



Diodes Incorporated Discrete and Analog Semiconductors

Qualification Report - PCN-2252

Manufacturer No.: Additional Plating Site at Diodes Technology (Chengdu)

Company Limited (CAT) for Select Parts

Revision:

Date: February 24, 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 February 24, 2017

Approved By: Diodes US QRA Department Date February 24, 201

February 24, 2017

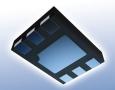
disclosure of

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DIODES INCORPORATED

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DATE: 24 February, 2017

PCN #: 2252

PCN Title: Additional Plating Site at Diodes Technology (Chengdu) Company

Limited (CAT) for Select Parts

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

Rel Date: 2/10/2016



PRODUCT CHANGE NOTICE

PCN-2252

Notification Date:	Implementation Date:	Product Family:	Change Type:	PCN #:
24 February, 2017	24 May, 2017	Discrete	Additional Plating Site	2252
	1	TITLE		
Add Additional Pl	ating Process Site at Dioc	les Technology (Chengd	u) Company Limited (CAT)	for Select Parts
	D	ESCRIPTION OF CHANG	E	
	sued to notify customers that Site at Diodes Technology (C		y of supply for select parts, Di I (CAT).	odes has qualified
Full electrical charact	erization and high reliability t	esting has been completed	on representative part number	ers.
Please contact your le	ocal Diodes representatives	for any questions or additio	nal information.	
		IMPACT		
There will be no chan	ige to the Form, Fit, or Funct	ion of affected products.		
		PRODUCTS AFFECTED		
Table 1: Additional Pl	lating Site at Diodes Technol	ogy (Chengdu) Company L	imited (CAT) for Select Parts	
		WEB LINKS		
Manufacturer's Noti	ce: http://ww	w.diodes.com/pcns		
For More Informatio	n Contact: http://ww	w.diodes.com/contacts.htm	<u>nl</u>	
Data Sheet:	http://ww	w.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.

Rel Date: 2/10/2016



Table	1: Additional Platin	ng Site at Diodes Te	chnology (Chengdi	u) Company Limited	(CAT)
2DA1971-7	BST39TA	FMMT549ATA	ZTX1048A	ZTX758	ZVP2110A
2N7002TA	BST52TA	FMMT549TA	ZTX1049A	ZTX788A	ZVP2120A
BAT54ATA	FCX1047ATA	FMMT551TA	ZTX1051A	ZTX788B	ZVP3306A
BAT54CTA	FCX1051ATA	FMMT555TA	ZTX1053A	ZTX789A	ZVP3306FTA
BAT54STA	FCX1053ATA	FMMT558TA	ZTX1149A	ZTX790A	ZVP3310A
BAT54TA	FCX1147ATA	FMMT589TA	ZTX415	ZTX792A	ZVP3310FTA
BCV46TA	FCX1149ATA	FMMT591ATA	ZTX449	ZTX795A	ZVP4424A
BCV47TA	FCX1151ATA	FMMT591TA	ZTX450	ZTX796A	ZVP4424ZTA
BCV49TA	FCX458TA	FMMT593TA	ZTX451	ZTX849	ZX5T3ZTA
BCW66HTA	FCX491ATA	FMMT596TA	ZTX453	ZTX851	ZX5T955ZTA
BCW68HTA	FCX491TA	FMMT597TA	ZTX455	ZTX853	ZXM61N02FTA
BCX38C	FCX493TA	FMMT617TA	ZTX457	ZTX855	ZXM61N03FTA
BCX41TA	FCX495TA	FMMT618TA	ZTX458	ZTX857	ZXM61P02FTA
BCX5110TA	FCX555TA	FMMT619TA	ZTX549	ZTX869	ZXM61P03FTA
BCX5116TA	FCX558TA	FMMT620TA	ZTX550	ZTX948	ZXMN2A01FTA
BCX51TA	FCX589TA	FMMT624TA	ZTX551	ZTX949	ZXMN6A11ZTA
BCX5210TA	FCX591ATA	FMMT625TA	ZTX553	ZTX951	ZXTN10150DZTA
BCX5216TA	FCX591TA	FMMT6517TA	ZTX555	ZTX953	ZXTN2005ZTA
BCX52TA	FCX593TA	FMMT6520TA	ZTX558	ZTX957	ZXTN2007ZTA
BCX5310TA	FCX596TA	FMMT717TA	ZTX560	ZTX958	ZXTN2010ZTA
BCX5316TA	FCX617TA	FMMT718TA	ZTX601	ZTX968	ZXTN2011ZTA
BCX53TA	FCX619TA	FMMT720TA	ZTX601B	ZVN0124A	ZXTN2038FTA
BCX5410TA	FCX658ATA	FMMT722TA	ZTX603	ZVN0545A	ZXTN2040FTA
BCX5416TA	FCX688BTA	FMMT723TA	ZTX605	ZVN2106A	ZXTN4000ZTA
BCX54TA	FCX690BTA	FMMTA06TA	ZTX614	ZVN2110A	ZXTN4002ZTA
BCX5510TA	FCX705TA	FMMTA13TA	ZTX618	ZVN3306A	ZXTN4004ZTA
BCX5516TA	FCX717TA	FMMTA14TA	ZTX649	ZVN3306FTA	ZXTN4006ZTA
BCX55TA	FCX718TA	FMMTA42TA	ZTX651	ZVN3310A	ZXTN5551FLTA
BCX5610TA	FCX789ATA	FMMTA56TA	ZTX653	ZVN3310FTA	ZXTN5551ZTA
BCX5616TA	FCX790ATA	FMMTA92TA	ZTX657	ZVN3320FTA	ZXTP03200BZTA
BCX56TA	FMMT38CTA	FMMTL618TA	ZTX658	ZVN4106FTA	ZXTP2008ZTA
BCX6825TA	FMMT449TA	FMMTL619TA	ZTX688B	ZVN4206A	ZXTP2009ZTA
BCX6925TA	FMMT451TA	FMMTL717TA	ZTX689B	ZVN4206AV	ZXTP2012ZTA
BS107P	FMMT455TA	FMMTL718TA	ZTX690B	ZVN4210A	ZXTP2013ZTA
BS170FTA	FMMT458TA	SXTA42TA	ZTX692B	ZVN4306A	ZXTP2014ZTA
BS170P	FMMT489TA	VN10LFTA	ZTX694B	ZVN4306AV	ZXTP2039FTA
BS250FTA	FMMT491ATA	VN10LP	ZTX696B	ZVN4310A	ZXTP2041FTA
BS250P	FMMT491TA	ZHCS1000TA	ZTX705	ZVN4424A	ZXTP4003ZTA
BSR33TA	FMMT493ATA	ZHCS500TA	ZTX718	ZVNL110A	ZXTP5401FLTA
BSR43TA	FMMT493TA	ZHCS506TA	ZTX749	ZVNL120A	ZXTP5401ZTA
BSS123TA	FMMT494TA	ZHCS750TA	ZTX751	ZVP0545A	
BSS138TA	FMMT495TA	ZLLS1000TA	ZTX753	ZVP1320FTA	
BSS84TA	FMMT497TA	ZLLS500TA	ZTX757	ZVP2106A	

Rel Date: 2/10/2016



Description: Qualification of Plating process at CAT

	Category					Qual Device 1		Qual Device 2		Qual Device 3		Qual Device 4		Qual Device 5	
	Product	Part Number				FCX1053ATA		ZVP2106A		2N7002TA		BCX5616TA		ZX5T3ZQTA	
	Assembly	Package Type				SOT89		EP3 (E-Line)		SOT23		SOT89		SOT89	
	Assembly	Package Size				4.1mmx4.5mm		4.63mmx17.28mm		2.85mmx2.37mm		4.1mmx4.5mm		4.1mmx4.5mm	
	Wafer	Die Name(s)		1		FCX1051A		ZVP2106A		2N7002C/2N7002T3C		BCX5616XC/CX5616XC		ZX5T3Z	
	Wafer	Die Size (W/L/Thickness) - After Saw		1		1.29x1.29		1.0x1.0		0.76x0.76		0.68x0.68		1.29*1.29	
	Wafer	Die Process / Technology		1		BIPOLAR		MOSFET		MOSFET		BIPOLAR		BIPOLAR	
	Wafer	Wafer FAB/ Location				KFAB/USA		OFAB/UK		OFAB/KU		KFAB/USA		OFAB/UK	
	Wafer	Wafer Diameter				6"		6"		6"		6"		6"	
	Wafer	Front Metal Type				AlSi		AlSi		AlSi		AlSi		AlSi	
	Wafer	Back Metal Type (All Layers)				Silver		Gold		Gold		Gold		Gold	
	Wafer	Back Metal Thickness (All Layers)				279um		279um		178um		229um		229um	
	Assembly	Die quantity per package (e.g. single or dual				1		1		1		1		1	
	Assembly	Die Attach Method (DB Epoxy/Solder Type)				SOLDER		Eutectic		Eutectic		Eutectic		Eutectic	
	Assembly	Die Attach Material/ Supplier				PbSn5 Ag5 / Heraeus		NA NA (1)	_	NA NA (III		NA NA (III		NA NA	4
	Assembly	Bond Wire/Clip Bond Material/ Supplier				Au Wire/Heraeus Ball		Au Wire/Heraeus Ball		Au Wire/Heraeus Ball		Au Wire/Heraeus Ball		Au Wire/Heraeus Ball	
	Assembly Assembly	Bond Type (at Die) Bond Type (at LF)				Wedge		Wedge		Wedge		Wedge		Wedge	4
	Assembly	No. of bond over active area				vveuge 3		vveuge 2		vveuge 2		veuge 2		weuge 3	
	Assembly	Glass Transistion Temp				175±15°C		175±15°C		175±15°C		175±15℃		175±15°C	
	Assembly	Terminal Finish (Plating) Material		1		Sn		Sn		Sn		Sn		Sn	
	Assembly	Header plating (Die Land Area)		1		Silver		Silver		Silver		Silver		Silver	
	Assembly	Wire Diameter		1		2.0mil		1.0mil		1.0mil		1.0mil		2.0mil	
	Assembly	Leadframe Type]		SOT89 10R		EP3 LF		SOT23 6R		SOT89 10R		SOT89 10R	
	Assembly	Leadframe Material				CDA194		CDA194		A42		CDA194		CDA194	
	Assembly	Lead Frame Manufacturer		I		Suzhou SH Precision Co.,Ltd		Fu Sheng		SLC		Suzhou SH Precision Co.,Ltd		Suzhou SH Precision Co.,Ltd	
	Assembly	Molding Compound Type				KTMC1050G		EME 500		KTMC1050G		KTMC1050G		KTMC1050G	
	Assembly	Mold Compound Material Manufacturer				KCC		CCSB		KCC		KCC		KCC	
	Assembly	Green Compound (Yes/No)				YES		YES		YES		YES		YES	4
	Assembly	Lead-Free (Yes/No)				YES ZAT		YES ZAT		YES ZAT		YES ZAT		YES ZAT	
	Assembly Assembly	Assembly Site/ Location Test Site/ Location				ZAT		ZAT		ZAT		ZAT		ZAT	
	<u> </u>		_			ZAI		ZAT		ZAI		ZAI		ZAI	+
	ľ	Reliability and Characterization Testin	g												
# in AEC- Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per	# of Lots	X = Test Needed	Results Pass/Fai I	X = Test Needed	Results Pass/Fai I	X = Test Needed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail	QBS Test Completed	Results Pass/Fail
		Bake 125C	24 Hrs	Lot SMD		X	Passed	X	Passed	X	Passed	X	Passed	X	Desced
2	MSL1 Pre-	Soak 85C. 85% RH	168Hrs	only, for	1 Assembly lot	X	Passed	X	Passed	X	Passed	X	Passed	X	Passed Passed
_	conditioning	IR reflow 260C	3 cycles	Test #7,	1 Assembly lot	X	Passed	X	Passed	X	Passed	X	Passed	X	Passed
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All q subr	ualification parts mitted for testing	х	Passed	х	Passed	х	Passed	х	Passed	х	Passed
1			168 Cycles	0/77		X	Passed	X	Passed	X	Passed	X	Passed	X	Passed
7	TC	Ta=-65C to 150C or Max Tj, PER JESD22A-104		0/77	1 Assembly lot	X	Passed	X	Passed	X	Passed	X	Passed	X	Passed
		T 4000 050/BH 00 0 1 000/ B1 D5B	1000 Cycles	0/77		Х	Passed	X	Passed	X	Passed	X	Passed	X	Passed
9	HAST	Ta=130C, 85%RH 33.3 psia 80% Bias; PER JESD22- A110	96 Hrs	0/77	1 wafer lots	х	Passed	Х	Passed						
		Ta=85°C, 85% RH, with 80% Maximum Reverse	168 Hrs	0/77						X	Passed	X	Passed	Х	Passed
9 alt	H3TRB	Bias. JESD22A-101	500 Hrs	0/77	3 wafer lots					X	Passed	X	Passed	X	Passed
			1000 Hrs	0/77						X	Passed	X	Passed	X	Passed
			2520 Cycles	0/77		X	Passed	X	Passed	X	Passed	X	Passed	Х	Passed
10	IOL	MIL-STD-750 Method 1037 (N/A for TVS)	7560 Cycles	0/77	1 wafer lots	X	Passed	X	Passed	X	Passed	X	Passed	X	Passed
			15000 Cycles	0/77		X	Passed	X	Passed	X	Passed	X	Passed	X	Passed
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot	Х	Passed	X	Passed	Х	Passed	Х	Passed	X	Passed
13	Package Physical Dimemsions (PD)	JESD22-B100	Package Outline	0/30	1 Assembly lot	х	Passed			X	Passed	Х	Passed	х	Passed
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @30S)	PER SPEC	0/30	1 Assembly lot	х	Passed	Х	Passed	Х	Passed	Х	Passed	х	Passed
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	Passed	X	Passed	Χ	Passed	X	Passed	X	Passed
	Summary: Submitted By: Approved By:	David Tang Mark Li Hiwen Hu	5/25/16 5/25/16 5/26/16												

New Site (CAT) Plating Qual Summary

Items	Test	Test Conditions	Duration / Limits	Fail/SS	Result	
1	Appearance	VM	C-QIII-Q011	0/30 Stips	Passed	
2	Flash	VM	C-QIII-Q011	0/30 Stips	Passed	
3	Physical Dimensions	Projector	C-QIII-Q011	0/30 Units	Passed	
4	Plating Thickness	XRF Test	THK: 8-15.5um Cpk>1.67	0/3 Stips	Passed	
5	Grain Size	Microscope	Grain size: 3-8	0/3 Stips	Passed	
6	Solderbility	Solderbility Test	245℃~260℃,5S/>9 5%	0/33 Units	Passed	
7	SGS	XRF Test	RoHS & JSTD-609	0/3 Strips	Passed	
8	Anti-discolor	85℃/85%RH	24hrs	0/30 Units	Passed	
9	TC (Whisker)	-65℃-150℃	1000cycles	0/5 Units	Passed	

Dep. QRA

Prepared by: David Tang 6/06/16

Reviewed by: Mark Li 6/06/16