A-105	1	77	N/A	(Optional)
7.3.5.10 (12)	Destructive Physical Analysis (DPA)	PER AEC-Q101-004 Section 4	1	4	0/4	
7.3.5.14 (16)	Resistance to Solder Heat (RSH)	PER JESD22 A-111 (SMD), B-106 (PTH)	1	30	0/30	260℃@30sec
7.3.5.15 (17)	Solderability (SD)	PER J-STD-002	1	10	0/10	245℃@5sec
Summary: The lot has passed 1000hrs hi-rel tests.						
Submitted by: Sean Huang 05/26/16		**Approved by: Adam Gu 05/26/16**				

Q-Form Q014-4,Rev.L

SHANGHAI KAIHONG ELECTRONIC CO.,LTD

Hi-Reliability Test Summary Report

FACTORY:		PART NUMBER: DMMT5551S-7-F SWR1112023 Package: SOT26			CUSTOMER: DIODES INC.:	
LABORATORY (If Different):		PART DESCRIPTION: Phenitec wafer:C5983S 1GCV-6911,1.0 mil Copper wire+CEL-1702HF9 SKF				
DW-008 (AEC Q101) Test#	Test Description	Test Conditions	#Lots	#To Test	**Results**	REMARKS
7.3.2 (1)	PRE- AND POST- STRESS ELECTRICAL TEST (TEST)	Per Spec				
7.3.3 (2)	PRECONDITIONING (PC)	JSED22 A-113 N/A for Axial	1	308	0/308	
7.3.5.1 (3)	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	600	0/600	
7.3.5.2 (4)	PARAMETRIC VERIFICATION (PV)	Per Data Sheet Ta1=25C, Ta2=85C, Ta3=125, Ta4=150 BVCEO@IC= 10.0mA ICBO @VCB= 64V HFE@VCE= 5V,IC= 1A VCESAT@IC= 1A,IB= 100mA	N/A	N/A		
	Lot #2		N/A	N/A		
	Lot #3		N/A	N/A		
7.3.5.3	FORWARD SURGE	MIL-750D, Method 4066	N/A	N/A		
7.3.5.4 (5)	HIGH TEMP. REVERSE BIAS (HTRB)	T=150*C Vc=144V, PER JESD22 A-108	1	77		
	Pretest		1	77	0/77	
	@ 500 Hours	T=150*C Vc=144V, PER JESD22 A-108	1	77	0/77	
	Final 1000 Hours	T=150*C Vc=144V, PER JESD22 A-108	1	77	0/77	
7.3.5.4(6)	HIGH TEMP. Storage Life (HTS)	T=150*C , PER JESD22 A-103	1	45		
	Pretest		1	45	0/45	
	@ 500 Hours	T=150*C , PER JESD22 A-103	1	45	0/45	
	Final 1000 Hours	T=150*C , PER JESD22 A-103	1	45	0/45	
(6)	HIGH TEMP GATE BIAS (HTGB)	N/A for Diode	N/A	N/A		
7.3.5.5 (7)	TEMPERATURE CYCLING (TC)	T=-55*C-150*C, PER JESD22 A-104	1	77		
	Pretest		1	77	0/77	
	@ 500 Cycles	T=-55*C-150*C, PER JESD22 A-104	1	77	0/77	
	Final 1000 Cycles	T=-55*C-150*C, PER JESD22 A-104	1	77	0/77	
7.3.5.6 (8)	AUTOCLAVE (AC)	T=121*C 15PSIG 100%RH	1	77	0/77	96hrs
7.3.5.7 (9)	H^3TRB	T=85*C RH=85% Vc=64V	N/A	N/A		
	Pretest		N/A	N/A		
	@ 500 Hours	T=85*C RH=85% Vc=64V	N/A	N/A		
	Final 1000 Hours	T=85*C RH=85% Vc=64V	N/A	N/A		
7.3.5.7 (9a)	Highly Accelerated Stress Test(HAST)	T=130*C RH=85% Vc=42V,PER JESD22 A-110	1	77		
	Pretest		1	77	0/77	
	After 96hrs	T=130*C RH=85% Vc=42V	1	77	0/77	
7.3.5.8 (10)	INTERMITTENTOPERATING LIFE (IOL)	Vc=30V Ic=10mA, PER MIL-STD-750 METHOD 1037	1	77		15000cycles@2mins on/off
	Pretest	MIL-STD-750 METHOD 1037	1	77	0/77	
	Midpoint 7560cycles	MIL-STD-750 METHOD 1037	1	77	0/77	
	After 15000cycles	MIL-STD-750 METHOD 1037	1	77	0/77	
(10a)	POWER AND TEMP. CYCLE (PTC)	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
(Optional)	Pretest	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
	Midpoint	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
	After	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
7.3.5.9 (11)	ESD CHARACTERIZATION (ESD)	PER AEC-Q101-001 & -002	N/A	N/A		MM 400V HBM 8KV
7.3.5.10 (12)	D.P.A. (DPA)	AEC Q101-004 SEC. 4	N/A	N/A		
7.3.5.11 (13)	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	1	30	0/30	
7.3.5.12 (14)	TERMINAL STRENGTH (TS)	MIL-STD-750, Method 2036	N/A	N/A		
7.3.5.13 (15)	RESISTANCE TO SOLVENTS (RTS)	JESD22 B-107	N/A	N/A		
(16)	CONSTANT ACCELERATION (CA)	N/A, not hermetically sealed device.	N/A	N/A		
(17)	VIBRATION VARIABLE FREQUENCY (VVF)	N/A, not hermetically sealed device.	N/A	N/A		
(18)	MECHANICAL SHOCK (MS)	N/A, not hermetically sealed device.	N/A	N/A		
(19)	HERMETICITY (HER)	N/A, not hermetically sealed device.	N/A	N/A		
7.3.5.14 (20)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 B-106	1	45	0/45	260*C@10sec
7.3.5.15 (21)	SOLDERABILITY (SD)	J-STD-002	N/A	N/A		245*C@5sec
7.3.5.16 (22)	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	N/A	N/A		
7.3.5.17 (23)	WIRE BOND STRENGTH (WBS)	MIL-STD-750 METHOD 2037	1	25	0/25	
7.3.5.18 (24)	BOND SHEAR (BS)	AEC-Q101-003	1	25	0/25	
7.3.5.19 (25)	DIE SHEAR (DS)	MIL-STD-750 METHOD 2017	1	25	0/25	
(26)	UNCLAMPED INDUCTIVE SWITCHING (UIS	N/A, not for Diode	N/A	N/A		
(27)	DIELECTRIC INTEGRITY (DI)	N/A, not for Diode	N/A	N/A		
Summary:	This lot passed 1000hrs hi-rel test.					
Submitted by:	Sean Huang 04/03/12	Approved by: Adam Gu 04/03/12				

SHANGHAI KAIHONG ELECTRONIC CO.,LTD

Hi-Reliability Test Summary Report

FACTORY:		PART NUMBER: DP350T05-7 SWR1209208 Package: SOT23			CUSTOMER: DIODES INC.:	
LABORATORY (If Different):		PART DESCRIPTION: Phenitec wafer:AP964 2AHU-8526-01 #45,1.0mil Copper wire				
DW-008 (AEC Q101) Test#	Test Description	Test Conditions	#Lots	#To Test	**Results**	REMARKS
7.3.2 (1)	PRE- AND POST- STRESS ELECTRICAL TEST (TEST)	Per Spec				
7.3.3 (2)	PRECONDITIONING (PC)	JSED22 A-113 N/A for Axial	1	385	0/385	
7.3.5.1 (3)	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	0/500	
7.3.5.2 (4)	PARAMETRIC VERIFICATION (PV)	Per Data Sheet Ta1=25C, Ta2=85C, Ta3=125C, Ta4=150C BVCBO @IC=100uA ICBO @VCB=200V HFE @Vce=10V,Ic=100mA Vcesat @Ic=50mA,Ib=5mA	N/A	25	0/25	
	Lot #2		N/A	N/A		
	Lot #3		N/A	N/A		
7.3.5.3	FORWARD SURGE	MIL-750D, Method 4066	N/A	N/A		
7.3.5.4 (5)	HIGH TEMP. REVERSE BIAS (HTRB)	T=150°C Vc=280V, PER JESD22 A-108	1	77		
	Pretest		1	77	0/77	
	@ 500 Hours	T=150°C Vc=280V, PER JESD22 A-108	1	77	0/77	
	Final 1000 Hours	T=150°C Vc=280V, PER JESD22 A-108	1	77	0/77	
7.3.5.4 (6)	HIGH TEMP. STORAGE LIFE (HTS)	T=150°C , PER JESD22A-103	1	45		
	Pretest		1	45	0/45	
	@ 500 Hours	T=150°C , PER JESD22A-103	1	45	0/45	
	Final 1000Hours	T=150°C , PER JESD22A-103	1	45	0/45	
(6)	HIGH TEMP GATE BIAS (HTGB)	N/A for Diode	N/A	N/A		
7.3.5.5 (7)	TEMPERATURE CYCLING (TC)	T=-55°C-150°C, PER JESD22 A-104	1	77		
	Pretest		1	77	0/77	
	@ 500 Cycles	T=-55°C-150°C, PER JESD22 A-104	1	77	0/77	
	Final 1000 Cycles	T=-55°C-150°C, PER JESD22 A-104	1	77	0/77	
7.3.5.6 (8)	AUTOCLAVE (AC)	T=121°C 15PSIG 100%RH	1	77	0/77	96hrs
7.3.5.7 (9)	H^3TRB	T=85°C RH=85% Vc=100V	1	77		
	Pretest		1	77	0/77	
	@ 500 Hours	T=85°C RH=85% Vc=100V	1	77	0/77	
	Final 1000 Hours	T=85°C RH=85% Vc=100V	1	77	0/77	
7.3.5.7 (9a)	Highly Accelerated Stress Test(HAST)	T=130°C RH=85% Vc=42V,PER JESD22 A-110	1	77		
	Pretest		1	77	0/77	
	After 96hrs	T=130°C RH=85% Vc=42V	1	77	0/77	
7.3.5.8 (10)	INTERMITTENTOPERATING LIFE (IOL)	Vc=30V Ic=10mA, PER MIL-STD-750 METHOD 1037	1	77		15000cycles@2min s on/off
	Pretest	MIL-STD-750 METHOD 1037	1	77	0/77	
	Midpoint	MIL-STD-750 METHOD 1037	1	77	0/77	
	After	MIL-STD-750 METHOD 1037	1	77	0/77	
(10a)	POWER AND TEMP. CYCLE (PTC)	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
(Optional)	Pretest	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
	Midpoint	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
	After	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
7.3.5.9 (11)	ESD CHARACTERIZATION (ESD)	PER AEC-Q101-001 & -002	N/A	N/A	0/10 0/10	MM 400V HBM 8KV
7.3.5.10 (12)	D.P.A. (DPA)	AEC Q101-004 SEC. 4	N/A	N/A		
7.3.5.11 (13)	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	N/A	N/A		
7.3.5.12 (14)	TERMINAL STRENGTH (TS)	MIL-STD-750, Method 2036	N/A	N/A		
7.3.5.13 (15)	RESISTANCE TO SOLVENTS (RTS)	JESD22 B-107	N/A	N/A		
(16)	CONSTANT ACCELERATION (CA)	N/A, not hermetically sealed device.	N/A	N/A		
(17)	VIBRATION VARIABLE FREQUENCY (VVF)	N/A, not hermetically sealed device.	N/A	N/A		
(18)	MECHANICAL SHOCK (MS)	N/A, not hermetically sealed device.	N/A	N/A		
(19)	HERMETICITY (HER)	N/A, not hermetically sealed device.	N/A	N/A		
7.3.5.14 (20)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 B-106	1	45	0/45	260°C@10sec
7.3.5.15 (21)	SOLDERABILITY (SD)	J-STD-002	N/A	N/A		245°C@5sec
7.3.5.16 (22)	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	N/A	N/A	0/10	287℃/W
7.3.5.17 (23)	WIRE BOND STRENGTH (WBS)	MIL-STD-750 METHOD 2037	N/A	N/A		
7.3.5.18 (24)	BOND SHEAR (BS)	AEC-Q101-003	N/A	N/A		
7.3.5.19 (25)	DIE SHEAR (DS)	MIL-STD-750 METHOD 2017	N/A	N/A		
(26)	UNCLAMPED INDUCTIVE SWITCHING (UIS	N/A, not for Diode	N/A	N/A		
(27)	DIELECTRIC INTEGRITY (DI)	N/A, not for Diode	N/A	N/A		
Summary:	This lot passed 1000hrs hi-rel test.					
Submitted by:	Sean Huang 01/04/13	Approved by: Susan Ding 01/04/13				

SHANGHAI KAIHONG ELECTRONIC CO.,LTD

Hi-Reliability Test Summary Report

FACTORY:		PART NUMBER: MMST5401-7-F SWR1112215 Package: SOT323			CUSTOMER: DIODES INC.:	
LABORATORY (If Different):		PART DESCRIPTION: Phenitec Wafer:A5983F 1GCV-6917,1.0mil Cu wire + CEL-1702HF9 SK				
DW-008 (AEC Q101) Test#	Test Description	Test Conditions	#Lots	#To Test	**Results**	REMARKS
7.3.2 (1)	PRE- AND POST- STRESS ELECTRICAL TEST (TEST)	Per Spec				
7.3.3 (2)	PRECONDITIONING (PC)	JSED22 A-113 N/A for Axial	1	308	0/308	
7.3.5.1 (3)	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	600	0/600	
7.3.5.2 (4)	PARAMETRIC VERIFICATION (PV)	Per Data Sheet Ta1=25C, Ta2=85C, Ta3=125C, Ta4=150C ICBO @VCB=150V HFE @Vce=5V,Ic=50mA Vcesat @Ic=50mA,Ib=5mA	1	25	0/25	
	Lot #2		N/A	N/A		
	Lot #3		N/A	N/A		
7.3.5.3	FORWARD SURGE	MIL-750D, Method 4066	N/A	N/A		
7.3.5.4 (5)	HIGH TEMP. REVERSE BIAS (HTRB)	T=150°C Vc=128V, PER JESD22 A-108	1	77		
	Pretest		1	77	0/77	
	@ 500 Hours	T=150°C Vc=128V, PER JESD22 A-108	1	77	0/77	
	Final	T=150°C Vc=128V, PER JESD22 A-108	1	77	0/77	
7.3.5.4 (6)	HIGH TEMP. STORAGE LIFE (HTS)	T=150°C , PER JESD22A-103	1	45		
	Pretest		1	45	0/45	
	@ 500 Hours	T=150°C , PER JESD22A-103	1	45	0/45	
	Final 1000Hours	T=150°C , PER JESD22A-103	1	45	0/45	
(6)	HIGH TEMP GATE BIAS (HTGB)	N/A for Diode	N/A	N/A		
7.3.5.5 (7)	TEMPERATURE CYCLING (TC)	T=-55°C-150°C, PER JESD22 A-104	1	77		
	Pretest		1	77	0/77	
	@ 500 Cycles	T=-55°C-150°C, PER JESD22 A-104	1	77	0/77	
	Final 1000 Cycles	T=-55°C-150°C, PER JESD22 A-104	1	77	0/77	
7.3.5.6 (8)	AUTOCLAVE (AC)	T=121°C 15PSIG 100%RH	1	77	0/77	96hrs
7.3.5.7 (9)	H^3TRB	T=85°C RH=85% Vc=60V	N/A	N/A		
	Pretest		N/A	N/A		
	@ 500 Hours	T=85°C RH=85% Vc=60V	N/A	N/A		
	Final 1000 Hours	T=85°C RH=85% Vc=60V	N/A	N/A		
7.3.5.7 (9a)	Highly Accelerated Stress Test(HAST)	T=130°C RH=85% Vc=42V,PER JESD22 A-110	1	77		
	Pretest		1	77	0/77	
	After 96hrs	T=130°C RH=85% Vc=42V	1	77	0/77	
7.3.5.8 (10)	INTERMITTENTOPERATING LIFE (IOL)	Vc=20V Ic=10mA, PER MIL-STD-750 METHOD 1037	1	77		15000cycles@2min s on/off
	Pretest	MIL-STD-750 METHOD 1037	1	77	0/77	
	Midpoint	MIL-STD-750 METHOD 1037	1	77	0/77	
	After	MIL-STD-750 METHOD 1037	1	77	0/77	
(10a)	POWER AND TEMP. CYCLE (PTC)	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
(Optional)	Pretest	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
	Midpoint	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
	After	JESD22 A-105, Per Table AEC-Q101, p11	N/A	N/A		
7.3.5.9 (11)	ESD CHARACTERIZATION (ESD)	PER AEC-Q101-001 & -002	N/A	N/A	0/10 0/10	MM 400V HBM 8KV
7.3.5.10 (12)	D.P.A. (DPA)	AEC Q101-004 SEC. 4	N/A	N/A		
7.3.5.11 (13)	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	N/A	N/A		
7.3.5.12 (14)	TERMINAL STRENGTH (TS)	MIL-STD-750, Method 2036	N/A	N/A		
7.3.5.13 (15)	RESISTANCE TO SOLVENTS (RTS)	JESD22 B-107	N/A	N/A		
(16)	CONSTANT ACCELERATION (CA)	N/A, not hermetically sealed device.	N/A	N/A		
(17)	VIBRATION VARIABLE FREQUENCY (VVF)	N/A, not hermetically sealed device.	N/A	N/A		
(18)	MECHANICAL SHOCK (MS)	N/A, not hermetically sealed device.	N/A	N/A		
(19)	HERMETICITY (HER)	N/A, not hermetically sealed device.	N/A	N/A		
7.3.5.14 (20)	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 B-106	1	45	0/45	260°C@10sec
7.3.5.15 (21)	SOLDERABILITY (SD)	J-STD-002	N/A	N/A		245°C@5sec
7.3.5.16 (22)	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	N/A	N/A	0/10	379℃/W
7.3.5.17 (23)	WIRE BOND STRENGTH (WBS)	MIL-STD-750 METHOD 2037	N/A	N/A		
7.3.5.18 (24)	BOND SHEAR (BS)	AEC-Q101-003	N/A	N/A		
7.3.5.19 (25)	DIE SHEAR (DS)	MIL-STD-750 METHOD 2017	N/A	N/A		
(26)	UNCLAMPED INDUCTIVE SWITCHING (UIS	N/A, not for Diode	N/A	N/A		
(27)	DIELECTRIC INTEGRITY (DI)	N/A, not for Diode	N/A	N/A		
Summary:	This lot passed 1000hrs hi-rel test.					
Submitted by:	Sean Huang 08/01/12	Approved by: Adam Gu 08/01/12				

SHANGHAI KAIHONG ELECTRONIC CO.,LTD

Hi-Reliability Test Summary Report

FACTORY:		PART NUMBER: MMSTA06Q-7-F SWR1609156 Package: SOT-323			CUSTOMER: DIODES INC.:	
LABORATORY (If Different):		PART DESCRIPTION: Phenitec wafer:DP006DE 6AHT-5275,Cu 1.0mil + CEL-1702HF9 SKF				
DW-008 (AEC Q101) Test#	Test Description	Test Conditions	#Lots	#To Test	**Results**	REMARKS
7.3.2 (1)	Pre- and Post- Stress Electrical Test (TEST)	Per Spec	1	500	0/500	
7.3.3 (2)	Pre-conditioning (PC)	PER JSED22 A-113 N/A for Axial	1	308	0/308	
7.3.5.1 (3)	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	0/500	
7.3.5.4 (5)	High Temperature Reverse Bias (HTRB)	T=150℃ Vc=80V, PER MIL-STD-750-1 M1038 Method A				
	Pretest		1	77	0/77	
	@ 500 Hours	T=150℃ Vc=80V, PER MIL-STD-750-1 M1038 Method A	1	77	0/77	
	Final 1000 Hours	T=150℃ Vc=80V, PER MIL-STD-750-1 M1038 Method A	1	77	0/77	
	Steady State Operational(SSOP)	Iz max, PER MIL-STD-750-1 M1038 Condition B(Zeners)	1	77	N/A	For Zeners only
(6)	High Temperature Gate Bias (HTGB)	T=175℃ Vg=20V, PER JESD22 A-108				
	Pretest		1	77	N/A	
	@ 500 Hours	T=175℃ Vg=20V, PER JESD22 A-108	1	77	N/A	
	Final 1000 Hours	T=175℃ Vg=20V, PER JESD22 A-108	1	77	N/A	
7.3.5.5 (7)	Temperature Cycling (TC)	T=-65℃-150℃, PER JESD22 A-104				
	Pretest		1	77	0/77	
	@ 500 Cycles	T=-65℃-150℃, PER JESD22 A-104	1	77	0/77	
	Final 1000 Cycles	T=-65℃-150℃, PER JESD22 A-104	1	77	0/77	
	Temperature Cycling Hot Test (TCHT)	125℃ test after TC, followed by decap and wire pull from 5 devices, PER JESD22 A-104 Appendix6	1	77	N/A	For MOSFET with internal bond wire sizes 5mil diameter and less.
	Wire Bond Integrity(WBI)	PER MIL-STD-750, Method 2037	1	5	0/5	
7.3.5.6 (8-1)	Autoclave (AC)	T=121℃, RH=100%, 15psig, PER JESD22 A-102	1	77	0/77	96hrs
	Unbiased Highly Accelerated Stress Test(UHAST)	t=96hrs, TA=130℃, RH=85%, PER JESD22 A-118	1	77	N/A	(Optional)
7.3.5.7 (9a)	Highly Accelerated Stress Test(HAST)	T=130℃, RH=85%,Vc=42V, PER JESD22 A-110	1	77	0/77	96hrs
7.3.5.7 (9)	High Humidity High Temp. Reverse Bias(H^3TRB)	T=85℃, RH=85%, Vc=100V, PER JESD22 A-101	1	77		(Optional)
	Pretest		1	77	N/A	
	@ 500 Hours	T=85℃, RH=85%, Vc=100V, PER JESD22 A-101	1	77	N/A	
	Final 1000 Hours	T=85℃, RH=85%, Vc=100V, PER JESD22 A-101	1	77	N/A	
7.3.5.8 (10)	Intermittent Operational Life(IOL)	Vc=20V Ic=10mA; PER MIL-STD-750 METHOD 1037				2mins on/off 15000cycles
	Pretest		1	77	0/77	
	@ 7560 Cycles	PER MIL-STD-750 METHOD 1037	1	77	0/77	
	Final 15000 Cycles	PER MIL-STD-750 METHOD 1037	1	77	0/77	
(10a)	Power and Temperature Cycle (PTC)	PER JESD22 A-105	1	77	N/A	(Optional)
7.3.5.10 (12)	Destructive Physical Analysis (DPA)	PER AEC-Q101-004 Section 4	1	4	0/4	
7.3.5.14 (16)	Resistance to Solder Heat (RSH)	PER JESD22 A-111 (SMD), B-106 (PTH)	1	30	0/30	260℃@10sec
7.3.5.15 (17)	Solderability (SD)	PER J-STD-002	1	10	N/A	245℃@5sec
Summary: The lot passed 1000hrs hi-rel test.						
Submitted by: Sean Huang 12/06/16		**Approved by: Adam Gu 12/06/16**				

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