DIODES INCORPORATED

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Diodes Incorporated for Discrete and Analog Semiconductors

QPAK/PPAP – 2136

Qualification Report

Manufacturer No.:	**PCN-2136 – Qualification of "Yangzhou YangJie Electronic Technology Company Limited" as an Additional Assembly & Test Site and "J & V Semiconductor" as an Additional Wafer Source for Selected Discrete Devices, and Qualification of New Lead Frame and Clip for Selected GBJ Devices**
Revision	**0**
Date:	**July 9, 2014**
Qualified By:	**YangJie, Lite-On, & 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 the parts listed in this report.

Prepared By:	**Diodes US Document Control**	**Date**	**July 9, 2014**
Approved By:	**Diodes US QRA Department**	**Date**	**July 9, 2014**

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

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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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DIODES INCORPORATED
4949 Hedgcoxe Road, Suite # 200
Plano, TX 75024 USA
(972) 987-3900
www.diodes.com

DATE: 9th July, 2014

PCN #: 2136

PCN Title: Qualification of "Yangzhou YangJie Electronic Technology Company Limited" as an Additional Assembly & Test Site and “J & V Semiconductor” as an Additional Wafer Source for Selected Discrete Devices, and Qualification of New Lead Frame and Clip for Selected GBJ Devices

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 within 30 days as well. Otherwise, samples may not be built prior to this change. 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 not be implemented earlier than 90 days from the notification date stated in the attached PCN form.

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-2136 REV 00

Notification Date:	Implementation Date:	Product Family:	Change Type:	PCN #:
9th July, 2014	8th October, 2014	Discrete Products	Additional Assembly & Test Site / New Wafer Source / Lead Frame and Clip structure	**2136**

TITLE
Qualification of "Yangzhou YangJie Electronic Technology Company Limited" as an Additional Assembly & Test Site and “J & V Semiconductor” as an Additional Wafer Source for Selected Discrete Devices, and Qualification of New Lead Frame and Clip for Selected GBJ Devices

DESCRIPTION OF CHANGE

This PCN is being issued to notify customers that in order to assure continuity of supply, Diodes has qualified Yangzhou YangJie Electronic Technology Company Limited" as an Additional Assembly & Test Site and “J & V Semiconductor” as an Additional Wafer Source for selected discrete devices.

Additionally, in order to improve GBJ package body strength and gain better device power dissipation capability, Diodes Incorporated has qualified a new lead frame structure and clip layout for selected GBJ products.

Full electrical characterization and high reliability testing have been completed to ensure that no changes in product reliability, device functionality or data sheet electrical specifications exist.

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

IMPACT

No change in datasheet parameters and product performance

PRODUCTS AFFECTED

Please refer to Table 1 for Additional A/T Site and Wafer Source

Please refer to Table 2 for Additional A/T Site and Wafer Source, and Change of Lead Frame / Clip Layout at the current A/T site

Please refer to Table 3 for Change of Lead Frame / Clip Layout at the current A/T Site

WEB LINKS	
Manufacturer’s Notice:	http://www.diodes.com/quality/pcns
For More Information Contact:	http://www.diodes.com/contacts
Data Sheet:	http://www.diodes.com/products

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 - Additional A/T Site and Wafer Source				
RS2M-13-F	S2JA-13-F	RS1K-13-F	GBU810	GBU402
RS2MA-13-F	S2J-13-F	RS1J-13-F	GBU808	GBU401
RS2KA-13-F	S2GA-13-F	RS1G-13-F	GBU806	GBU1010
RS2K-13-F	S2G-13-F	RS1D-13-F	GBU804	GBU1008
RS2JA-13-F	S2DA-13-F	RS1B-13-F	GBU802	GBU1006
RS2J-13-F	S2D-13-F	RS1A-13-F	GBU801	GBU1004
RS2GA-13-F	S2BA-13-F	ES2D-13-F	GBU8005	GBU1002
RS2G-13-F	S2B-13-F	ES2DA-13-F	GBU610	GBU1001
RS2DA-13-F	S2AA-13-F	ES2CA-13-F	GBU608	GBU10005
RS2D-13-F	S2A-13-F	ES2C-13-F	GBU606	1N4007G-T
RS2BA-13-F	S1M-13-F	ES2BA-13-F	GBU604	1N4006G-T
RS2B-13-F	S1K-13-F	ES2B-13-F	GBU602	1N4005G-T
RS2AA-13-F	S1J-13-F	ES2AA-13-F	GBU601	1N4004G-T
RS2A-13-F	S1G-13-F	ES2A-13-F	GBU6005	1N4003G-T
S2M-13-F	S1D-13-F	HD06-T	GBU410	1N4002G-T
S2MA-13-F	S1B-13-F	HD04-T	GBU408	1N4001G-T
S2KA-13-F	S1A-13-F	HD02-T	GBU406	
S2K-13-F	RS1M-13-F	HD01-T	GBU404	

Table 2 - Additional A/T Site and Wafer Source, and Change of Lead Frame / Clip Layout at the current A/T Site				
GBJ2510-F	GBJ2501-F	GBJ1504-F	GBJ1008-F	GBJ10005-F
GBJ2508-F	GBJ25005-F	GBJ1502-F	GBJ1006-F	
GBJ2506-F	GBJ1510-F	GBJ1501-F	GBJ1004-F	
GBJ2504-F	GBJ1508-F	GBJ15005-F	GBJ1002-F	
GBJ2502-F	GBJ1506-F	GBJ1010-F	GBJ1001-F	

Table 3 – Change of Lead Frame / Clip Layout at the current A/T Site				
GBJ810-F	GBJ801-F	GBJ604-F	GBJ2008-F	GBJ20005-F
GBJ808-F	GBJ8005-F	GBJ602-F	GBJ2006-F	
GBJ806-F	GBJ610-F	GBJ601-F	GBJ2004-F	
GBJ804-F	GBJ608-F	GBJ6005-F	GBJ2002-F	
GBJ802-F	GBJ606-F	GBJ2010-F	GBJ2001-F	

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	Yang Zhou Yangjie Electronic Technology Co., Ltd.	**Glass tansiteion temperture (T_G)**	175C
DIC P/N	1N4007G	**Lead material type**	N/A
Package Type	DO-204AL	**Lead Material manufacturer**	Chang Zhou Star Light Electronics Co.,LTD
DIE P/N	1A 1000V 50mil	**Lead plating/ coating**	Tin
Die line or process	GPP DIODEDS	**Lead frame material type**	Cu
Wafer Diameter	4 inch	**Header plating (Die land area)**	N/A
Wafer Fab Site(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Max junction temperature(Tj)**	150 °C
ID method (multiple sites)	N/A	**Max thermal resistance junction to lead**	25°C/W
Assembly Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Max** thermal **resistance junction to ambient (θJA)***	55°C/W
Test Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Front metal type (Top layer)**	Ni-Ni-AU
Die attach Method / Material	Solder Preform	**Front metal thickness (Top layer)**	0.29~0.31MM
Bond wire material & dia.	N/A	**Back metal type (All layers)**	Ni-Ni-AU
Bond type(at topside of the die)	Soldering	**Back metal thickness (all Layers)**	0.29-0.31um
Bond type(at lead frame)	Soldering	**Die conforming coating**	N/A
No. of bonds over active area	N/A	**Die size (width x length x thickness) in mm**	1.80*1.80*0.31
Package material type	EME-125H	**Die passivation thickness range**	N/A
Package material manufacturer	Enternal Electronic Materials(Chang Shu) Co., Ltd	**No. of mask steps**	N/A

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and sign.
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

	Completed by	Date	Certified by	Date
Typed / Printed		Jun-15-13		Jun-15-13
Signature		Jun-15-13		Jun-15-13
Title	QA Engineer		QA Manager	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 **FAX : (+86)0514-87755189**

Reliability Test Summary

FACTORY: YJ	PART NUMBER :1N4007G	CUSTOMER: DIODES
	Package Description : DO-41	Test NO.:YJSK1402016B
LABORATORY:YJ	PART DESCRIPTION : General Purpose Rectifier	

#	Test Description	Test Conditions	#Lots	#To Test	Results	REMARKS
1	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	ACC	
2	PARAMETRIC VERIFICATION (PV)	Per Data Sheet	1	25	ACC	
3	FORWARD SURGE	8.3ms,单项,半波,IFSM =30A,5次	1	45	ACC	
4	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h	1	77	ACC	
5	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles	1	77	ACC	
6	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h	1	77	ACC	
7	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H	1	77	ACC	
8	INTERMITTENTOPERATING LIFE (IOL)	△Tj⩾100℃,2min On/ 2min Off, 15000 cycles	1	77	ACC	
9	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV	1	60	ACC	
		MM：200pF,0Ω ,200V	1	60	ACC	
10	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	1	30	ACC	
11	TERMINAL STRENGTH (TS)	MIL-STD-750 METHOD 2036	1	30	ACC	
12	RESISTANCE TO SOLDER HEAT (RSH)	260℃,30″	1	30	ACC	
13	SOLDERABILITY (SD)	245℃±5℃,5″	1	10	ACC	
14	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	1	10	ACC	
15	D.P.A. (DPA)	AEC Q101-004 SEC. 4	1	2	ACC	

Summary: ACC

Submitted by: :Weikang Sun Date：2014-04-25	Approved by: Ya Han Date：2014-04-25

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	Yangzhou Yangjie Electronic Technology Co., Ltd.	Glass tansiteion temperture (T_G)	175 °C
DIC P/N	ES2D	Lead material type	KFC
Package Type	SMB	Lead Material manufacturer	YANGZHOU GANGBO CO., LTD.
DIE P/N	SF 200V 60mil	Lead plating/ coating	Tin
Die line or process	SF GPP DIODEDS	Lead frame material type	Cu
Wafer Diameter	4 inch	Header plating (Die land area)	N/A
Wafer Fab Site(s)	J&V SEMICONDUCTOR CO.,LTD.	Max junction temperature(Tj)	150 °C
ID method (multiple sites)	N/A	Max thermal resistance junction to lead	20°C/W
Assembly Locations(s)	No.26 Jiangyang Industrial Zone, Yangzhou, Jiangsu,	Max thermal resistance junction to ambient (θJA)*	75°C/W
Test Locations(s)	No.26 Jiangyang Industrial Zone, Yangzhou, Jiangsu, Shandong	Front metal type (Top layer)	Ni-Ni-Au
Die attach Method / Material	Solder Preform	Front metal thickness (Top	0.3~0.4um
Bond wire material & dia.	N/A	Back metal type (All layers)	Ni-Ni-Au
Bond type (at topside of the die)	Soldering	Back metal thickness (all Layers	0.3~0.4um
Bond type	Soldering	Die conforming coating	Solderable metal
No. of bonds over active area	1clip	Die size (width x length x	1.52*1.52*0.30
Package material type	EK1700G	Die passivation thickness range	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co., Ltd	No. of mask steps	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 FAX : (+86)0514-87755189

Reliability Test Summary

FACTORY: YJ | PART NUMBER :ES2D | CUSTOMER: DIODES

Package Description : SMB | Test NO.:YJSK1402001B

LABORATORY:YJ | PART DESCRIPTION : Super Fast Recovery Rectifier Diode

#	Test Description	Test Conditions		#Lots	#To Test	Results	REMARKS
1	PRECONDITIONING (PC)	Initial Electrical Test		1	308	Pass	
		Visual Inspection					
		Temperature Cycling	-40℃~60℃，5cycles				
		Bake	125℃,24H				
		Moisture Soak					
		Reflow*3cycles	260℃,3cycles time 5-60min				
		Flux Application					
		Cleaning					
		Drying					
		Final Electrical Test					
2	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071		1	500	Pass	
3	PARAMETRIC VERIFICATION (PV)	Per Data Sheet		1	25	Pass	
4	FORWARD SURGE	8.3ms,单项,半波 ,IFSM =50A,5次		1	45	Pass	
5	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h		1	77	Pass	
6	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles		1	77	Pass	
7	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h		1	77	Pass	
8	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H		1	77	Pass	
9	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles		1	77	Pass	
10	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV		1	60	Pass	
		MM：200pF,0Ω ,200V		1	60	Pass	
11	PHYSICAL DIMENSION (PD)	PER JESD22 B-100		1	30	Pass	
12	RESISTANCE TO SOLDER HEAT (RSH)	260℃(+5,-0),30″		1	30	Pass	
13	SOLDERABILITY (SD)	245℃±5℃,5″		1	10	Pass	
14	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate		1	10	Pass	
15	D.P.A. (DPA)	AEC Q101-004 SEC. 4		1	2	Pass	

Summary: ACC

Submitted by: :Weikang Sun Date：2014-04-11	Approved by: Ya Han Date：2014-04-11

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	Yangzhou Yangjie Electronic Technology Co., Ltd.	**Glass tansiteion temperture (T_G)**	150 ^{O}C
DIC P/N	GBJ1010	**Lead material type**	KFC
Package Type	6KBJ	**Lead Material manufacturer**	YANGZHOU ZHENGFANG CO., LTD.
DIE P/N	STD 10A 1000V 110mil	**Lead plating/ coating**	Tin
Die line or process	STD GPP DIODEDS	**Lead frame material type**	Cu
Wafer Diameter	3 inch	**Header plating (Die land area)**	N/A
Wafer Fab Site(s)	**J&V SEMICONDUCTOR CO.,LTD.**	**Max junction temperature(Tj)**	150 ^{O}C
ID method (multiple sites)	N/A	**Max thermal resistance junction to case (θJC)**	2.3°C/W
Assembly Locations(s)	No.26,Mid Pioneer Park Road, Weiyang Economic Development Zone,Yangzhou,Jiangsu,China 225008	**Max thermal resistance junction to ambient (θJA)***	25°C/W
Test Locations(s)	No.26,Mid Pioneer Park Road, Weiyang Economic Development Zone,Yangzhou,Jiangsu,China 225008 Shandong	**Front metal type (Top layer)**	Ni-Ni-Au
Die attach Method / Material	Solder Preform	**Front metal thickness (Top layer)**	30KA
Bond wire material & dia	N/A	**Back metal type (All layers)**	Ni-Ni-Au
Bond type (at topside of the die)	Soldering	**Back metal thickness (all Layers**	30KA
Bond type	Soldering	**Die conforming coating**	N/A
No. of bonds over active area	4clip	**Die size (width x length x**	2.41*2.41*0.27
Package material type	EK1700G	**Die passivation thickness range**	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co., Ltd	**No. of mask steps**	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

Completed by		Date	Certified by	Date
Typed / Printed				
Signature				
Title	QA Engineer		QA Manager	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 **FAX : (+86)0514-87755189**

Reliability Test Summary

FACTORY: YJ	PART NUMBER :GBJ1010	CUSTOMER: DIODES
	Package Description : 6KBJ	Test NO.:YJSK1402013B
LABORATORY:YJ	PART DESCRIPTION : Bridge Rectifier	

#	Test Description	Test Conditions	#Lots	#To Test	Results	REMARKS
1	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	ACC	
2	PARAMETRIC VERIFICATION (PV)	Per Data Sheet	1	25	ACC	
3	FORWARD SURGE	8.3ms,单项,半波,IFSM =170A,5次	1	45	ACC	
4	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h	1	77	ACC	
5	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles	1	77	ACC	
6	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h	1	77	ACC	
7	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H	1	77	ACC	
8	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles	1	77	ACC	
9	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV	1	60	ACC	
		MM：200pF,0Ω ,200V	1	60	ACC	
10	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	1	30	ACC	
11	RESISTANCE TO SOLDER HEAT (RSH)	260℃,30″	1	30	ACC	
12	SOLDERABILITY (SD)	245℃±5℃,5″	1	10	ACC	
13	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	1	10	ACC	
14	D.P.A. (DPA)	AEC Q101-004 SEC. 4	1	2	ACC	

Summary: ACC

Submitted by: :Weikang Sun Date：2014-04-21	Approved by: Ya Han Date：2014-04-21

CERTIFICATE OF DESIGN AND CONSTRUCTION

Assembly and Test Site	**Lite-on Microelectronics(Wuxi)Co.,Ltd.** **Land Lot J7.J8WEPZ,New District,Wuxi City,Jiangsu,PRC**	**Glass transition temperature (T_g)**	150-175℃
User P/N	GBJ1506	**Lead material type**	KFC
Generic P/N	BRIDGE	**Lead Material manufacturer**	港波
Supplier P/N	GBJ1506	**Lead plating/ coating**	Matte Tin（Thickness:300~800u"）
Die line or process	GPP	**Lead frame material type**	KFC
Wafer Diameter	4 inch	**Header plating (Die land area)**	Ni
Wafer Fab Site(s)	Liteon semiconductor（WUXI）CO.,LTD	**Max junction temperature(T_j)**	150℃
ID method (multiple sites)	N/A	**Typical thermal resistance junction to case (θ_{JC})**	0.8℃/W (Device mounted on 300mm x 300mm x 1.6mm Cu Plate Heatsink)
Assembly Locations(s)	Lite-on Microelectronics(Wuxi)Co.,Ltd.	**Typical thermal resistance junction to ambient (θ_{JA})***	N/A
Test Locations(s)	Lite-on Microelectronics(Wuxi)Co.,Ltd.	**Front metal type**	Ni
Die attach Method / Material	Solder Paste / AG3 Pb92.5,Sn5.0,Ag2.5	**Front metal thickness**	0.000541-0.00162mm
Bond wire material & dia.	N/A	**Back metal type (All layers)**	Ni
Bond type (at die)	CLIP Bond	**Back metal thickness (all Layers)**	0.000541-0.00162mm
Bond type (at leadframe)	Solder Paste	**Die conforming coating**	N/A
No. of bonds over active area	1 time	**Die size (width x length x thickness) in mil**	110 * 110 * 9.5
Package material type	EME-1200D3	**Die passivation thickness range**	N/A
Package material manufacturer	SUMIKON	**No. of mask steps**	3 step

*Show conditions (i.e. pad size, board material, copper thickness, etc.

Attachments:

1) Die Photo

2) Package outline drawing

3) Die cross-section drawing

4) Wire bond & die placement diagram

5) Test circuits, bias levels and conditions

Requirements:

A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location.

Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and sign.

	Completed by	Date	Certified by	Date
Typed/Printed	Jing Zhang	2013-11-12	Jane Chou	2013-11-12
Signature	Jing Zhang	11/12/13	[illegible]	11/12/13
Title	QRA Engineer		QRA Manager	

LITE-ON MICROELECTRONICS(WuXi) CO., LTD.

HI-REL EXPERIMENT SUMMARY

DEPARTMENT :	**QRA**	**New Structure**	110*110MIL	**DATE :**	**JAN/5/2013**
PRODUCT :	**GBJ1506-C**		SIPOS	**EXP.# :**	**13G004**
CRITERIAL :	**VF(mV)< 1050 mV**	**@IF= 7.5 A**		**LOT NO:**	**N/A**
	PIV(V)> 600 V	**@IR= 10 uA**		**D/C :**	**N/A**
	IR(uA)< 10 uA	**@PIV= 600 V**		**P/N:**	**B25129501.1**

NO.	TEST ITEMS	CONDITION	Machine No.	DURATION	FAILURE RATE	PARAMETER		X BAR	S DEV.	MAX.	MIN.
A	*High Temp Reverse Bias (H.T.R.B)*	Tj= 150 ℃ VR= 480 V	A00781	168 HRS 500 HRS	0/77 0/77	INITIAL	VF(mV)	962.263	13.957	1041.000	872.000
							VB (V)	1413	71	1624	1154
							IR(uA)	0.126	0.030	0.245	0.053
						FINAL (168HRS)	VF(mV)	961.990	11.311	1038.000	950.000
							VB (V)	1405.081	74.236	1624.000	1148.000
							IR(uA)	0.066	0.017	0.121	0.026
						FINAL (500HRS)	VF(mV)	957.659	5.865	976.000	949.000
							VB (V)	1408.977	72.511	1628.000	1229.000
							IR(uA)	0.091	0.236	4.200	0.035
B	*H3TRB*	T_A=85℃ RH=85% VR= 100 V	A00482	168 HRS 500 HRS	0/77 0/77	INITIAL	VF(mV)	962.539	12.548	1031.000	949.000
							VB (V)	1414	73	1654	1222
							IR(uA)	0.121	0.027	0.223	0.061
						FINAL (168HRS)	VF(mV)	960.068	8.568	1015.000	949.000
							VB (V)	1409.084	75.963	1665.000	1218.000
							IR(uA)	0.069	0.016	0.127	0.027
						FINAL (500HRS)	VF(mV)	957.088	5.207	972.000	947.000
							VB (V)	1411.987	75.573	1669.000	1219.000
							IR(uA)	0.078	0.018	0.150	0.038
C	*Autoclave (AC)*	T_A=121℃ P=15 PSIG 100% Relative Humidity	A00483	96 HRS	0/77	INITIAL	VF(mV)	960.338	9.156	1029.000	946.000
							VB (V)	1417	71	1613	1259
							IR(uA)	0.124	0.028	0.230	0.050
						FINAL	VF(mV)	959.107	8.151	1021.000	947.000
							VB (V)	1412.643	73.661	1612.000	1248.000
							IR(uA)	0.072	0.017	0.147	0.033
D	*Resistance to Solder Heat (RSH)*	260 +/- 5℃ DIP IN SOLDER	Q0136	10 SECS	0/30	INITIAL	VF(mV)	958.800	4.949	972.000	951.000
							VB (V)	1410	75	1638	1104
							IR(uA)	0.122	0.025	0.188	0.056
						FINAL	VF(mV)	958.017	5.231	972.000	950.000
							VB (V)	1405.342	78.488	1636.000	1094.000
							IR(uA)	0.074	0.018	0.118	0.039
E	*Forward Surge (FS)*	8.3ms half sine wave Duration=1 shot	A00471	IFM= 240 A	0/45	INITIAL	VF(mV)	958.744	5.797	977.000	951.000
							VB (V)	1417	76	1673	1217
							IR(uA)	0.125	0.029	0.191	0.052
						FINAL	VF(mV)	959.850	7.313	993.000	950.000
							VB (V)	1413.561	80.489	1690.000	1205.000
							IR(uA)	0.068	0.017	0.110	0.024
F	*Temperature Cycling (TC)*	AIR TO AIR 150 ℃ / 15MIN -55 ℃ / 15MIN 25℃ / 5MIN For Transfer	A00365	30 Cycles 500 Cycles	0/77 0/77	INITIAL	VF(mV)	958.263	5.010	976.000	950.000
							VB (V)	1420	68	1615	1168
							IR(uA)	0.123	0.028	0.216	0.057
						FINAL (30 cycles)	VF(mV)	955.195	4.804	973.000	947.000
							VB (V)	1417.019	69.931	1640.000	1166.000
							IR(uA)	0.075	0.019	0.128	0.033
						FINAL (500 cycles)	VF(mV)	957.182	5.053	975.000	949.000
							VB (V)	1416.812	70.005	1640.000	1161.000
							IR(uA)	0.075	0.018	0.128	0.036
G	*Intermittent Operating Life (I.O.L)*	T_J= 150 ℃ IF= 4.0 A ON= 300 SEC OFF=300 SEC	A00479	1000 Cycles 3000 Cycles	0/77 0/77	INITIAL	VF(mV)	957.468	5.142	976.000	947.000
							VB (V)	1417	69	1634	1153
							IR(uA)	0.124	0.027	0.212	0.055
						FINAL (1000 cycles)	VF(mV)	965.269	12.117	1015.000	952.000
							VB (V)	1410.237	72.018	1641.000	1146.000
							IR(uA)	0.067	0.017	0.184	0.026
						FINAL (3000 cycles)	VF(mV)	955.380	4.923	972.000	946.000
							VB (V)	1418.403	71.300	1650.000	1152.000
							IR(uA)	0.083	0.019	0.139	0.032
H	*Solderability (SD)*	245 +/- 5℃ 95% of the leads is coverd by solder	Q0136	5 SECS	0/10	------	------	------	------	------	------

TESTED BY : FENFEN QI

COMMENTS :

Pass

ENGINEER Leader

COMMENTS :

MANAGER :______________

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	Yangzhou Yangjie Electronic Technology Co., Ltd.	**Glass tansiteion temperture (T_G)**	150 ^{o}C
DIC P/N	GBJ1510	**Lead material type**	KFC
Package Type	6KBJ	**Lead Material manufacturer**	YANGZHOU ZHENGFANG CO.,
DIE P/N	STD 15A 1000V 120mil	**Lead plating/ coating**	Tin
Die line or process	STD GPP DIODEDS	**Lead frame material type**	Cu
Wafer Diameter	3 inch	**Header plating (Die land area)**	N/A
Wafer Fab Site(s)	**J&V SEMICONDUCTO^ü{ÐdrŠ├ ┘ f˙È w¦bNôgæ¾¢¬Ðä°© Òuã\Ð / àx\¶ÏLKî_ß**	1.5°C/W	
Assembly Locations(s)	No.26,Mid Pioneer Park Road, Weiyang Economic Development Zone,Yangzhou,Jiangsu,China 225008	**Max thermal resistance junction to ambient (θJA)***	22°C/W
Test Locations(s)	No.26,Mid Pioneer Park Road, Weiyang Economic Development Zone,Yangzhou,Jiangsu,China 225008 Shandong	**Front metal type (Top layer)**	Ni-Ni-Au
Die attach Method / Material	Solder Preform	**Front metal thickness (Top layer)**	30KA
Bond wire material & dia	N/A	**Back metal type (All layers)**	Ni-Ni-Au
Bond type (at topside of the die)	Soldering	**Back metal thickness (all Layers**	30KA
Bond type	Soldering	**Die conforming coating**	N/A
No. of bonds over active area	4clip	**Die size (width x length x**	3.05*3.05*0.27
Package material type	EK1700G	**Die passivation thickness range**	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co., Ltd	**No. of mask steps**	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

	Completed by	Date	Certified by	Date
Typed / Printed				
Signature				
Title	QA Engineer		QA Manager	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 **FAX : (+86)0514-87755189**

Reliability Test Summary

FACTORY: YJ		PART NUMBER :GBJ1510		CUSTOMER: DIODES		
		Package Description : 6KBJ		Test NO.:YJSK1402014B		
LABORATORY:YJ		PART DESCRIPTION : Bridge Rectifier				
#	**Test Description**	**Test Conditions**	**#Lots**	**#To Test**	**Results**	**REMARKS**
1	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	ACC	
2	PARAMETRIC VERIFICATION (PV)	Per Data Sheet	1	25	ACC	
3	FORWARD SURGE	8.3ms,单项,半波,IFSM =240A,5次	1	45	ACC	
4	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h	1	77	ACC	
5	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles	1	77	ACC	
6	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h	1	77	ACC	
7	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H	1	77	ACC	
8	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles	1	77	ACC	
9	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV	1	60	ACC	
		MM：200pF,0Ω ,200V	1	60	ACC	
10	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	1	30	ACC	
11	RESISTANCE TO SOLDER HEAT (RSH)	260℃,30″	1	30	ACC	
12	SOLDERABILITY (SD)	245℃±5℃,5″	1	10	ACC	
13	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	1	10	ACC	
14	D.P.A. (DPA)	AEC Q101-004 SEC. 4	1	2	ACC	

Summary: ACC

Submitted by: :Weikang Sun Date：2014-04-21	Approved by: Ya Han Date：2014-04-21

CERTIFICATE OF DESIGN AND CONSTRUCTION

Assembly and Test Site	**Lite-on Microelectronics(Wuxi)Co.,Ltd.** **Land Lot J7.J8WEPZ,New District,Wuxi City,Jiangsu,PRC**	**Glass transition temperature (T_G)**	150-175℃
User P/N	GBJ2010	**Lead material type**	KFC
Generic P/N	BRIDGE	**Lead Material manufacturer**	港波
Supplier P/N	GBJ2010	**Lead plating/ coating**	Matte Tin（Thickness:300~800u"）
Die line or process	GPP	**Lead frame material type**	KFC
Wafer Diameter	3 inch	**Header plating (Die land area)**	Ni
Wafer Fab Site(s)	Liteon Shanghai Seefull electronic Co., Ltd	**Max junction temperature(T_j)**	150℃
ID method (multiple sites)	N/A	**Typical thermal resistance junction to case ($θ_{JC}$)**	0.8℃/W (Device mounted on 300mm x 300mm x 1.6mm Cu Plate Heatsink)
Assembly Locations(s)	Lite-on Microelectronics(Wuxi)Co.,Ltd.	**Typical thermal resistance junction to ambient ($θ_{JA}$)***	N/A
Test Locations(s)	Lite-on Microelectronics(Wuxi)Co.,Ltd.	**Front metal type**	Ni
Die attach Method / Material	Solder Paste / AG3 Pb92.5,Sn5.0,Ag2.5	**Front metal thickness**	0.000541-0.00162mm
Bond wire material & dia.	N/A	**Back metal type (All layers)**	Ni
Bond type (at die)	CLIP Bond	**Back metal thickness (all Layers)**	0.000541-0.00162mm
Bond type (at leadframe)	Solder Paste	**Die conforming coating**	N/A
No. of bonds over active area	1 time	**Die size (width x length x thickness) in mil**	120 * 120 * 9.5
Package material type	EME-1200D3	**Die passivation thickness range**	N/A
Package material manufacturer	SUMIKON	**No. of mask steps**	3 step

*Show conditions (i.e. pad size, board material, copper thickness, etc.

Attachments:

1) Die Photo
2) Package outline drawing
3) Die cross-section drawing
4) Wire bond & die placement diagram
5) Test circuits, bias levels and conditions

Requirements:

A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location.
Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and sign.

	Completed by	Date	Certified by	Date
Typed/Printed	Jing Zhang	2013-11-12	Jane Chou	2011-11-12
Signature	Jing zhang	11/12'13	[illegible]	11/12'13
Title	QRA Engineer		QRA Manager	

LITE-ON MICROELECTRONICS(WuXi) CO., LTD.

HI-REL EXPERIMENT SUMMARY

DEPARTMENT :	**QRA**	**New Structure**	120*120MIL	**DATE :**	**JAN/5/2013**
PRODUCT :	**GBJ2010-B**		SIPOS	**EXP.# :**	**13G004**
CRITERIAL :	**VF(mV)< 1050 mV**	**@IF= 10 A**		**LOT NO:**	**N/A**
	PIV(V)> 1000 V	**@IR= 10 uA**		**D/C :**	**N/A**
	IR(uA)< 10 uA	**@PIV= 1000 V**		**P/N:**	**B25129401.1**

NO.	TEST ITEMS	CONDITION	Machine No.	DURATION	FAILURE RATE	PARAMETER		X BAR	S DEV.	MAX.	MIN.
A	*High Temp Reverse Bias (H.T.R.B)*	Tj= 150 ℃ VR= 800 V	A00474	168 HRS 500 HRS	0/77 0/77	INITIAL	VF(mV)	980.039	10.631	1037.000	967.000
							VB (V)	1452	93	1651	1063
							IR(uA)	0.105	0.063	0.737	0.059
						FINAL (168HRS)	VF(mV)	979.000	7.946	1013.000	967.000
							VB (V)	1489.841	92.304	1664.000	1096.000
							IR(uA)	0.061	0.035	0.430	0.024
						FINAL (500HRS)	VF(mV)	979.088	7.161	1016.000	967.000
							VB (V)	1489.477	92.627	1656.000	1077.000
							IR(uA)	0.061	0.036	0.447	0.003
B	*H3TRB*	T_A=85℃ RH=85% VR= 100 V	A00482	168 HRS 500 HRS	0/77 0/77	INITIAL	VF(mV)	980.282	8.700	1037.000	966.000
							VB (V)	1439	87	1636	1123
							IR(uA)	0.086	0.020	0.194	0.048
						FINAL (168HRS)	VF(mV)	980.149	10.797	1042.000	967.000
							VB (V)	1490.552	88.410	1666.000	1186.000
							IR(uA)	0.056	0.016	0.144	0.012
						FINAL (500HRS)	VF(mV)	976.545	6.787	999.000	966.000
							VB (V)	1497.386	91.402	1668.000	1209.000
							IR(uA)	0.064	0.019	0.161	0.022
C	*Autoclave (AC)*	T_A=121℃ P=15 PSIG 100% Relative Humidity	A00483	96 HRS	0/77	INITIAL	VF(mV)	980.065	8.194	1037.000	967.000
							VB (V)	1442	86	1643	1221
							IR(uA)	0.091	0.021	0.175	0.051
						FINAL	VF(mV)	980.575	10.002	1024.000	969.000
							VB (V)	1488.795	87.480	1674.000	1268.000
							IR(uA)	0.058	0.015	0.125	0.021
D	*Resistance to Solder Heat (RSH)*	260 +/- 5℃ DIP IN SOLDER	Q0136	10 SECS	0/30	INITIAL	VF(mV)	979.000	8.008	1018.000	967.000
							VB (V)	1453	87	1630	1212
							IR(uA)	0.094	0.024	0.174	0.055
						FINAL	VF(mV)	980.350	11.043	1050.000	969.000
							VB (V)	1496.142	93.913	1668.000	1259.000
							IR(uA)	0.063	0.017	0.119	0.035
E	*Forward Surge (FS)*	8.3ms half sine wave Duration=1 shot	A00471	IFM= 240 A	0/45	INITIAL	VF(mV)	980.483	9.216	1031.000	969.000
							VB (V)	1451	94	1631	1148
							IR(uA)	0.095	0.023	0.185	0.049
						FINAL	VF(mV)	979.861	9.908	1044.000	969.000
							VB (V)	1496.228	93.371	1659.000	1245.000
							IR(uA)	0.057	0.018	0.122	0.003
F	*Temperature Cycling (TC)*	AIR TO AIR 150 ℃ / 15MIN -55 ℃ / 15MIN 25℃ / 5MIN For Transfer	A00365	30 Cycles 500 Cycles	0/77 0/77	INITIAL	VF(mV)	981.058	10.154	1038.000	969.000
							VB (V)	1442	93	1631	1067
							IR(uA)	0.096	0.022	0.226	0.050
						FINAL (30 cycles)	VF(mV)	975.338	6.950	1004.000	966.000
							VB (V)	1487.347	95.528	1675.000	1048.000
							IR(uA)	0.064	0.017	0.158	0.026
						FINAL (500 cycles)	VF(mV)	978.312	7.321	1009.000	967.000
							VB (V)	1486.994	95.121	1675.000	1141.000
							IR(uA)	0.063	0.018	0.161	0.027
G	*Intermittent Operating Life (I.O.L)*	T_J= 150 ℃ IF= 4.0 A ON= 300 SEC OFF=300 SEC	A00790	1000 Cycles 3000 Cycles	0/77 0/77	INITIAL	VF(mV)	981.705	11.044	1033.000	955.000
							VB (V)	1444	86	1625	1186
							IR(uA)	0.103	0.073	1.009	0.055
						FINAL (1000 cycles)	VF(mV)	984.136	12.676	1033.000	967.000
							VB (V)	1489.805	87.687	1663.000	1220.000
							IR(uA)	0.062	0.048	0.641	0.015
						FINAL (3000 cycles)	VF(mV)	976.675	6.402	1001.000	966.000
							VB (V)	1500.627	88.504	1670.000	1231.000
							IR(uA)	0.074	0.058	0.746	0.030
H	*Solderability (SD)*	245 +/- 5℃ 95% of the leads is coverd by solder	Q0136	5 SECS	0/10	------	------	------	------	------	------

TESTED BY : FENFEN QI

COMMENTS :

Pass

ENGINEER Leader

COMMENTS :

MANAGER :______________

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	Yangzhou Yangjie Electronic Technology Co., Ltd.	**Glass tansiteion temperture (T_G)**	150 ^oC
DIC P/N	GBJ2510	**Lead material type**	KFC
Package Type	6KBJ	**Lead Material manufacturer**	YANGZHOU ZHENGFANG CO., LTD.
DIE P/N	STD 25A 1000V 130mil	**Lead plating/ coating**	Tin
Die line or process	STD GPP DIODEDS	**Lead frame material type**	Cu
Wafer Diameter	3 inch	**Header plating (Die land area)**	N/A
Wafer Fab Site(s)	**J&V SEMICONDUCTOR CO.,LTD.**	**Max junction temperature(Tj)**	150 ^oC
ID method (multiple sites)	N/A	**Max thermal resistance junction to case (θJC)**	2.3°C/W
Assembly Locations(s)	No.26,Mid Pioneer Park Road, Weiyang Economic Development Zone,Yangzhou,Jiangsu,China 225008	**Max thermal resistance junction to ambient (θJA)***	25°C/W
Test Locations(s)	No.26,Mid Pioneer Park Road, Weiyang Economic Development Zone,Yangzhou,Jiangsu,China 225008 Shandong	**Front metal type (Top layer)**	Ni-Ni-Au
Die attach Method / Material	Solder Preform	**Front metal thickness (Top layer)**	30KA
Bond wire material & dia	N/A	**Back metal type (All layers)**	Ni-Ni-Au
Bond type (at topside of the die)	Soldering	**Back metal thickness (all Layers**	30KA
Bond type	Soldering	**Die conforming coating**	N/A
No. of bonds over active area	4clip	**Die size (width x length x**	3.30*3.0*0.27
Package material type	EK1700G	**Die passivation thickness range**	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co., Ltd	**No. of mask steps**	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

Completed by		Date	Certified by	Date
Typed / Printed				
Signature				
Title	QA Engineer		QA Manager	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 FAX : (+86)0514-87755189

Reliability Test Summary

FACTORY: YJ | PART NUMBER :GBJ2510 | CUSTOMER: DIODES

Package Description :6KBJ | Test NO.:YJSK1402015B

LABORATORY:YJ | PART DESCRIPTION : Bridge Rectifier

#	Test Description	Test Conditions	#Lots	#To Test	Results	REMARKS
1	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	ACC	
2	PARAMETRIC VERIFICATION (PV)	Per Data Sheet	1	25	ACC	
3	FORWARD SURGE	8.3ms,单项,半波,IFSM =350A,5次	1	45	ACC	
4	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h	1	77	ACC	
5	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles	1	77	ACC	
6	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h	1	77	ACC	
7	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H	1	77	ACC	
8	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles	1	77	ACC	
9	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV	1	60	ACC	
		MM：200pF,0Ω ,200V	1	60	ACC	
10	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	1	30	ACC	
11	RESISTANCE TO SOLDER HEAT (RSH)	260℃,30″	1	30	ACC	
12	SOLDERABILITY (SD)	245℃±5℃,5″	1	10	ACC	
13	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	1	10	ACC	
14	D.P.A. (DPA)	AEC Q101-004 SEC. 4	1	2	ACC	

Summary:

Submitted by: :Weikang Sun Date：2014-04-21	Approved by: Ya Han Date：2014-04-21

CERTIFICATE OF DESIGN AND CONSTRUCTION

Assembly and Test Site	**Lite-on Microelectronics(Wuxi)Co.,Ltd.** **Land Lot J7.J8WEPZ,New District,Wuxi City,Jiangsu,PRC**	**Glass transition temperature (T_G)**	150-175℃
User P/N	GBJ2510	**Lead material type**	KFC
Generic P/N	BRIDGE	**Lead Material manufacturer**	港波
Supplier P/N	GBJ2510	**Lead plating/ coating**	Matte Tin（Thickness:300~800u"）
Die line or process	GPP	**Lead frame material type**	KFC
Wafer Diameter	3 inch	**Header plating (Die land area)**	Ni
Wafer Fab Site(s)	Liteon Shanghai Seefull electronic Co., Ltd	**Max junction temperature(T_j)**	150℃
ID method (multiple sites)	N/A	**Typical thermal resistance junction to case (θ_{JC})**	1.0℃/W (Device mounted on 250mm x 250mm x 20mm Aluminum Plate Heatsink)
Assembly Locations(s)	Lite-on Microelectronics(Wuxi)Co.,Ltd.	**Typical thermal resistance junction to ambient (θ_{JA})***	N/A
Test Locations(s)	Lite-on Microelectronics(Wuxi)Co.,Ltd.	**Front metal type**	Ni
Die attach Method / Material	Solder Paste / AG3 Pb92.5,Sn5.0,Ag2.5	**Front metal thickness**	0.000541-0.00162mm
Bond wire material & dia.	N/A	**Back metal type (All layers)**	Ni
Bond type (at die)	CLIP Bond	**Back metal thickness (all Layers)**	0.000541-0.00162mm
Bond type (at leadframe)	Solder Paste	**Die conforming coating**	N/A
No. of bonds over active area	1 time	**Die size (width x length x thickness) in mil**	140 * 140 * 9.5
Package material type	EME-1200D3	**Die passivation thickness range**	N/A
Package material manufacturer	SUMIKON	**No. of mask steps**	3 step

*Show conditions (i.e. pad size, board material, copper thickness, etc.

Attachments:

1) Die Photo

2) Package outline drawing

3) Die cross-section drawing
4) Wire bond & die placement diagram
5) Test circuits, bias levels and conditions

Requirements:

A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location.
Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and sign.

Completed by		Date	Certified by	Date
Typed/Printed	Jing Zhang	2013-11-12	Jane Chou	2013-11-12
Signature	Jing Zhang	11/12/13	[illegible]	11/12/13
Title	QRA Engineer		QRA Manager	

LITE-ON MICROELECTRONICS(WuXi) CO., LTD.

HI-REL EXPERIMENT SUMMARY

DEPARTMENT :	**QRA**	**New Structure** 140*140MIL	**DATE :**	**JAN/29/2013**
PRODUCT :	**GBJ2510-B**		**EXP.# :**	**13G022**
CRITERIAL :	**VF(mV)< 1050 mV**	**@IF= 12.5 A**	**LOT NO:**	**N/A**
	PIV(V)> 1000 V	**@IR= 10 uA**	**D/C :**	**N/A**
	IR(uA)< 10 uA	**@PIV= 1000 V**	**P/N:**	**B30405306.1**

NO.	TEST ITEMS	CONDITION	Machine No.	DURATION	FAILURE RATE	PARAMETER		X BAR	S DEV.	MAX.	MIN.
A	*External Visual (EV)*				0/800	------	------	------	------	------	------
B	*High Temperature Storage life (HTS)*	T_A=150℃	A00422	168 HRS 500 HRS	0/45 0/45	INITIAL	VF(mV)	976.817	11.283	1005.000	955.000
							VB (V)	1589	53	1682	1349
							IR(uA)	0.323	0.153	0.879	0.114
						FINAL (168HRS)	VF(mV)	974.156	6.699	1005.000	963.000
							VB (V)	1578.206	51.485	1676.000	1347.000
							IR(uA)	0.159	0.079	0.440	0.038
						FINAL (500HRS)	VF(mV)	968.144	7.983	996.000	950.000
							VB (V)	1591.011	52.027	1684.000	1347.000
							IR(uA)	0.289	0.144	0.813	0.119
C	*Low Temperature Storage Life (LTS)*	T_A=-55℃	A00487	168 HRS 500 HRS	0/45 0/45	INITIAL	VF(mV)	976.317	13.027	1016.000	953.000
							VB (V)	1586	57	1683	1342
							IR(uA)	0.417	0.219	1.218	0.177
						FINAL (168HRS)	VF(mV)	968.244	5.452	989.000	956.000
							VB (V)	1582.139	57.046	1677.000	1346.000
							IR(uA)	0.218	0.120	0.653	0.084
						FINAL (500HRS)	VF(mV)	962.644	6.988	990.000	947.000
							VB (V)	1586.122	56.373	1680.000	1349.000
							IR(uA)	0.255	0.142	0.752	0.104
E	*High Temp Reverse Bias (H.T.R.B)*	T_j= 150 ℃ VR= 800 V	A00476	168 HRS 500 HRS	0/77 0/77	INITIAL	VF(mV)	976.318	12.269	1013.000	957.000
							VB (V)	1589	52	1693	1374
							IR(uA)	0.410	0.212	1.160	0.178
						FINAL (168HRS)	VF(mV)	973.831	6.455	999.000	963.000
							VB (V)	1575.494	50.725	1680.000	1367.000
							IR(uA)	0.151	0.076	0.457	0.068
						FINAL (500HRS)	VF(mV)	969.224	6.458	995.000	957.000
							VB (V)	1583.731	50.394	1685.000	1375.000
							IR(uA)	0.359	0.198	1.410	0.104
F	*H3TRB*	T_A=85℃ RH=85% VR= 100 V	A00482	168 HRS 500 HRS	0/77 0/77	INITIAL	VF(mV)	976.760	12.097	1012.000	955.000
							VB (V)	1589	49	1708	1450
							IR(uA)	0.430	0.238	1.293	0.187
						FINAL (168HRS)	VF(mV)	972.864	5.640	993.000	963.000
							VB (V)	1578.455	48.333	1692.000	1440.000
							IR(uA)	0.173	0.100	0.535	0.062
						FINAL (500HRS)	VF(mV)	966.506	6.869	992.000	950.000
							VB (V)	1589.140	48.640	1708.000	1444.000
							IR(uA)	0.224	0.138	0.762	0.076
G	*Autoclave (AC)*	T_A=121℃ P=15 PSIG 100% Relative Humidity	A00483	168HRS	0/77	INITIAL	VF(mV)	977.675	15.429	1039.000	951.000
							VB (V)	1594	52	1705	1298
							IR(uA)	0.436	0.245	1.454	0.183
						FINAL	VF(mV)	972.244	8.423	1030.000	959.000
							VB (V)	1585.766	51.382	1695.000	1281.000
							IR(uA)	0.188	0.105	0.546	0.073
H	*Resistance to Solder Heat (RSH)*	260 +/- 5℃ DIP IN SOLDER	Q0136	10 SECS	0/30	INITIAL	VF(mV)	978.133	10.820	1010.000	959.000
							VB (V)	1584	60	1687	1343
							IR(uA)	0.396	0.211	1.277	0.165
						FINAL	VF(mV)	966.683	9.475	1018.000	952.000
							VB (V)	1584.592	58.532	1685.000	1345.000
							IR(uA)	0.251	0.136	0.801	0.104
I	*Forward Surge (FS)*	8.3ms half sine wave Duration=1 shot	A00471	IFM= 350 A	0/45	INITIAL	VF(mV)	976.544	12.059	1048.000	958.000
							VB (V)	1594	50	1690	1451
							IR(uA)	0.453	0.229	1.233	0.188
						FINAL	VF(mV)	966.706	5.209	981.000	956.000
							VB (V)	1592.894	48.930	1689.000	1449.000
							IR(uA)	0.276	0.148	0.775	0.105
J	*Temperature Cycling (TC)*	AIR TO AIR 150 ℃ / 15MIN -55 ℃ / 15MIN 25℃ / 5MIN For Transfer	A00365	30 Cycles 500 Cycles	0/77 0/77	INITIAL	VF(mV)	1007.006	18.247	1048.000	955.000
							VB (V)	1592	65	1703	1238
							IR(uA)	0.128	0.074	0.685	0.072
						FINAL (30 cycles)	VF(mV)	997.506	14.490	1028.000	956.000
							VB (V)	1595.058	65.749	1701.000	1241.000
							IR(uA)	0.137	0.079	0.733	0.073
						FINAL (500 cycles)	VF(mV)	997.990	14.594	1028.000	956.000
							VB (V)	1595.000	64.931	1704.000	1246.000
							IR(uA)	0.147	0.099	0.759	0.001
K	*Intermittent Operating Life (I.O.L)*	$T_{J=}$ 150 ℃ IF= 4.7 A ON= 300 SEC OFF=300 SEC	A00479	1000 Cycles 3000 Cycles	0/77 0/77	INITIAL	VF(mV)	1002.903	19.929	1047.000	955.000
							VB (V)	1594	57	1697	1195
							IR(uA)	0.136	0.079	0.604	0.070
						FINAL (1000 cycles)	VF(mV)	1000.341	16.457	1045.000	959.000
							VB (V)	1596.594	57.390	1700.000	1190.000
							IR(uA)	0.114	0.064	0.471	0.059
						FINAL (3000 cycles)	VF(mV)	990.990	16.878	1028.000	947.000
							VB (V)	1605.114	57.688	1716.000	1200.000
							IR(uA)	0.160	0.095	0.751	0.081

TESTED BY : FENFEN QI

COMMENTS :

Pass

ENGINEER Leader

COMMENTS :

MANAGER :______________

FIV-QA35-2

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	Yang Zhou Yangjie Electronic Technology Co., Ltd.	**Glass tansiteion temperture (T_G)**	175C
DIC P/N	GBU410	**Lead material type**	N/A
Package Type	GBU	**Lead Material manufacturer**	NINGBO GANGBO MICRO-ELECTRONIC CO.,LTD
DIE P/N	STD 4A 1000V 88mil	**Lead plating/ coating**	Tin
Die line or process	STD GPP DIODEDS	**Lead frame material type**	Cu
Wafer Diameter	4 inch	**Header plating (Die land area)**	N/A
Wafer Fab Site(s)	J&V SEMICONDUCTOR CO.,LTD.	**Max junction temperature(Tj)**	150 °C
ID method (multiple sites)	N/A	**Max thermal resistance junction to lead**	20°C/W
Assembly Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Max** thermal **resistance junction to ambient (θJA)***	23°C/W
Test Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Front metal type (Top layer)**	Ni-Ni-Au
Die attach Method / Material	Solder Preform	**Front metal thickness (Top layer)**	3-4um
Bond wire material & dia.	N/A	**Back metal type (All layers)**	Ni-Ni-Au
Bond type(at topside of the die)	Soldering	**Back metal thickness (all Layers)**	3-4um
Bond type(at lead frame)	Soldering	**Die conforming coating**	N/A
No. of bonds over active area	4clip	**Die size (width x length x thickness) in mm**	2.23*2.23*0.30
Package material type	EK1700G	**Die passivation thickness range**	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co., Ltd	**No. of mask steps**	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and sign.
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

Completed by		Date	Certified by	Date
Typed / Printed		Jun-15-13		Jun-15-13
Signature		Jun-15-13		Jun-15-13
Title	QA Engineer		QA Manager	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 FAX : (+86)0514-87755189

Reliability Test Summary

FACTORY: YJ		PART NUMBER :GBU410			CUSTOMER: DIODES	
		Package Description : GBU			Test NO.:YJSK1402009B	
LABORATORY:YJ		PART DESCRIPTION : Bridge Rectifier				
#	**Test Description**	**Test Conditions**	**#Lots**	**#To Test**	**Results**	**REMARKS**
1	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	ACC	
2	PARAMETRIC VERIFICATION (PV)	Per Data Sheet	1	25	ACC	
3	FORWARD SURGE	8.3ms,单项,半波,IFSM =150A,5次	1	45	ACC	
4	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h	1	77	ACC	
5	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles	1	77	ACC	
6	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h	1	77	ACC	
7	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H	1	77	ACC	
8	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles	1	77	ACC	
9	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV	1	60	ACC	
		MM：200pF,0Ω ,200V	1	60	ACC	
10	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	1	30	ACC	
11	RESISTANCE TO SOLDER HEAT (RSH)	260℃,30″	1	30	ACC	
12	SOLDERABILITY (SD)	245℃±5℃,5″	1	10	ACC	
13	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	1	10	ACC	
14	D.P.A. (DPA)	AEC Q101-004 SEC. 4	1	2	ACC	

Summary: ACC

Submitted by: :Weikang Sun Date：2014-04-21	Approved by: Ya Han Date：2014-04-21

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	Yang Zhou Yangjie Electronic Technology Co., Ltd.	**Glass tansiteion temperture (T_G)**	175C
DIC P/N	GBU610	**Lead material type**	N/A
Package Type	GBU	**Lead Material manufacturer**	NINGBO GANGBO MICRO-ELECTRONIC CO.,LTD
DIE P/N	STD 6A 1000V 110mil	**Lead plating/ coating**	Tin
Die line or process	STD GPP DIODEDS	**Lead frame material type**	Cu
Wafer Diameter	4 inch	**Header plating (Die land area)**	N/A
Wafer Fab Site(s)	J&V SEMICONDUCTOR CO.,LTD.	**Max junction temperature(Tj)**	150 °C
ID method (multiple sites)	N/A	**Max thermal resistance junction to lead**	20°C/W
Assembly Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Max** thermal **resistance junction to ambient (θJA)***	23°C/W
Test Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Front metal type (Top layer)**	Ni-Ni-Au
Die attach Method / Material	Solder Preform	**Front metal thickness (Top layer)**	3-4um
Bond wire material & dia.	N/A	**Back metal type (All layers)**	Ni-Ni-Au
Bond type(at topside of the die)	Soldering	**Back metal thickness (all Layers)**	3-4um
Bond type(at lead frame)	Soldering	**Die conforming coating**	N/A
No. of bonds over active area	4clip	**Die size (width x length x thickness) in mm**	2.41*2.41*0.27
Package material type	EK1700G	**Die passivation thickness range**	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co., Ltd	**No. of mask steps**	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and sign.
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

Completed by		Date	Certified by	Date
Typed / Printed		Jun-15-13		Jun-15-13
Signature		Jun-15-13		Jun-15-13
Title	QA Engineer		QA Manager	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 **FAX : (+86)0514-87755189**

Reliability Test Summary

FACTORY: YJ | PART NUMBER :GBU610 | CUSTOMER: DIODES

Package Description : GBU | Test NO.:YJSK1402010B

LABORATORY:YJ | PART DESCRIPTION : Bridge Rectifier

#	Test Description	Test Conditions	#Lots	#To Test	Results	REMARKS
1	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	ACC	
2	PARAMETRIC VERIFICATION (PV)	Per Data Sheet	1	25	ACC	
3	FORWARD SURGE	8.3ms,单项,半波,IFSM =175A,5次	1	45	ACC	
4	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h	1	77	ACC	
5	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles	1	77	ACC	
6	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h	1	77	ACC	
7	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H	1	77	ACC	
8	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles	1	77	ACC	
9	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV	1	60	ACC	
		MM：200pF,0Ω ,200V	1	60	ACC	
10	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	1	30	ACC	
11	RESISTANCE TO SOLDER HEAT (RSH)	260℃,30″	1	30	ACC	
12	SOLDERABILITY (SD)	245℃±5℃,5″	1	10	ACC	
13	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	1	10	ACC	
14	D.P.A. (DPA)	AEC Q101-004 SEC. 4	1	2	ACC	

Summary: ACC

Submitted by: :Weikang Sun Date：2014-04-21	Approved by: Ya Han Date：2014-04-21

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	Yang Zhou Yangjie Electronic Technology Co., Ltd.	**Glass tansiteion temperture (T_G)**	175C
DIC P/N	GBU810	**Lead material type**	N/A
Package Type	GBU	**Lead Material manufacturer**	NINGBO GANGBO MICRO-ELECTRONIC CO.,LTD
DIE P/N	STD 8A 1000V 110mil	**Lead plating/ coating**	Tin
Die line or process	STD GPP DIODEDS	**Lead frame material type**	Cu
Wafer Diameter	4 inch	**Header plating (Die land area)**	N/A
Wafer Fab Site(s)	J&V SEMICONDUCTOR CO.,LTD.	**Max junction temperature(Tj)**	150 °C
ID method (multiple sites)	N/A	**Max thermal resistance junction to lead**	20°C/W
Assembly Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Max** thermal **resistance junction to ambient (θJA)***	23°C/W
Test Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Front metal type (Top layer)**	Ni-Ni-Au
Die attach Method / Material	Solder Preform	**Front metal thickness (Top layer)**	3-4um
Bond wire material & dia.	N/A	**Back metal type (All layers)**	Ni-Ni-Au
Bond type(at topside of the die)	Soldering	**Back metal thickness (all Layers)**	3-4um
Bond type(at lead frame)	Soldering	**Die conforming coating**	N/A
No. of bonds over active area	4clip	**Die size (width x length x thickness) in mm**	2.79*2.79*0.30
Package material type	EK1700G	**Die passivation thickness range**	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co., Ltd	**No. of mask steps**	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and sign.
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

Completed by		Date	Certified by	Date
Typed / Printed		Jun-15-13		Jun-15-13
Signature		Jun-15-13		Jun-15-13
Title	QA Engineer		QA Manager	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 **FAX : (+86)0514-87755189**

Reliability Test Summary

FACTORY: YJ	PART NUMBER :GBU810	CUSTOMER: DIODES
	Package Description : GBU	Test NO.:YJSK1402011B
LABORATORY:YJ	PART DESCRIPTION : Bridge Rectifier	

#	Test Description	Test Conditions	#Lots	#To Test	Results	REMARKS
1	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	ACC	
2	PARAMETRIC VERIFICATION (PV)	Per Data Sheet	1	25	ACC	
3	FORWARD SURGE	8.3ms,单项,半波,IFSM =220A,5次	1	45	ACC	
4	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h	1	77	ACC	
5	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles	1	77	ACC	
6	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h	1	77	ACC	
7	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H	1	77	ACC	
8	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles	1	77	ACC	
9	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV	1	60	ACC	
		MM：200pF,0Ω ,200V	1	60	ACC	
10	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	1	30	ACC	
11	RESISTANCE TO SOLDER HEAT (RSH)	260℃,30″	1	30	ACC	
12	SOLDERABILITY (SD)	245℃±5℃,5″	1	10	ACC	
13	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	1	10	ACC	
14	D.P.A. (DPA)	AEC Q101-004 SEC. 4	1	2	ACC	

Summary: ACC

Submitted by: :Weikang Sun Date：2014-04-21	Approved by: Ya Han Date：2014-04-21

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	Yang Zhou Yangjie Electronic Technology Co., Ltd.	**Glass tansiteion temperture (T_G)**	175C
DIC P/N	GBU1010	**Lead material type**	N/A
Package Type	GBU	**Lead Material manufacturer**	NINGBO GANGBO MICRO-ELECTRONIC CO.,LTD
DIE P/N	STD 10A 1000V 110mil	**Lead plating/ coating**	Tin
Die line or process	STD GPP DIODEDS	**Lead frame material type**	Cu
Wafer Diameter	4 inch	**Header plating (Die land area)**	N/A
Wafer Fab Site(s)	J&V SEMICONDUCTOR CO.,LTD.	**Max junction temperature(Tj)**	150 °C
ID method (multiple sites)	N/A	**Max thermal resistance junction to lead**	20°C/W
Assembly Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Max** thermal **resistance junction to ambient (θJA)***	23°C/W
Test Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Front metal type (Top layer)**	Ni-Ni-Au
Die attach Method / Material	Solder Preform	**Front metal thickness (Top layer)**	3-4um
Bond wire material & dia.	N/A	**Back metal type (All layers)**	Ni-Ni-Au
Bond type(at topside of the die)	Soldering	**Back metal thickness (all Layers)**	3-4um
Bond type(at lead frame)	Soldering	**Die conforming coating**	N/A
No. of bonds over active area	4clip	**Die size (width x length x thickness) in mm**	2.79*2.79*0.30
Package material type	EK1700G	**Die passivation thickness range**	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co., Ltd	**No. of mask steps**	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and sign.
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

Completed by		Date	Certified by	Date
Typed / Printed		Jun-15-13		Jun-15-13
Signature		Jun-15-13		Jun-15-13
Title	QA Engineer		QA Manager	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 FAX : (+86)0514-87755189

Reliability Test Summary

FACTORY: YJ | PART NUMBER :GBU1010 | CUSTOMER: DIODES

Package Description : GBU | Test NO.:YJSK1402012B

LABORATORY:YJ | PART DESCRIPTION : Bridge Rectifier

#	Test Description	Test Conditions	#Lots	#To Test	Results	REMARKS
1	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	1	500	ACC	
2	PARAMETRIC VERIFICATION (PV)	Per Data Sheet	1	25	ACC	
3	FORWARD SURGE	8.3ms,单项,半波,IFSM =220A,5次	1	45	ACC	
4	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h	1	77	ACC	
5	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles	1	77	ACC	
6	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h	1	77	ACC	
7	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H	1	77	ACC	
8	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles	1	77	ACC	
9	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV	1	60	ACC	
		MM：200pF,0Ω ,200V	1	60	ACC	
10	PHYSICAL DIMENSION (PD)	PER JESD22 B-100	1	30	ACC	
11	RESISTANCE TO SOLDER HEAT (RSH)	260℃,30″	1	30	ACC	
12	SOLDERABILITY (SD)	245℃±5℃,5″	1	10	ACC	
13	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate	1	10	ACC	
14	D.P.A. (DPA)	AEC Q101-004 SEC. 4	1	2	ACC	

Summary: ACC

Submitted by: :Weikang Sun
Date：2014-04-21

Approved by: Ya Han
Date：2014-04-21

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	YANGZHOU YANGJIE ELECTRONIC TECHNOLOGY CO.,LTD	**Glass tansiteion temperture (T_G)**	175 °C
DIC P/N	HD06	**Lead material type**	Cu
Package Type	MINIDIP	**Lead Material manufacturer**	NingBo GangBo.
DIE P/N	STD 0.8A 600V 47mil	**Lead plating/ coating**	Tin
Die line or process	STD GPP	**Lead frame material type**	Cu
Wafer Diameter	4 inch	**Header plating (Die land area)**	N/A
Wafer Fab Site(s)	J&V SEMICONDUCTOR CO.,LTD.	**Max junction temperature(Tj)**	150 °C
ID method (multiple sites)	N/A	**Max thermal resistance junction to lead**	20°C/W
Assembly Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Max thermal resistance junction to ambient (θJA)***	134°C/W
Test Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Front metal type (Top layer)**	Ni-Ni-Au
Die attach Method / Material	Solder Preform	**Front metal thickness (Top**	3-4um
Bond wire material & dia.	N/A	**Back metal type (All layers)**	Ni-Ni-Au
Bond type (at topside of the die)	Soldering	**Back metal thickness (all Layers**	3-4um
Bond type	Soldering	**Die conforming coating**	N/A
No. of bonds over active area	N/A	**Die size (width x length x**	1.19*1.19*0.27
Package material type	EK-1700G	**Die passivation thickness range**	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co., Ltd	**No. of mask steps**	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

	Completed by	Date	Certified by	Date
Typed / Printed				
Signature				
Title	QA Engineer		QA Manager	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 **FAX : (+86)0514-87755189**

Reliability Test Summary

FACTORY: YJ | PART NUMBER :HD06 | CUSTOMER: DIODES

Package Description : HDS | Test NO.:YJSK1402006B

LABORATORY:YJ | PART DESCRIPTION : Bridge Rectifier

#	Test Description	Test Conditions		#Lots	#To Test	Results	REMARKS
1	PRECONDITIONING (PC)	Initial Electrical Test		1	308	ACC	
		Visual Inspection					
		Temperature Cycling	-40℃~60℃，5cycles				
		Bake	125℃,24H				
		Moisture Soak					
		Reflow*3cycles	260℃,3cycles time 5-60min				
		Flux Application					
		Cleaning					
		Drying					
		Final Electrical Test					
2	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071		1	500	ACC	
3	PARAMETRIC VERIFICATION (PV)	Per Data Sheet		1	25	ACC	
4	FORWARD SURGE	8.3ms,单项,半波,IFSM =30A,5次		1	45	ACC	
5	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h		1	77	ACC	
6	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles		1	77	ACC	
7	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h		1	77	ACC	
8	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H		1	77	ACC	
9	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles		1	77	ACC	
10	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV		1	60	ACC	
		MM：200pF,0Ω ,200V		1	60	ACC	
11	PHYSICAL DIMENSION (PD)	PER JESD22 B-100		1	30	ACC	
12	RESISTANCE TO SOLDER HEAT (RSH)	260℃,30″		1	30	ACC	
13	SOLDERABILITY (SD)	245℃±5℃,5″		1	10	ACC	
14	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate		1	10	ACC	
15	D.P.A. (DPA)	AEC Q101-004 SEC. 4		1	2	ACC	

Summary: ACC

Submitted by: :Weikang Sun Date：2014-04-11	Approved by: Ya Han Date：2014-04-11

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	Yang Zhou Yangjie Electronic Technology Co., Ltd.	**Glass tansiteion temperture (T_G)**	175 °C
DIC P/N	RS1M	**Lead material type**	SMA
Package Type	SMA	**Lead Material manufacturer**	YANGZHOU ZHENGFANG CO., LTD.
DIE P/N	FR 1A 1000V 50mil	**Lead plating/ coating**	Tin
Die line or process	FR GPP DIODEDS	**Lead frame material type**	Cu
Wafer Diameter	3 inch	**Header plating (Die land area)**	N/A
Wafer Fab Site(s)	J&V SEMICONDUCTOR CO.,LTD.	**Max junction temperature(Tj)**	150 °C
ID method (multiple sites)	N/A	**Max thermal resistance junction to lead**	32°C/W
Assembly Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Max** thermal **resistance junction to ambient (θJA)***	105°C/W
Test Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Front metal type (Top layer)**	Ni-Ni-Au
Die attach Method / Material	Solder Preform	**Front metal thickness (Top layer)**	0.3-0.4um
Bond wire material & dia.	N/A	**Back metal type (All layers)**	Ni-Ni-Au
Bond type(at topside of the die)	Soldering	**Back metal thickness (all Layers)**	0.3-0.4um
Bond type(at lead frame)	Soldering	**Die conforming coating**	N/A
No. of bonds over active area	1clip	**Die size (width x length x thickness) in mm**	1.27*1.27*0.25
Package material type	EK1700G	**Die passivation thickness range**	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co., Ltd	**No. of mask steps**	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

Completed by		Date	Certified by	Date
Typed / Printed		Jun-15-13		Jun-15-13
Signature		Jun-15-13		Jun-15-13
Title	QA Engineer		QA Manager	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 **FAX : (+86)0514-87755189**

Reliability Test Summary

FACTORY: YJ	PART NUMBER :RS1M	CUSTOMER: DIODES
	Package Description : SMA	Test NO.:YJSK1402005B
LABORATORY:YJ	PART DESCRIPTION : Fast Recovery Rectifier	

#	Test Description	Test Conditions		#Lots	#To Test	Results	REMARKS
1	PRECONDITIONING (PC)	Initial Electrical Test		1	308	Pass	
		Visual Inspection					
		Temperature Cycling	-40℃~60℃，5cycles				
		Bake	125℃,24H				
		Moisture Soak					
		Reflow*3cycles	260℃,3cycles time 5-60min				
		Flux Application					
		Cleaning					
		Drying					
		Final Electrical Test					
2	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071		1	500	Pass	
3	PARAMETRIC VERIFICATION (PV)	Per Data Sheet		1	25	Pass	
4	FORWARD SURGE	8.3ms,单项,半波 ,IFSM =30A,5次		1	45	Pass	
5	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h		1	77	Pass	
6	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles		1	77	Pass	
7	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h		1	77	Pass	
8	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H		1	77	Pass	
9	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles		1	77	Pass	
10	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV		1	60	Pass	
		MM：200pF,0Ω ,200V		1	60	Pass	
11	PHYSICAL DIMENSION (PD)	PER JESD22 B-100		1	30	Pass	
12	RESISTANCE TO SOLDER HEAT (RSH)	260℃(+5,-0),30″		1	30	Pass	
13	SOLDERABILITY (SD)	245℃±5℃,5″		1	10	Pass	
14	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate		1	10	Pass	
15	D.P.A. (DPA)	AEC Q101-004 SEC. 4		1	2	Pass	

Summary: ACC

Submitted by: :Weikang Sun Date：2014-04-11	Approved by: Ya Han Date：2014-04-11

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	Yangzhou Yangjie Electronic Technology Co., Ltd.	**Glass tansiteion temperture (T_G)**	150 ^oC
DIC P/N	RS2M	**Lead material type**	KFC
Package Type	SMB	**Lead Material manufacturer**	YANGZHOU ZHENGFANG CO., LTD.
DIE P/N	STD 1.5A 1000V 60mil	**Lead plating/ coating**	Tin
Die line or process	STD GPP DIODEDS	**Lead frame material type**	Cu
Wafer Diameter	3 inch	**Header plating (Die land area)**	N/A
Wafer Fab Site(s)	**J&V SEMICONDUCTOR CO.,LTD.**	**Max junction temperature(Tj)**	150 ^oC
ID method (multiple sites)	N/A	**Max thermal resistance junction to case (θJC)**	18°C/W
Assembly Locations(s)	No.26,Mid Pioneer Park Road, Weiyang Economic Development Zone,Yangzhou,Jiangsu,China 225008	**Max thermal resistance junction to ambient (θJA)***	55°C/W
Test Locations(s)	No.26,Mid Pioneer Park Road, Weiyang Economic Development Zone,Yangzhou,Jiangsu,China 225008 Shandong	**Front metal type (Top layer)**	Ni-Ni-Au
Die attach Method / Material	Solder Preform	**Front metal thickness (Top layer)**	30KA
Bond wire material & dia	N/A	**Back metal type (All layers)**	Ni-Ni-Au
Bond type (at topside of the die)	Soldering	**Back metal thickness (all Layers**	30KA
Bond type	Soldering	**Die conforming coating**	Solderable metal
No. of bonds over active area	1clip	**Die size (width x length x**	1.524*1.524*0.26
Package material type	EK1700G	**Die passivation thickness range**	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co., Ltd	**No. of mask steps**	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

	Completed by	Date	Certified by	Date
Typed / Printed				
Signature				
Title	QA Engineer		QA Manager	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 **FAX : (+86)0514-87755189**

Reliability Test Summary

FACTORY: YJ	PART NUMBER :RS2M	CUSTOMER: DIODES
	Package Description : SMB	Test NO.:YJSK1402007B
LABORATORY:YJ	PART DESCRIPTION : Fast Recovery Rectifier Diode	

#	Test Description	Test Conditions		#Lots	#To Test	Results	REMARKS
1	PRECONDITIONING (PC)	Initial Electrical Test		1	308	Pass	
		Visual Inspection					
		Temperature Cycling	-40℃~60℃，5cycles				
		Bake	125℃,24H				
		Moisture Soak					
		Reflow*3cycles	260℃,3cycles time 5-60min				
		Flux Application					
		Cleaning					
		Drying					
		Final Electrical Test					
2	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071		1	500	Pass	
3	PARAMETRIC VERIFICATION (PV)	Per Data Sheet		1	25	Pass	
4	FORWARD SURGE	8.3ms,单项,半波 ,IFSM =50A,5次		1	45	Pass	
5	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h		1	77	Pass	
6	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles		1	77	Pass	
7	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h		1	77	Pass	
8	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H		1	77	Pass	
9	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles		1	77	Pass	
10	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV		1	60	Pass	
		MM：200pF,0Ω ,200V		1	60	Pass	
11	PHYSICAL DIMENSION (PD)	PER JESD22 B-100		1	30	Pass	
12	RESISTANCE TO SOLDER HEAT (RSH)	260℃(+5,-0),30″		1	30	Pass	
13	SOLDERABILITY (SD)	245℃±5℃,5″		1	10	Pass	
14	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate		1	10	Pass	
15	D.P.A. (DPA)	AEC Q101-004 SEC. 4		1	2	Pass	

Summary: ACC

Submitted by: :Weikang Sun Date：2014-04-11	Approved by: Ya Han Date：2014-04-11

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	YangZhou Yangjie Electronic Technology Co., Ltd.	**Glass tansiteion temperture (T_G)**	175 °C
DIC P/N	S1M	**Lead material type**	SMA
Package Type	SMA	**Lead Material manufacturer**	YANGZHOU ZHENGFANG CO., LTD.
DIE P/N	STD 1A 1000V 50mil	**Lead plating/ coating**	Tin
Die line or process	STD GPP DIODEDS	**Lead frame material type**	Cu
Wafer Diameter	3 inch	**Header plating (Die land area)**	N/A
Wafer Fab Site(s)	J&V SEMICONDUCTOR CO.,LTD.	**Max junction temperature(Tj)**	150 °C
ID method (multiple sites)	N/A	**Max thermal resistance junction to lead**	22°C/W
Assembly Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Max thermal resistance junction to ambient (θJA)***	95°C/W
Test Locations(s)	No.26Jiangyang Industrial Zone, Yangzhou, Jiangsu, China	**Front metal type (Top layer)**	Ni-Ni-Au
Die attach Method / Material	Solder Preform	**Front metal thickness (Top layer)**	0.3-0.4um
Bond wire material & dia.	N/A	**Back metal type (All layers)**	Ni-Ni-Au
Bond type(at topside of the die)	Soldering	**Back metal thickness (all Layers)**	0.3-0.4um
Bond type(at lead frame)	Soldering	**Die conforming coating**	N/A
No. of bonds over active area	1clip	**Die size (width x length x thickness) in mm**	1.27*1.27*0.27
Package material type	EK1700G	**Die passivation thickness range**	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co., Ltd	**No. of mask steps**	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and sign.
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

Completed by		Date	Certified by	Date
Typed / Printed		Jun-15-13		Jun-15-13
Signature		Jun-15-13		Jun-15-13
Title	QA Engineer		QA Manager	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 **FAX : (+86)0514-87755189**

Reliability Test Summary

FACTORY: YJ	PART NUMBER :S1M	CUSTOMER: DIODES
	Package Description : SMA	Test NO.:YJSK1402003B
LABORATORY:YJ	PART DESCRIPTION : General Purpose Rectifier	

#	Test Description	Test Conditions		#Lots	#To Test	Results	REMARKS
1	PRECONDITIONING (PC)	Initial Electrical Test		1	308	Pass	
		Visual Inspection					
		Temperature Cycling	-40℃~60℃，5cycles				
		Bake	125℃,24H				
		Moisture Soak					
		Reflow*3cycles	260℃,3cycles time 5-60min				
		Flux Application					
		Cleaning					
		Drying					
		Final Electrical Test					
2	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071		1	500	Pass	
3	PARAMETRIC VERIFICATION (PV)	Per Data Sheet		1	25	Pass	
4	FORWARD SURGE	8.3ms,单项,半波 ,IFSM =30A,5次		1	45	Pass	
5	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h		1	77	Pass	
6	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles		1	77	Pass	
7	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h		1	77	Pass	
8	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H		1	77	Pass	
9	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles		1	77	Pass	
10	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV		1	60	Pass	
		MM：200pF,0Ω ,200V		1	60	Pass	
11	PHYSICAL DIMENSION (PD)	PER JESD22 B-100		1	30	Pass	
12	RESISTANCE TO SOLDER HEAT (RSH)	260℃(+5,-0),30″		1	30	Pass	
13	SOLDERABILITY (SD)	245℃±5℃,5″		1	10	Pass	
14	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate		1	10	Pass	
15	D.P.A. (DPA)	AEC Q101-004 SEC. 4		1	2	Pass	

Summary: ACC

Submitted by: :Weikang Sun Date：2014-04-11	Approved by: Ya Han Date：2014-04-11

CERTIFICATE OF DESIGN AND CONSTRUCATION

Assembly and Test Site	Yangzhou Yangjie Electronic Technology Co. Ltd.	Glass tansiteion temperture (T_G)	175 ^{O}C
DIC P/N	S2M	Lead material type	KFC
Package Type	SMB	Lead Material manufacturer	YANGZHOU GANGBO CO., LTD.
DIE P/N	STD 2A 1000V 60mil	Lead plating/ coating	Tin
Die line or process	STD GPP DIODEDS	Lead frame material type	Cu
Wafer Diameter	4 inch	Header plating (Die land area)	N/A
Wafer Fab Site(s)	J&V SEMICONDUCTOR CO.,LTD.	Max junction temperature(Tj)	150 ^{O}C
ID method (multiple sites)	N/A	Max thermal resistance junction to lead(θJC)	16°C/W
Assembly Locations(s)	No.26 Jiangyang Industrial Zone, Yangzhou, Jiangsu,	Max thermal resistance junction to ambient (θJA)*	53°C/W
Test Locations(s)	No.26 Jiangyang Industrial Zone, Yangzhou, Jiangsu,Shandong	Front metal type (Top layer)	Ni-Ni-Au
Die attach Method / Material	Solder Preform	Front metal thickness (Top layer)	0.3~0.4um
Bond wire material & dia.	N/A	Back metal type (All layers)	Ni-Ni-Au
Bond type (at topside of the die)	Soldering	Back metal thickness (all Layers	0.3~0.4um
Bond type	Soldering	Die conforming coating	Solderable metal
No. of bonds over active area	1clip	Die size (width x length x thickness) in mm	1.52*1.52*0.27
Package material type	EK1700G	Die passivation thickness range	N/A
Package material manufacturer	Enternal Electronic Materials(KunShan) Co. Ltd	No. of mask steps	3

Show conditions (i.e. pad size, board material, copper thickness, etc.)

Attachment	Requirement
1)Die Photo	A separate Certificate of Design, Construction and Qualification shall be submitted for each P/N and assembly location
2)Package outline drawing	Document shall be signed by a responsible individual at the supplier who can verify that all of the above information is correct. Type name and
3)Die cross-section drawing	
4)Wire bond & die placement diagram	
5)Test circuits, bias level and conditions	

Yangzhou Yangjie Electronic Technology Co., Ltd.

Jiangyang Industrial Zone, Yangzhou, Jiangsu, China

TEL : (+86)0514-87755171 **FAX : (+86)0514-87755189**

Reliability Test Summary

FACTORY: YJ	PART NUMBER :S2M	CUSTOMER: DIODES
	Package Description : SMB	Test NO.:YJSK1402004B
LABORATORY:YJ	PART DESCRIPTION : General Purpose Rectifier	

#	Test Description	Test Conditions		#Lots	#To Test	Results	REMARKS
1	PRECONDITIONING (PC)	Initial Electrical Test		1	308	Pass	
		Visual Inspection					
		Temperature Cycling	-40℃~60℃，5cycles				
		Bake	125℃,24H				
		Moisture Soak					
		Reflow*3cycles	260℃,3cycles time 5-60min				
		Flux Application					
		Cleaning					
		Drying					
		Final Electrical Test					
2	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071		1	500	Pass	
3	PARAMETRIC VERIFICATION (PV)	Per Data Sheet		1	25	Pass	
4	FORWARD SURGE	8.3ms,单项,半波 ,IFSM =50A,5次		1	45	Pass	
5	HIGH TEMP. REVERSE BIAS (HTRB)	Tj:150℃,80%VR,1000h		1	77	Pass	
6	TEMPERATURE CYCLING (TC)	-65℃(+0,-10)/25min~150℃(+15,-0)/25min,1000Cycles		1	77	Pass	
7	AUTOCLAVE (AC)	121℃±5℃,15 psig,100%RH,96h		1	77	Pass	
8	H^3TRB	85±2℃，85%±2%RH，80%VR,1000H		1	77	Pass	
9	INTERMITTENTOPERATING LIFE (IOL)	△Tj≥100℃,2min On/ 2min Off, 15000 cycles		1	77	Pass	
10	ESD CHARACTERIZATION (ESD)	HBM：100pF,1500Ω ,2KV		1	60	Pass	
		MM：200pF,0Ω ,200V		1	60	Pass	
11	PHYSICAL DIMENSION (PD)	PER JESD22 B-100		1	30	Pass	
12	RESISTANCE TO SOLDER HEAT (RSH)	260℃(+5,-0),30″		1	30	Pass	
13	SOLDERABILITY (SD)	245℃±5℃,5″		1	10	Pass	
14	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 as appropriate		1	10	Pass	
15	D.P.A. (DPA)	AEC Q101-004 SEC. 4		1	2	Pass	

Summary: ACC

Submitted by: :Weikang Sun Date：2014-04-11	Approved by: Ya Han Date：2014-04-11