

DATE: 15 November, 2021

PCN #: 2554

PCN Title: Qualified Additional Assembly & Test Sites, Bill of Material and updated Device Data Sheets for Package Outline Dimension Change

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-2554 REV 1

Notification Date:	Implementation Date:	Product Family:	Change Type:	PCN #:
15 November, 2021	15 February, 2022	Analog Semiconductors	A/T Sites, BOM and Data Sheet Change	2554
		TITLE		
Qualified Addition	onal Assembly & Test (A/T) \$	Sites, Bill of Material (BOM) a Dimension Change	and updated Data Sheets for	Package Outline
		DESCRIPTION OF CHANG	E	
JCET Group Co., Ltd Tianshui, Gansu, Chi a Package Outline Di Full electrical charact change to device fund	. (JCET) located in Suqian, (na. In addition, we have qua mension (POD) change for (erization and high reliability ctionality or electrical specific	in order to assure continuity China, and Tianshui Huatian lified (BOM) New Die Revisio SOT353-5L and SOT363-6L testing has been completed of cations in the datasheet. Ref in it with a PDF viewer to see	Technology Co., Ltd. (TSHT on, PdCu Bond Wire and Lea as noted in Tables 5 and 6. on representative part number fer to the attached qualification) located in ad Frame that includes ers to ensure no
	·	IMPACT	,	
Continuity of Supply. Table 5 and 6.	There will be no change to	the Form, Fit or Function o	f products affected, unless s	pecifically indicated in
		PRODUCTS AFFECTED		
Table 2 - Qualified Ac Table 3 - Qualified Ac	•	New Die Revision		
		WEB LINKS		
Manufacturer's Noti	ce: https://w	web LINKS ww.diodes.com/quality/produ	ict-change-notices/diodes-pr	oduct-change-notices/
For More Informatio		ww.diodes.com/quality/produ		
			<u>1-13/00111401-54185/</u>	
Data Sheet:	nttps://w	ww.diodes.com/catalog/		
		DISCLAIMER		
	orporated Sales represent ed in this announcement a	ative is contacted in writing re considered approved.	g within 30 days of the pos	ting of this notice,



Table 1 - Qualified Additional (BOM) PdCu Bond Wire									
AP22800HB-7									

	Table 2 - Qua	alified Additional AT Site (JCE	T SQ)	
PI3USB9281CXWEX				

	Table 3 - Qualified Ad	ditional AT Site (TSHT) and No	ew Die Revision	
GP4624S-13				

		Table 4 - Qualified Ac	ditional (BOM) Lead Frame w	ith POD Change	
PI5A121BCEX	PI5A3157BC6EX	PI5A3157CEX	PI5A3166CEX	PI5A3167CCEX	PI5A4157CEX
PI5A4599BCEX					



Table 5 – POD Change for SOT353-5L

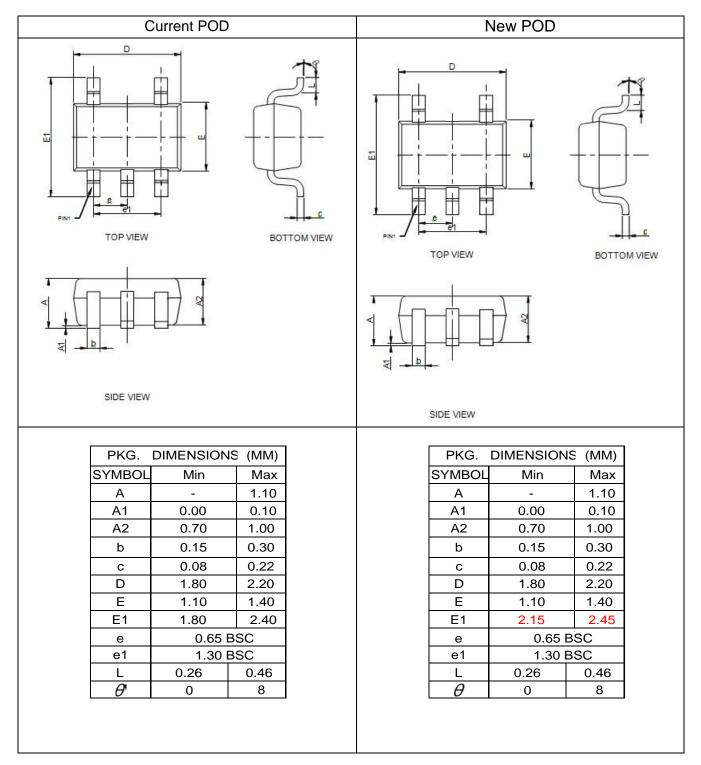
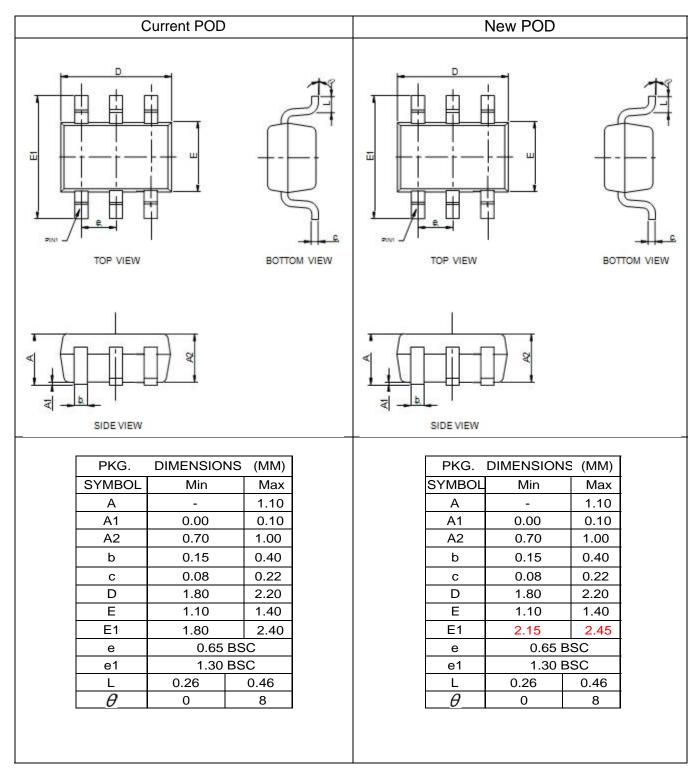




Table 6 – POD Change for SOT 363-6L



Certificate of Design, Construction & Qualification



Description: Qualification of AP22800HB-7 & AP22966DC8-7

				Qual Device 1		Qual Device 2		Qual Device 3		Qual Device 4	
General	Part Number			AP22800HB-7		AP22800HB-7		AP22800HB-7		AP22966DC8-7	
	Package Wire Bond, Cu Piller, CSP			DFN2116-8 wire bond	l	DFN2116-8 wire bond		DFN2116-8 wire bond		DFN3020-14-080E wire bond	┢───
	MSL Level			wire bond	-	wire bond 1		wire bond		wire bond	1
	Package Size			2.1 x 1.6 x 0.605		2.1 x 1.6 x 0.605		2.1 x 1.6 x 0.605		3.05 x 2.05 x 0.83 mm	
	Die Quantity (eg. Die per package)			1		1		1		1	(
	Die Name(1)			A0339A/AD08070339A0		A0339A/AD08070339A0		A0339A/AD08070339A0		A0358B0	
	Die Size (W/L/Thickness			620 × 1320 × 140		620 x 1320 x 140		620 x 1320 x 140		0.705 x 1.99 x 0.205 mm	
	Die Process / Technology			CMOS, AN180		CMOS, AN180		CMOS, AN180		AN180	
	Wire Bond Material (Au, Cu, Al) Wire Diameter			1.5mil/0.8mil PdCu 0.8mil/1.5mil		1.5mil/0.8mil PdCu 0.8mil/1.5mil		1.5mil/0.8mil PdCu 0.8mil/1.5mil		Cu 0.8 mil PdCu & 1.5milCu	
Fab											L
Fab	Wafer FAB			Dongbu Hitek		Dongbu Hitek 200mm		Dongbu Hitek		Dongbu Hitek/CB KF	i
	Wafer Diameter Wafer Thickness			200mm 750um		200mm 750um		200mm 750um		200mm (8*)	L
	Top Metal Type/Bond Pad Composition			Cu[10um]+Ni[2um]+Au[0		Cu[10um]+Ni[2um]+Au[0.		Cu[10um]+Ni[2um]+Au[0.		Cu[10um]+Ni[2um]+Au[
	Top Metal Thickness			.5mm] 12.5um		5mm] 12.5um		5mm] 12.5um		0.5um]	i
	Die passivation thickness range			Ni 6000Å + Oxide 11000Å		Ni 6000Å + Oxide 11000Å		Ni 6000Å + Oxide 11000Å		Ni 6000Å + Oxide	
				13		13		13		11000Å 22	i
	No. of bond over active area Glass Transistion Temp			13		135		13		135 degree C	
				Ni [0.20-0.50um]; Pd		Ni [0.20-0.50um]; Pd		Ni [0.20-0.50um]; Pd			
	Header plating (Die Land Area)			[0.015-0.02um]; Au		[0.015-0.02um]; Au	1 '	[0.015•0.02um]; Au		NiPdAu	1
				[0.003-0.015um]		[0.003-0.015um]	L	[0.003-0.015um]			┢───
	Max Junction Temp Max Thermal resistance Junc (case)			125 189	l	125 189		125 189		150 degree C 8 °C/W	⊢
	Max Thermal resistance Junc (case) Max Thermal resistance Junc (amibent)			189 61		189 61		189 61		8°C/W 46.5°C/W	
	No of masks Steps			19 plus RDL	1	19 plus RDL	l	19 plus RDL		46.5 C/W 21 + Cu RDL	1
	Metal Layers			3Mtl plus Thick Cu RDL		3Mtl plus Thick Cu RDL	(3Mtl plus Thick Cu RDL		4 + RDL	1
										MET1 = 0.6156	1
				MET1 = 39.5%		MET1 = 39.5%		MET1 = 39.5%		MET2 = 0.7110	1
	Metal Density per Layer			MET2 = 65.3%		MET2 = 65.3%		MET2 = 65.3%		MET3 = 0.6951	1
				MET3 = 66.3%		MET3 = 66.3%		MET3 = 66.3%		MET4 = 0.6856	1
										Cu RDL = 0.5415	1
	Min Metal Width			0.34		0.34		0.34		0.23um	1
	Min Metal Spacing			0.23		0.23		0.23		0.23um	
	Power Consumption			100uW		100uW		100uW		17mW @ 1A	
	RDL Design and Process			Cu[10um]+Ni[2um]+Au[0 .Sum]		Cu[10um]+Ni[2um]+Au[0. Sum]		Cu[10um]+Ni[2um]+Au[0. Sum]		Cu[10um]+Ni[2um]+Au[0.5um]	
	Number of Transistors			405		405		405		245	
Package	BackgrindThinkness			140		140		140		205um	
	Backgrind Location			SAT Ball		SAT Ball		SAT Ball		SAT Rall	
	Bond Type (at Die) Bond Type (at LF)			Ball		Ball Stitch		Ball Stitch		Ball Stitch	
	DB Epoxy/Solder Type			WBC conductive		WBC conductive		WBC conductive		Epoxy	
	Die Attach Material			8008MD	-	8008MD		8008MD		QMI519	1
	# of pad/ball/nin Pitch			7		7		7		10	
	Leadframe Type			SLP2116P8 B		SLP2116P8-B		SLP2116P8-B		SLP3020P14/DLF00694	
	Leadframe Material			C7025HH		C7025HH		C7025HH		C7025HH	
	Molding Compound Type			EMEG770HCD		EMEG770HCD		EMEG770HCD		EMEG770HCD	
	Green Compound (Yes/No)			Yes		Yes		Yes		Yes	
	Lead-Free (Yes/No)			Yes		Yes		Yes		Yes	1
AT/Rel	Assembly Site/RDL site FT Test Site			SAT/Chipbond SAT	L	SAT/Chipbond SAT	l'	SAT/Chipbond SAT		SAT/Chipbond SAT	i
	FT Test Site Realibility Test Site			SAT ZUK		SAT ZUK		SAT ZUK		SAT	i
	Qual Plan #			21012708		21012708		21012708		21012708	
	Realibility Testing						Results		Results		Results
Test	Test Conditions	Duration / Limits	Fail/SS	X = Test Needed	Results Pass/Fail	X = Test Needed	Pass/Fail	X = Test Needed	Pass/Fail	X = Test Needed	Pass/Fail
MSL1 Pre-cond	(JESD22-A113) Bake 125C	24 Hrs	0/154	X	Pass	x	Pass	X	Pass	QBS to Qual device 1	I
	Soak 85C, 85% RH	168Hrs	0/154	x	Pass	x	Pass	X	Pass	QBS to Qual device 1 QBS to Qual device 1	i —
	IR reflow 260C (JESD22-A104) -65C-150C	3 cycles						х			I
Temp Cycle (TC)	Mounted on PCB Board (Daughter Card)	500 cycles	0/77	x	Pass	x	Pass	x	Pass	QBS to Qual device 1	L
тнв		1000 cycles	0/77	×	Pass	×	Pass	x	Pass	QBS to Qual device 1	
Temperature Humidity Bias (Alternative to HAST)	JESD22-A101/A110 85C, 85%RH	1000 Hrs	0/77	х	pass	x	pass	x	pass	QBS to Qual device 1	1
HTSL High Temperature Storage	(JESD22-A103) Ta>150C	168 Hrs	0/77	х	pass	x	pass	x	pass	QBS to Qual device 1	
· · · · · · · · · · · · · · · · · · ·		500 Hrs	0/77	Х	pass	Х	pass	Х	pass	QBS to Qual device 1	
		1000 Hrs	0/77	х	pass	Х	pass	х	pass	QBS to Qual device 1	
Human Body Model	HBM (AEC-Q100-002)	+2KV	0/3	х	pass	Х	pass	Х	pass	QBS to Qual device 1	
Charged Device Model	CDM (AEC-Q100-011)	+750V	0/3	х	pass	x	pass	х	pass	QBS to Qual device 1	
Latch-up (Class II)	Max Operating Ta or Tc or Tj	100mA	0/6	×	pass	x	pass	x	pass	QBS to Qual device 1	
Char Characterization	Typ -40C, 0C, 25C, 85C, 125C	Operating Range	0/30	x	pass	х	pass	х	pass	QBS to Qual device 1	
Summary: Submitted By:	Vanessa Tien			-	-					-	
Approved By:	M Kulbeth 7/27/2021										
Approved by:											

Certificate of Design, Construction & Qualification



Description: GP4624S-13 A/T site transfer with BOM change

Qual Device 1 QBS Vehicle1 QBS Vehicle2

QBS Vehicle3

QBS Vehicle4

General	Part Number			GP4624S-13		GP4624IS-13		GP4624IS-13		GP4624IS-13		GP4624S-13	
	Package Wire Bond, Cu Piller, CSP			SO-8 Wire bond		SO-8 Wire bond		SO-8 Wire bond		SO-8 Wire bond		SO-8 Wire bond	
	MSL Level			3		wire bond		wire bond		Wire bond 3		Wire bond 3	
	Package Size			4.90mm/6.00mm/1.45mm		4.90mm/6.00mm/1.45mm		4.90mm/6.00mm/1.45mm		4.90mm/6.00mm/1.45mm		4.90mm/6.00mm/1.45mm	
	Die Quantity (eg. Die per package) Die Name(1)			2 SF007Q		2 SE007V		2 SF007D		2 SE007V		2 SF007V	
	Die Size (W/L/Thickness)			0.99mm/0.83mm/0.2mm		0.99mm/0.83mm/0.2mm		0.99mm/0.83mm/0.2mm		0.99mm/0.83mm/0.2mm		0.99mm/0.83mm/0.2mm	
	Die Process / Technology Wire Bond Material (Au, Cu, Al)			BCD 0.35um 32V 1P2M Cu		BCD350GE Cu		BCD350GE Cu		BCD350GE Cu		BCD350GE	
	Wire Diameter			25um		25um		25um		25um		25um	
	Die Name(2)			B182DW		GL450180		GL450180		GL450180		B182DW	
	Die Size (W/L/Thickness) Die Process / Technology			1.82mm/1.82mm/0.26mm Triple diffusion		1.8mm/1.8mm/0.26mm Triple diffusion		1.8mm/1.8mm/0.26mm Triple diffusion		1.8mm/1.8mm/0.26mm Triple diffusion		1.82mm/1.82mm/0.26mm Triple diffusion	
	Wire Bond Material (Au, Cu, Al)			Cu		Cu		Cu		Cu		Cu	
	Wire Diameter			25um		25um		25um		25um (MicroPower)		25um	
Fab	Wafer FAB			(MicroPower) HH-Grace(Die1)		(MicroPower) HH-Grace(Die1)		(MicroPower) HH-Grace(Die1)		(MicroPower) HH-Grace(Die1)		(MicroPower) HH-Grace(Die1)	
				JMSC(Die2)		Guanglei(Die2)		Guanglei(Die2)		Guanglei(Die2)		JMSC(Die2)	
	Wafer Diameter			8-inch(Die1) 5-inch(Die2)		8-inch(Die1) 5-inch(Die2)		8-inch(Die1) 5-inch(Die2)		8-inch(Die1) 5-inch(Die2)		8-inch(Die1) 5-inch(Die2)	
	Wafer Thickness			750um(Die1)		750um(Die1)		750um(Die1)		750um(Die1)		750um(Die1)	
	water Inickness			260um(Die2)		260um(Die2)		260um(Die2)		260um(Die2)		260um(Die2)	
	Top Metal Type/Bond Pad Composition			Ti/TiN/AlCu(Die1) Si/Al(Die2)		Ti/TiN/AlCu(Die1) Si/Al(Die2)		Ti/TiN/AlCu(Die1) Si/Al(Die2)		Ti/TiN/AlCu(Die1) Si/Al(Die2)		Ti/TiN/AlCu(Die1) Si/Al(Die2)	
	Top Metal Thickness			0.9um (Die1)		0.9um (Die1)		0.9um (Die1)				0.9um (Die1)	
				4.5um (Die2) N/A(Die1)		4.5um (Die2) N/A(Die1)		4.5um (Die2) N/A(Die1)		4.5um (Die2) N/A(Die1)		4.5um (Die2) N/A(Die1)	
	Back Metal Type (All Layers)			Ti-Ni-Ag(Die2)		Ti-Ni-Ag(Die2)		Ti-Ni-Ag(Die2)		Ti-Ni-Aq(Die2)		Ti-Ni-Ag(Die2)	
	Back Metal Thickness (All Lavers)			N/A(Die1) (6800±680)A ^o (Die2)		N/A(Die1) (6800+680)A9(Die2)		N/A(Die1) (6800+680)A9(Die2)		N/A(Die1) (6800+680)A9(Die2)		N/A(Die1) (6800+680)A ^o (Die2)	
						(6800±680)A*(Die2) Die1(Si3N4:5000A,SiO2:200		(6800±680)A*(Die2) Die1(Si3N4:5000A,SiO2:200		(6800±680)Aº(Die2) Die1(Si3N4:5000A.SiO2:200		(6800±680)Aº(Die2) Die1(Si3N4:5000A.SiO2:200	
	Die passivation thickness range			Die1(Si3N4:5000A,SiO2:2000A) Die2 (polyimide>1.5um)		0A)		0A)		0A)		(A0	
				No		Die2 (polyimide>1.5um) No		Die2 (polyimide>1.5um) No		Die2 (polyimide>1.5um) No		Die2 (polyimide>1.5um)	
	No. of bond over active area Glass Transistion Temp	-		No 130 degree C		No 130 degree C		No 130 degree C		No 130 degree C		No 130 degree C	
				JIANGFENG ELECTRONICS	1	JIANGFENG		JIANGEENG		JIANGFENG		SK ELECTRONICS SUZHOU	
	Lead Material Manufacture			GUANGZHOU CO., LTD.	l I	ELECTRONICS GUANGZHOU CO., LTD.		ELECTRONICS GUANGZHOU CO., LTD.		ELECTRONICS GUANGZHOU CO., LTD.		CO., LTD.	
	Header plating (Die Land Area)			Ag		Ag		Ag		Ag		Ag	
	Max Junction Temp			150°C		150°C		150°C		150°C		150°C	
	Max Thermal resistance Junc (case) Max Thermal resistance Junc (amibent)			45°C/W 130°C/W		45°CW 130°CW		45°C/W 130°C/W		45°CW 130°CW		45°C/W 130°C/W	
	No of masks Steps			18(Die1)	1	18(Die1)		18(Die 1)		18(Die1)		18(Die1)	
				6 (Die2)	4	6 (Die2)		6 (Die2)		6 (Die2)		6 (Die2)	
	Metal Layers			2(Die1) 1(Die2) >30%(Die1)		2(Die1) 1(Die2) >30%(Die1)		2(Die1) 1(Die2) >30%(Die1)		2(Die1) 1(Die2) >30%(Die1)		2(Die1) 1(Die2) >30%(Die1)	
	Metal Density per Layer					>30%(Die1)		>30%(Die1)		>30%(Die1)		>30%(Die1)	
	Min Metal Width			>80%(Die2) 0.5um(Die1)	1	>80%(Die2) 0.5um(Die1)		>80%(Die2) 0.5um(Die1)		>80%(Die2) 0.5um(Die1)		>80%(Die2) 0.5um(Die1)	
	Min Metal Width			10um(Die2)		10um(Die2)		10um(Die2)		10um(Die2)		10um(Die2)	
	Min Metal Spacing			0.45um(Die1) 10um(Die2)		0.45um(Die1) 10um(Die2)		0.45um(Die1) 10um(Die2)		0.45um(Die1) 10um(Die2)		0.45um(Die1) 10um(Die2)	
	Power Consumption			0.45W		100m(Die2) 0.45W		100m(Die2) 0.45W		0.45W		0.45W	
	RDL Design and Process			No		No		No		No		No	
	Number of Transistors			>5000(Die1) 1 (Die2)		>5000(Die1) 1 (Die2)		>5000(Die1) 1 (Die2)		>5000(Die1) 1 (Die2)		>5000(Die1) 1 (Die2)	
Package	BackgrindThinkness			200um (Die1)		200um (Die1)		200um (Die1)		200um (Die1)		200um (Die1)	
Fackage	Backgrind minkness			260um (Die2)		260um (Die2)		260um (Die2)		260um (Die2)		260um (Die2)	
				(MicroPower)						TSHT(Die1)		TSHT(Die1)	
	Backgrind Location			TSHT(Die1)		TSHT(Die1)		TSHT(Die1)					
	Backgrind Location			TSHT(Die1) JMSC(Die2)		GuangLei(Die2)		GuangLei(Die2)		GuangLei(Die2)		GuangLei(Die2)	
	Bond Type (at Die)			JMSC(Die2) Ball		GuangLei(Die2) Ball		GuangLei(Die2) Ball		GuangLei(Die2) Ball		GuangLei(Die2) Ball	
	Bond Type (at Die) Bond Type (at LF) DB Epoxy/Solder Type					GuangLei(Die2)		GuangLei(Die2)		GuangLei(Die2)		GuangLei(Die2)	
	Bond Type (at Die) Bond Type (at LF)			JMSC(Die2) Ball Wedge Epoxy 8200T		GuangLei(Die2) Ball Wedge Epoxy 8200T		GuangLei(Die2) Ball Wedge Epoxy 8200T		GuangLei(Die2) Ball Wedge Epoxy 8200T		GuangLei(Die2) Ball Wedge Epoxy S216	
	Bond Type (at Die) Bond Type (at LF) DB Epoxy/Solder Type			JMSC(Die2) Ball Wedge Epoxy 8200T 105am(Die1)		GuangLei(Die2) Ball Wedge Epoxy 8200T 105xm(Die1)		GuangLei(Die2) Ball Wedge Epoxy 8200T 105rm(Die1)		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1)		GuangLei(Die2) Ball Wedge Epoxy \$216 105um(Die1)	
	Bond Type (at Die) Bond Type (at LF) DB Epoxy/Solder Type Die Attach Material Min Bond Pad Pitch			JMSC(Die2) Ball Wedge Epoxy 8200T 105cm(Die1) N/A(Die2) 6(Die1)		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1) N/A(Die2) 6(Die1)		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1) N/A(Die2) 6(Die1)		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1) N/A(Die2) 6(Die1)		GuangLei(Die2) Ball Wedge Epoxy \$216 105rm(Die1) N/A(Die2) 6(Die1)	
	Bond Type (at Die) Bond Type (at LF) DB EporySolder Type Die Attach Material Min Bond Pad Pitch # of padiballjoin Pitch			JMSC(Die2) Ball Wedge Epoxy 8200T 105um(Die1) N/A(Die2)		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1) N/A(Die2)		GuangLei(Die2) Ball Wedge Epoxy 8200T 105cm(Die1) N/A(Die2) 6(Die1) 2(Die2)		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1) N/A(Die2)		GuangLei(Die2) Ball Wedge Epoxy \$216 105um(Die1) N/A(Die2)	
	Bond Type (at Die) Bond Type (at LF) DB Epoxy/Solder Type Die Attach Material Min Bond Pad Pitch			JMSC(Dis2) Ball Wedge Epoxy 8200F 105um(Die1) NA(Die2) 6(Die1) 2(Die2) Stamping A149		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1) NA(Die2) 6(Die1) 2(Die2) Stamping A149		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1) NA(Die2) 6(Die1) 2(Die2) Stamping A149		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um([bit]) NIA(Die2) 6(Die1) 2(Die2) Stamping A149		GuangLei(Die2) Ball Wedge Epoxy \$216 105rm(Die1) N/A(Die2) 6(Die1)	
	Bord Type (at Die) Bord Type (at LF) DB Epoxy/Solder Type De Attach Material Min Bond Pad Pitch # of padballpin Pitch Leadhame Type Leadhame Type			JMSC(Disc) JMSC(Disc) Ball Epoxy 82007 105cm(Dist1) NA(Disc2) 6(Dist1) 2(Disc2) Stamping A149 CEL8220HF		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1) N/A(Die2) 6(Die1)		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1) N/A(Die2) 6(Die1) 2(Die2) Stamping A149 CEL82240HF		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1) N/A(Die2) 6(Die1)		GuangLei(Die2) Ball Wedge Epcory \$216 105um(Die1) N(A(Die2) 6(Die1) 2(Die2) Stamping A149 GE30AY	
	Bond Type (at Die) Bond Type (at LF) Die Epoxy/Solder Type Die Attach Material Min Bond Pad Pitch I e dyadballipin Pitch Leadmane Type Leadmane Material Molding Compound Type/Nei/No			JMSC(De2) Ball Viedge Epoxy 6200(De1) NA(De2) 6(De1) 2(De2) Stamping A149 CEL-8240H ^e Ves		GuangLei(Die2) Ball Wedge Epoxy 8200(E11) NiA(Die2) 6(Die1) 2(Die2) Stamping A19 CEL-8240HF Yes		GuangLei(Die2) Ball Wedge Epoxy 82000 105um(Die1) NVA(Die2) 6(Die1) 2(Die2) Stamping A149 CEL-8240HF Yes		GuangLei(Die2) Ball Wedge Epoxy 82001 105um(Die1) NNA(Die2) 6(Die1) 2(Die2) Stamping A149 CEL-8240HF Yes		GuangLei(Die2) Bail Wedge Epoxy \$216 105um(Die1) NM(Die2) 6(Die1) 2(Die2) Stamping A149 G530AY Yes	
	Bord Type (at Die) Bord Type (at LF) DB Epoxy/Solder Type De Attach Material Min Bond Pad Pitch # of padballpin Pitch Leadhame Type Leadhame Type			JMSC(Disc) JMSC(Disc) Ball Epoxy 82007 105cm(Dist1) NA(Disc2) 6(Dist1) 2(Disc2) Stamping A149 CEL8220HF		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1) NA(Die2) 6(Die1) 2(Die2) Stamping A149		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um(Die1) N/A(Die2) 6(Die1) 2(Die2) 3tamping A149 CEL82240HF		GuangLei(Die2) Ball Wedge Epoxy 8200T 105um([bit]) NIA(Die2) 6(Die1) 2(Die2) Stamping A149		GuangLei(Die2) Ball Wedge Epcory \$216 105um(Die1) N(A(Die2) 6(Die1) 2(Die2) Stamping A149 GE30AY	
	Bord Type (at Die) Bord Type (at Di- Die Begroßder Type Die Kasch Material Mite Bord Par Printh Leisdnere Type Materia Bord Type Green Campound (Tee Kraho) Lead-Free (resho) Soder Ball Dameter			JMSC(Da2) Ball Wedge Epony (Da2) (Da1) (Da2) (Da1) (NA(Da2) (Da1) (N(Da2) (Da1) 2(Da2) Stamping A (49 (Da1) (Ca2) Stamping A (49 (Da2) (Da1) (Da2) (Da2)		GuangLei(Diez) Ball Wedge <u>5007</u> 105sm(Diet) 105sm(Diet) 2(Die2) 6(Diet) 2(Die2) 35amping A 149 CEL5220H ⁶ Ves 62.3um Ves 62.3um		GuangLei(Diez) Ball Wedge 52007 105sm(Diet) 105sm(Diet) 2(Diez) 6(Diet) 2(Diez) 51amping A 149 CEL5220HF Ves 62.3um Ves 62.3um Ves		GuangLe(Die2) Ball Wedge 52007 105cm(De1) NA(Die2) 6(De1) 2(Die2) Stamping A 149 CEL5220H ² Ves Ves 6.2.3um Yes 6.2.3um		GuangLe(Die2) Ball Wedge Epoxy (S216/e1) NA(Die2) NA(Die2) NA(Die2) Stamping A149 G (S30AY Yes Ves 62.3um (MicroPower)	
ATRel	Bond Type (at Die) Bond Type (at LF) Die Equivideder Type Die Attach Hahmat Min Bond Pad Pitch 4 of padsballpin Pitch Leadrame Type Leadrame Type Control (VarMo) Leadrame Material Control (VarMo) Leadrame (VarMo)			JMSC(De2) Ball Ball Wedge Epoxy s2007 105/art(De1) NA(De2) 0(De1) Stamping A149 CEL-8240H ² Ves Ves E23 TANSHULHUATIAN TECHNOLOGY COL.TC.		GuangLei(Dia2) GuangLei(Dia2) Pooy 82007 82007 82007 82007 82007 82007 82007 82007 82007 82007 82007 82007 82007 920 82007 920 920 920 920 920 920 920 920		GuangLei(Dia2) GuangLei(Dia2) Poory Epory E2007 N(A(Dia2) 2(GuangLei(Dia2) GuangLei(Dia2) Bat Bat Epoxy 82007 82007 82007 82007 82007 82007 82007 82007 82007 82007 9207 9		GuangLe(Die2) Ball Wedge Epopy 5216 100um(Die1) 100um(Die1) 2(Die2) 4(Die1) 2(Die2) Stamping A149 Vos 530 Vos 6(Die1) 4(Die1) 2(Die2) 540 (MicroPower)	
AT/Rel	Bord Type (at Die) Bord Type (at Di- Die Begroßder Type Die Kasch Material Mite Bord Par Printh Leisdnere Type Materia Bord Type Green Campound (Tee Kraho) Lead-Free (resho) Soder Ball Dameter					GuangLei(Dia2) Ball Wedge Epony 52007 105um(Die1) NA(Die2) 6(Die1) 2(Die2) Stamping A149 Ves 623am TIANSHUH HUATIAN TECHMOLOGY CO., ITD. (TBHT)		GuangLei(Dia2) 8 31 8 31 8 5007 8 5007 100sm(Die1) NA(Dia2) 8 (Die1) 2 (Die2) 8 5100 8 5100 8 5100 8 5100 100s1 100s2 10		GuangLe(Die2) Ball Wedge 52007 105cm(De1) NA(Die2) 6(De1) 2(Die2) Stamping A 149 CEL5220H ² Ves Ves 6.2.3um Yes 6.2.3um		GuangLe(tDie2) Ball Wedge Staff 105um(Der1) N(AD)e2) 6(Der1) 2(Die2) Stamping A149 G630AY Yes Yes Sam (Miccoberet) JUNGSI YANXIN MICROELECTRONICS COLID	
AT/Rel	Bond Type (at Ltd) Bond Type (at Ltd) Bond Type (at Ltd) De Anah Material Min Bond Pad Pitch # of padballjon Pitch Leadframe Vaterial Mediag Cancerout Type Bond State (Taskio) Lead-Free (Taskio) Lead-Free (Taskio) Lead-Free (Taskio) State Bal Janoter					Guang, et(Diaz) Ball Wedse Epony S5001 NA(Diez) NA(Diez) Stamping A149 CEL-8220HF Ves Ves Ves TANSHU HUATANN TANSHU HUATAN		GuangLei(Dia2) Ball Wedge Epony 85007 Bioline(Dia1) NA(Dia2) 0(Dia1) NA(Dia2) 0(Dia1) Stamping A149 CEL-8220HF Ves Ves Ves CEL-8220HF CEL-8220HF TIASSHU HUATANN TIASSHU HUATANN TIASSHU HUATAN TIANSHU HUATAN		GuangLei(Dia2) GuangLei(Dia2) Boot Epoxy 82007 105um(Dia1) NA(Dia2) 0((Dia1) NA(Dia2) 0((Dia1)) Stamping A149 CEL-8240H ² Ves Ves Ves CEL-8240H ² Ves CEL-8240H ² Ves CEL-8240H ² TIANSHU HUATUN		GuangLe(tDie2) Ball Wedge Staff 105um(Der1) N(AD)e2) 6(Der1) 2(Die2) Stamping A149 G630AY Yes Yes Sam (Miccoberet) JUNGSI YANXIN MICROELECTRONICS COLID	
ATRel	Bord Type (at Die) Bord Type (at Di- Die Begroßder Type Die Kasch Material Mite Bord Par Printh Leisdnere Type Materia Bord Type Green Campound (Tee Kraho) Lead-Free (resho) Soder Ball Dameter					Guangl,et(Dia2) Bail Bamping Clubal Bail <		GuangLet(Dic2) Ball Ball Beasy Boosy Bo		GuangLet(Die2) Ball Ball Becovery B200704 1006m/Dec1) 1006m/Dec1		GuangLat(Die2) Ball Wedge Epoxy 521(5 or 1) NA(Die2) 4(Die1) 2(Die2) 4(Die1) 2(Die2) 4(Die1) 2(Die2) 4(Die1) 2(Die2) 4(Die1) 4	
ATRel	Boord Type (at Un) Boord Type (at Un) Boord Type (at Un) De Anah Material Min Boord Pad Pitch # of padballjon Pitch Leadframe Vaterial Molding Company Molding					Guangl.et(Dia2) Bail Wedge Epoor 1005am(Die1) NA(Die2) 4(Die2) 2(Die2) 2(Die2) A149 Vesse 62.3am TIANSHU HJATIAN TECHNLOGY CO., LTD. (TSHT) TIANSHU HJATIAN TECHNLOGY CO., LTD. (TIANSHU HJATIAN) TECHNLOGY CO., LTD. (TSHT)		GuangLet(Dic2) Bail Bail Bail <		GuangLet(Dia2) Bai Wedge Epopy 1056an(Det) NA(Dia2) 4(Dia2)		GuangLei(Die2) Ball Wester Epoxy \$216 105urr(Dor1) NA(Die2) 2006/ 2006/ 3106/ 4149 62.3um (MarchPower) JANGSU YANXIN MICROELECTRONICS COLID COLID	
AT/Rel	Bond Type (at Ltd) Bond Type (at Ltd) Bond Type (at Ltd) De Anah Material Min Bond Pad Pitch # of padballjön Pitch Leadfram Type Leadfram Vaterial Möding Campand Type Bond State (Tashko) Lead-Free (Tashko) Scate Riad Lamoter Assembly Site					Guangl,et(Dia2) Bail Bamping Clubal Bail <		GuangLet(Dic2) Ball Ball Beasy Boosy Bo		GuangLet(Die2) Ball Ball Becovery B200704 1006m/Dec1) 1006m/Dec1		GuangLat(Die2) Ball Wedge Epoxy 521(5 et 1) 824(5 et 1) 824(5 et 1) 824(5 et 1) 92(5 et 2) 925 et 2) 926 e	
	Boor year at Ann Boor year at An De Exceptional of Annual De Exceptional Annual De Exceptional Annual Min Boord Pad Pitch d' padballipin Pitch Leaderner Yese Making Compound Yese Making Compound Yese Leader are (YeseNo) Leader					Guardia,etitolici) Bai Wedge Epony Bainer, Carlin NALORE/ NALORE/ NALORE/ Mainer, Carlin Scill Mainer, Scill Nalore/		Guardia, Left (Kr) Bail Wedge Egroy Bail Wedge Egroy 100-unit(Ce1) NA/Dele) NA/Dele) A199 A199 CLU, State Vas CLU, State CLU, State TUMSBUH HARTAN TECHNOLOGY CO., LTD. TECHNOLOGY CO., LTD. SED		Guardia, atroba Bai Wedge Egypt 100, wrg (Der) 100,		Gungl,4(file) Bar Wess Gov 1004(fbr)	
AT/Rel	boor year at Non Boor J year at An De Exceptioner year De Katage De Katage Min Boord P4D Pitch 4 of pactballyin Pitch Leaderne Type Medicing Compound Y year Compound Y year Leader Year (Year No) Solder Ben Loameer Accembly Ste FT Test Ste Resublikity Test Ste	Duration /	FaWSS		Results	Guangl.et(Dia2) Bail Wedge Epoor 1005am(Die1) NA(Die2) 4(Die2) 2(Die2) 2(Die2) A149 Vesse 62.3am TIANSHU HJATIAN TECHNLOGY CO., LTD. (TSHT) TIANSHU HJATIAN TECHNLOGY CO., LTD. (TIANSHU HJATIAN) TECHNLOGY CO., LTD. (TSHT)	Results	GuangLet(Dic2) Bail Bail Bail <	Results Pass/Fail	Guardia,4(10/2) Ball Wedge Epsoy 15007 100400-bell 100400-bell 10040-belll 10040-belll 10040-belll 10040-belll 1004	Results Pass/Fail	Guangl,4(0)(2) Ball Wedge Epsoy 52(16) (10)(20)(2) (10)(20)(2) (10)(2)(2)(2) (10)(2)(2)(2) (10)(2)(2)(2)(2) (10)(2)(2)(2)(2)(2) (10)(2)(2)(2)(2)(2)(2)(2)(2)(2)(2)(2)(2)(2)	Results
	boor year at Non Boor year at Ari DB Exceptioner year De Katego Material Min Boort P4D Pitch 4 of pactballipin Pitch Leadmen Year Medicing Compound Year Medicing Compound Year Medicing Compound Year Lead Fran (Year Mo) Ead Fran (Year Mo) Ead Fran (Year Mo) Ead France (Year Assembly Ste FT Test Ste Readbilly Test Ste Coal Pin 5 Readbilly Test Ste Coal Pin 5 Readbilly Test Ste	Limits 24 Hrs	0/154		Results Pass/Fail Pass	Guardia,etitolici) Bai Wedge Epony Bainer, Carlin NALORE/ NALORE/ NALORE/ Mainer, Carlin Scill Mainer, Scill Nalore/	Results Pass/Fail Pass	Guardia, Left (Kr) Bail Wedge Egroy Bail Wedge Egroy 100-unit(Ce1) NA/Dele) NA/Dele) A199 A199 CLU, State Vas CLU, State CLU, State TUMSBUH HARTAN TECHNOLOGY CO., LTD. TECHNOLOGY CO., LTD. SED	Pass/Fail Pass	Guardia, atroba Bai Wedge Egypt 100, wrg (Der) 100,	Pass/Fail Pass	Gungl,4(file) Bar Wess Gov 1004(fbr)	Results Pass/Fall Pass
Test	Jood Types is Mol Down Types (at 6) DB EpseyRoter Type DB Areas Min Boot Pac Pitch I and Types Leading Types Company Company Type Company Types Company Type	Limits 24 Hrs 192Hrs	0/154 0/154			Guardia,etitolici) Bai Wedge Epony Bainer, Carlin NALORE/ NALORE/ NALORE/ Mainer, Carlin Scill Mainer, Scill Nalore/	Pass Pass	Guardia, Left (Kr) Bail Wedge Egroy Bail Wedge Egroy 100-unit(Ce1) NA/Dele) NA/Dele) A199 A199 CLU, State Vas CLU, State CLU, State TUMSBUH HARTAN TECHNOLOGY CO., LTD. TECHNOLOGY CO., LTD. SED	Pass/Fail Pass Pass	Guardia, atroba Bai Wedge Egypt 100, wrg (Der) 100,	Pass/Fail Pass Pass	Gungl,4(file) Bar Wess Gov 1004(fbr)	Pass Pass
Test MSL3 Pre-cond	Bool Type Iai Duby Bool Type Iai Duby De Tang Society Type De Mank Material Min Bool P40 Pitch 4 of pastballyin Pitch Leading Team Control Type Leading Team Green Concored (Yashko) Leading Team Assembly Stat FT Teat Ste Reading Teat Stat Out Pise a Out Pise a Coat P	Limits 24 Hrs 192Hrs 3 cycles	0/154 0/154 0/154		Pass Pass Pass	Gunga,etick2) Bai Wedge Egory 105,etcl241 0,000,000 0,000,000 0,000,000,000 0,000,000,000,000 0,000,000,000,000 0,000,000,000,000,000,000 0,00	Pass Pass Pass	Gungli,et(bic) Bai Wedg Egory 105wr(Cer) NA(Dec) 6(Der) 8(Pass/Fail Pass Pass Pass	Gungli,ci(biz) Bit Wedge Egypt 105wr(Cet) NA(Det) 0(Det)	Pass/Fail Pass Pass Pass	Gungl,4(f0iz) Bai Yessy Govy 100m(f0irt) NA(Obr) 6(Dort) 30mpron 4(By Ves Ves C620 Ves Ves C620 Ves Ves Ves Ves C620 Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves	Pass Pass Pass
Test	Jood Types is Mol Down Types (at 6) DB EpseyRoter Type DB Areas Min Boot Pac Pitch I and Types Leading Types Company Company Type Company Types Company Type	Limits 24 Hrs 192Hrs 3 cycles 500 cycles	0/154 0/154 0/154 0/77		Pass Pass Pass Pass	Gunga,etiolox) Ball Wedge Epsory 1056(c)(54) 1056(c)(54) 1056(c)(54) 1056(c)(54) 1056(c)(54) 1056(c)(54) 1057(c) 1057(Pass Pass Pass Pass	Gungal,etipic2) Ball Wedge Epsory 106,mc(2+1) NA(De2) 6(De1) 2,2(De3) 8,419 CEL-82499 VSS 2,2(De1) 2,2(De3) 2,2	Pass/Fail Pass Pass Pass Pass	Gungli,e(tol2) Bal Wedge Epory 105(m)(24) 105(m)(24) 105(m)(24) 105(m)(24) 105(m)(24) 105(m)	Pass/Fail Pass Pass Pass Pass	Cumpletion2 Bail Wedge Esroy 1 105cm[Ce1] 105cm[Ce1] 105cm[Ce1] 105cm[Ce1] 105cm[Ce1] 105cm 105c	Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC)	Boor Type III 2001 Boor Type III 2001 De BoortSchler Type De Mann Min Boort Pap Pitch I and pastballigin Pitch Landerme Type Usadfirms board Type Usadfirms board Type Green Company (Yeshko) Laad Free (Yeshko) Laad Free (Yeshko) Solder Bat Dummer Assembly Ste FT Test Ste Realibitor Test Ste Gast Piers E Gast Dummer Castor Dummer Castor Gast Piers E Gast Dummer Castor Piers E Gast Dummer Castor Piers E Gast Dummer Batholity Testion Test Constitions (KESD22 Artis). Get Stel Hitter Boot	Limits 24 Hrs 192Hrs 3 cycles 500 cycles 1000 cycles	0/154 0/154 0/154 0/154 0/77 0/77	- #85(082) 	Pass Pass Pass Pass Pass	Gunga,etick2) Bai Wedge Egory 105,000 00,	Pass Pass Pass Pass Pass	Gungal,etioloc) Bai Wedge Egory 100,0000 00,00000 00,00000 00,00000 00,00000	Pass/Fail Pass Pass Pass	Gungli,et(biz) Biz Wedge Egypt 100,et(bit) 100,et(bi	Pass/Fail Pass Pass Pass	Gungl,4(f0iz) Bit Wedge Govern 100wr(Der) NA(A0iz) Global Global A169 A169 A169 A169 Vas Vas Vas Vas Vas Vas Vas Vas Vas Vas	Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST	koor Types to Kol Down Long Lef (De EperyRodeler Type De Anaon Material Min Boord Pad Pitch I and Standish Titch Leadness Type Creen: Compound Type Creen:	Limits 24 Hrs 192Hrs 3 cycles 500 cycles	0/154 0/154 0/154 0/77		Pass Pass Pass Pass	Gunga,etiolox) Ball Wedge Epsory 1056(c)(54) 1056(c)(54) 1056(c)(54) 1056(c)(54) 1056(c)(54) 1056(c)(54) 1057(c) 1057(Pass Pass Pass Pass	Gungal,etipic2) Ball Wedge Epsory 106,mc(2+1) NA(De2) 6(De1) 2,2(De3) 8,419 CEL-82499 VSS 2,2(De1) 2,2(De3) 2,2	Pass/Fail Pass Pass Pass Pass	Gungli,e(tol2) Bal Wedge Epory 105(m)(24) 105(m)(24) 105(m)(24) 105(m)(24) 105(m)(24) 105(m)	Pass/Fail Pass Pass Pass Pass	Cumpletion2 Bail Wedge Esroy 1 105cm[Ce1] 105cm[Ce1] 105cm[Ce1] 105cm[Ce1] 105cm[Ce1] 105cm 105c	Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST HTSL	Boor year at Non Boor year at Non De Starty Geld F / De Exceptional at A / De Exceptional at A / De Exceptional at A / De Exceptional at A / De Exceptional A / Boor Exceptional Year Making Compound Year Making Compound Year Care Compound Year Grane Compound Year Grane Compound Year Making Compound Year Care Compound Year Making Compound Year Solar Be Lowner Assembly Ste FT Text Ste Restability Text Ste Out Pin 6 Gate Start Start Care Start Basibility Text Ste Care Start Start Start Heat Conditions (JESD22 A / 1911 At A / 1920) Jean Stort Base USE Start Start Heat Conditions (JESD2 A / 1911 At A / 1920) Jean Start Start Jean Stort Conditions (JESD2 A / 1911 At A / 1920) Jean Start Start Jean Stort Start Start Jean Stort Start Stort Start Jean Stort S	Limits 24 Hrs 192Hrs 3 cycles 500 cycles 1000 cycles	0/154 0/154 0/154 0/154 0/77 0/77		Pass Pass Pass Pass Pass	Gunga,etioloci Bali Wedge Epsory 105,exc(10+1) NA(ADez) 40(10+1) 20,exc(10+1) 20,ex	Pass Pass Pass Pass Pass	Gunglict(Ric) Bill Wedg Epoy 105(au(10+1) NA(ADe2) 4(10+1) 000000 A149 CEL-824047 TUMSRU HAITAN CEL-824047 TUMSRU HAITAN TECHNOLOGY CO. LTD. (T5HT) 150(D007 CO. LTD. (T5HT) BCD 150(D017) X = Text Needed X X X X X X	Pass/Fail Pass Pass Pass Pass	Gungli,ci(Diz) Bit Wedge Eprov 105,ci(Dist) 105,ci(Di	Pass/Fail Pass Pass Pass Pass	Cumple,4(1027) Bit Wedge Environ Vedge Environ Vedge Environ Vedge Ansento Attege Atte	Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST	koor Types to Kol Down Long Lef () Die EperyRodeter Type Die Anson Min Boord Pad Pitch ist of andballen frich Landmarn Type Creine Compound Type Creine Com	Limits 24 Hrs 192Hrs 3 cycles 500 cycles 1000 cycles 96 Hrs 168 Hrs	0/154 0/154 0/154 0/77 0/77 0/77 0/77	- #85(082) 	Pass Pass Pass Pass Pass Pass Pass	Gunga,etick2) Bai Wedge Egory 105,000 00,	Pass Pass Pass Pass Pass Pass Pass	Genergication2) Ball Wedge Beyor Form Vedge Beyor Vedge Beyor Vedge Beyor Vedge Comparison Comparis	Pass/Fail Pass Pass Pass Pass Pass Pass	Gungli,et(biz) Biz Wedge Egypt 100/m(Ce1) NA(De2) 4(50-1) 100/m(Ce1) NA(De2) 4(50-1) 100/m(Ce1) 100/m(C	Pass/Fail Pass Pass Pass Pass Pass Pass	Gungl,4(f0iz) Bai Wedge Gooy 100w(f0irt) NA(A0iz) Gooy Alegy Alegy Ves Ves Ves Ves Ves Ves Ves Col,100 NMCROELECTRONCS COL,100 NMCROELECTRONCS COL,100 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS COL,101 NMCROELECTRONCS X × Test Needed	Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST High Temperature Borage	boor, par at Aho Boor, par at Aho De Exception of File De Exception of File De Exception of File Man Boord Pap Pitch 4 of pactballyin Pitch LeadFine Type Underly Compound Type Green Compound Type Compound Type LeadFine (Test No) EadFile Lanneur Assembly Ste FT Test Site Readbilly Test Site Oast Pite 5 Readbilly Test Site Cast Site Site Readbilly Test Site Cast Site Site Site Cast Site Site Cast Site Site Site Cast Site Site Cast Site Site Cast Site Site Site Cast Site Site Cast Site Site Cast Site Site Site Cast Site Site Cast Site Site Cast Site Site Cast Site Site Site Cast Site Site Site Cast Site Site Site Site Cast Site Site Site Site Site Site Site Cast Site Site Site Site Site Site Site Sit	Limits 24 Hrs 192Hrs 3 cycles 500 cycles 1000 cycles 96 Hrs 168 Hrs 500 Hrs 1000 Hrs	0/154 0/154 0/154 0/77 0/77 0/77 0/77 0/77 0/77		Pass Pass Pass Pass Pass Pass Pass Pass	Genergi.et(bic) Ball Westge Eporp 105/mc(De1) 105/mc	Pass Pass Pass Pass Pass Pass Pass Pass	Gunglict(Ric) Bill Wedge Epory 1056(Ric) NA(Aber) 0(Cer)	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Guardia,citoliz) Bal Wester Eport 105,millor1 NA(A)Dan NA(A)Dan NA(A)Dan Construction Const	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Gundgi,4(102) Bal Webse Sove 100,4(De) 100,4(D	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST HTSL	koor Types as Mol Down Types as Mol Down Types (16) DB EperyBodier Type DB Arano Material Min Boot Pad Pitch I and Company Type Molary Company Type Green: Company Types Green: Company Green: Company Green	Limits 24 Hrs 192Hrs 3 cycles 500 cycles 96 Hrs 168 Hrs 500 Hrs 1000 Hrs 168 Hrs	0/154 0/154 0/154 0/77 0/77 0/77 0/77 0/77 0/77 0/77		Pass Pass Pass Pass Pass Pass Pass Pass	Genergi.et(bic) Ball Westge Eporp 105/mc(De1) 105/mc	Pass Pass Pass Pass Pass Pass Pass Pass	Genergication2) Ball Wedge Beyor Form Vedge Beyor Vedge Beyor Vedge Beyor Vedge Comparison Comparis	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Guardia,citoliz) Bal Wester Eport 105,millor1 NA(A)Dan NA(A)Dan NA(A)Dan Construction Const	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Gundgi,4(102) Bal Webse Sove 100,4(De) 100,4(D	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST High Temperature Storage HTOL	boor, par at Aho Boor, par at Aho De Exception of File De Exception of File De Exception of File Man Boord Pap Pitch 4 of pactballyin Pitch LeadFine Type Underly Compound Type Green Compound Type Compound Type LeadFine (Test No) EadFile Lanneur Assembly Ste FT Test Site Readbilly Test Site Oast Pite 5 Readbilly Test Site Cast Site Site Readbilly Test Site Cast Site Site Site Cast Site Site Cast Site Site Site Cast Site Site Cast Site Site Cast Site Site Site Cast Site Site Cast Site Site Cast Site Site Site Cast Site Site Cast Site Site Cast Site Site Cast Site Site Site Cast Site Site Site Cast Site Site Site Site Cast Site Site Site Site Site Site Site Cast Site Site Site Site Site Site Site Sit	Limits 24 Hrs 192Hrs 3 cycles 500 cycles 1000 cycles 96 Hrs 168 Hrs 500 Hrs 1000 Hrs	0/154 0/154 0/154 0/77 0/77 0/77 0/77 0/77 0/77		Pass Pass Pass Pass Pass Pass Pass Pass	Genergi.et(bic) Ball Westge Eporp 105/mc(De1) 105/mc	Pass Pass Pass Pass Pass Pass Pass Pass	Genergication2) Ball Wedge Egory 105/mmCba1 Vedge Egory 105/mmCba1 Vedge Egory 105/mmCba1 Vedge Egory 205/mmCba1 V	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Guardia,citoliz) Bal Wester Eport 105,millor1 NA(A)Dan NA(A)Dan NA(A)Dan Construction Const	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Gundgi,4(102) Bal Webse Sove 100,4(De) 100,4(D	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (FC) HAST High Temperature Storage HTOL WBS	Lood Types at Mol Down Types at All DB EpseyRolefer Type DB Anael Min Boot Pac Pitch I and an All Standard Leadington Type Crean Compound Crean (Crean Compound Crean (Crean	Limits 24 Hrs 192His 3 cycles 500 cycles 96 Hrs 168 Hrs 168 Hrs 1000 Hrs 168 Hrs 1000 Hrs 168 Hrs 200 Hrs 1000 Hrs 1000 Hrs 1000 Hrs	0/154 0/154 0/154 0/77 0/77 0/77 0/77 0/77 0/77 0/77 0/7		Pass Pass Pass Pass Pass Pass Pass Pass	Genergi.et(bic) Ball Westge Eporp 105/mc(De1) 105/mc	Pass Pass Pass Pass Pass Pass Pass Pass	Genergication2) Ball Wedge Egory 105/mmCba1 Vedge Egory 105/mmCba1 Vedge Egory 105/mmCba1 Vedge Egory 205/mmCba1 V	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Guardia,citoliz) Bal Wester Eport 105,millor1 NA(A)Dan NA(A)Dan NA(A)Dan Construction Const	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Gundgi,4(102) Bal Webse Sove 100,4(De) 100,4(D	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST High Temperature Storage HTOL WBP	Loon (par at Alon Loon (par at Alo	Limits 24 Hrs 192Hrs 3 cycles 500 cycles 96 Hrs 168 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs	0/154 0/154 0/154 0/77 0/77 0/77 0/77 0/77 0/77 0/77 0/7		Pass Pass Pass Pass Pass Pass Pass Pass	Gunga,etiologi Bali Wedge Egypt 105,0000 00,000000	Pass Pass Pass Pass Pass Pass Pass Pass	Gungli,ettoici) Bai Wedge Egory 100-000 000	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Guardia, at (bit) Bai Wedge Egory 105, 000 105, 000	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Gungl,4(f0iz) Bai Wesse Goog 100,0000 100,0000 100,0000 100,0000 100,00000000	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST High Temperaturs Storage HTOL WBS WBS Soliciasility	Lood Types at Mol Down Types at All DB EpseyRolefer Type DB Anael Min Boot Pac Pitch I and an All Standard Leadington Type Crean Compound Crean (Crean Compound Crean (Crean	Limits 24 Hrs 1924is 3 cycles 500 cycles 96 Hrs 168 Hrs 1000 Hrs 1000 Hrs 500 Hrs 1000 Hrs 500 Hrs 1000 Hrs 500 Hrs 50	0/154 0/154 0/154 0/77 0/77 0/77 0/77 0/77 0/77 0/77 0/7		Pass Pass Pass Pass Pass Pass Pass Pass	Genergi.et(bic) Ball Westge Eporp 105/mc(De1) 105/mc	Pass Pass Pass Pass Pass Pass Pass Pass	Genergication2) Ball Wedge Egory 105/mmCba1 Vedge Egory 105/mmCba1 Vedge Egory 105/mmCba1 Vedge Egory 205/mmCba1 V	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Guardia,citoliz) Bal Wester Eport 105,millor1 NA(A)Dan NA(A)Dan NA(A)Dan Construction Const	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Gundgi,4(102) Bal Webse Sove 100,4(De) 100,4(D	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) H4ST High Temperature Storage HTOL WBS SD Solderspility	Loon (par at Alon Loon (par at Alo	Limits 24 Hrs 192Hrs 192Hrs 3 cycles 500 cycles 500 cycles 96 Hrs 168 Hrs 1080 Hrs 1000 Hrs 1000 Hrs 168 Hrs 500 Hrs 1000 Hrs 1000 Hrs Cplo-1.86 Cplo-1.86 5 Seconds 5 Seconds Packane	0/154 0/154 0/154 0/154 0/77 0/77 0/77 0/77 0/77 0/77 0/77 0/7		Pass Pass Pass Pass Pass Pass Pass Pass	Gunga,etiologi Bali Wedge Egypy 105,0000 0000000 0000000000000000000000	Pass Pass Pass Pass Pass Pass Pass Pass	Gungli,ettoici) Bai Wedge Egory 100-000 000	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Guardia, at (bit) Bai Wedge Egory 105, 000 105, 000	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Gungl,4(f0iz) Bai Wesse Goog 100,0000 100,0000 100,0000 100,0000 100,00000000	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST High Temperature Storage HTGL WBS WBP Solder Solder Builty Physical Dimensions	Koor Types or Mol Down Large and All States Data Types and All States Data Types and All States Min Banch Part Pitch Leadman Types Leadman Types Green Compound Types Based Bart States Based Bart States Green Compound Types Green Compound Types Based Bart States Green Compound Types Green Compound Types	Limits 24 Hrs 1924is 3 cycles 500 cycles 96 Hrs 168 Hrs 1000 Hrs 1000 Hrs 500 Hrs 1000 Hrs 500 Hrs 1000 Hrs 500 Hrs 50	0/154 0/154 0/154 0/77 0/77 0/77 0/77 0/77 0/77 0/77 0/7		Pass Pass Pass Pass Pass Pass Pass Pass	Gunga,etiologi Bali Wedge Egory 105,etclose1 N84(Des2) 6(Des1) Barendy CEL82047 CEL8	Pass Pass Pass Pass Pass Pass Pass Pass	Gunglictick2) Bit Wedg Bit Wedg Epoy (0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,	Pass Pass	Gungli,ci(Diz) Bit Wedg Egory 105m(Det)	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Gungl,ef(02) Bai Yessg Server 105,000 Bail 105,000 100,000 105,000 100,000 100,000 100,000 100,000 100,00	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST High Temperature Storage HTOL WBS Obterability Pictol charged Device Model	Lood Type IS Mol Dow Lines (Lef) Die SpervyGeder Type Die SpervyGeder Type Die Analysis Min Bond Pad Pitch 4 of padballijen Pitch 4 of padballijen Pitch 10 Gene Compound Type Greine Compound Type	Limits 24 Hrs 192Hrs 192Hrs 3 cycles 500 cycles 500 cycles 96 Hrs 168 Hrs 1080 Hrs 1000 Hrs 1000 Hrs 168 Hrs 500 Hrs 1000 Hrs 1000 Hrs Cplo-1.86 Cplo-1.86 5 Seconds 5 Seconds Packane	0/154 0/154 0/154 0/154 0/77 0/77 0/77 0/77 0/77 0/77 0/77 0/7		Pass Pass Pass Pass Pass Pass Pass Pass	Gunga,etiologi Bali Wedge Egory 105,etclose1 N84(Des2) 6(Des1) Barendy CEL82047 CEL8	Pass Pass Pass Pass Pass Pass Pass Pass	Gunglictick2) Bit Wedg Bit Wedg Epoy (0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,	Pass	Gungli,ci(Diz) Bit Wedg Egory 105m(Det)	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Gungl,ef(02) Bai Yessg Server 105,000 Bail 105,000 100,000 105,000 100,000 100,000 100,000 100,000 100,00	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST High Temperature Storage HTGL WBS WBP Sold Sold Physical Dimensions Human Body Model David Dimensions Human Body Model Charged David Stora Model	Lood Type IS Mol Dow Line (Left) Die Ecocycloster Type Die Score/Solder Type Die Analysis Min Boot Pac Pitch 4 of packabigien Pitch 1 additional Type Grein Compound Type G	Limits 24 Hrs 3 cycles 500 cycles 96 Hrs 168 Hrs 500 Hrs 1000 cycles 96 Hrs 500 Hrs 1000 trs 1000 Hrs 1000 Hrs 1000 Hrs 500 Hrs 1000 Hrs 500 Hrs 500 Hrs 500 Hrs 1000 Hrs 500 Hrs 500 Hrs 1000 Hrs 500 Hrs 500 Hrs 1000 Hrs 500 Hrs 500 Hrs 1000 Hrs 500 Hrs 5	0/154 0/154 0/154 0/177 0/77 0/77 0/77 0/77 0/77 0/77 0/7		Pass	Gunga,ettoki2) Bati Wedge Bati Wedge Bati Wedge Bati Bati Bati Bati Bati Bati Bati Bati	Pass Pass Pass Pass Pass Pass Pass Pass	Gungli,ettok2) Bai Wedge Bayon	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Guardia, a (role) - Bal - Wedge - Egory - 105, m(Dat) - 105, m(Dat) - 105, m(Dat) - 105, m(Dat) - 100, m(Dat)	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Gungl,4(Riz) Bai Wedge Grow (Gungl(Der)) NA(ADCa) (GUDT) Barenn Attes Ves Column Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST High Temperature Storage HTOL WBS Obterability Pictol charged Device Model	Boor, Type Id Xhor Boor, Type Id Xhor De Exceptioner Type De Kategorie Min Boord Publish of a packabilish Pitch Leadman Type De Kategorie Madding Compound Type Categorie Lead Franc (* csklo) Lead France (* csklo) Lead Stoc (* csklo) Lead	Limits 24 Hrs 3 cycles 500 cycles 96 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 1000 Hrs Cplc1.66 Cplc1.66 Cplc1.86 Cplc1.87 1000 Hrs 1000 Hrs	0/154 0/154 0/154 0/77 0/77 0/77 0/77 0/77 0/77 0/77 0/7	JUSC(Doc) Bat Wesser Viesser Stort Vas X X X X X X X X X X X X X X X X X	Pass Pass	Gunga,etiologi Bali Wedge Egory 105,etclose1 N84(Des2) 419 CEL82047 CEL8204	Pass Pass	Guardia, at the second	Pass Pass	Gungli,ci(Diz) Bit Wedg Egory 105m(Det)	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	GungActive2 Bat Webst Search 105un(Che1) 1	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST High Temperature Storage HTOL WSS S0 S0-Solderphility Provided Participation Human Body Model Charged by S1 Extense (Class II)	Lood Type IS Mol Dow Line (Left) Die Ecocycloster Type Die Score/Solder Type Die Analysis Min Boot Pac Pitch 4 of packabigien Pitch 1 additional Type Grein Compound Type G	Limits 24 Hrs 3 cycles 3 cycles 500 cycles 1000 cycles 1000 cycles 1000 cycles 1000 cycles 168 Hrs 500 othrs 1000 Hrs 1000 Hrs 1000 Hrs 1000 Hrs 1000 Hrs 5 Seconds 5 Seconds Package Outline +-28CV +-750V	0/154 0/154 0/174 0/77 0/77 0/77 0/77 0/77 0/77 0/77 0/		Pass Pass Pass Pass Pass Pass Pass Pass	Gunga,ettoki2) Bati Wedge Bati Wedge Bati Wedge Bati Bati Bati Bati Bati Bati Bati Bati	Pass Pass	Guardia, at the second	Pass Pass	Guardia, a (role) - Bal - Wedge - Egory - 105, m(Dat) - 105, m(Dat) - 105, m(Dat) - 105, m(Dat) - 100, m(Dat)	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	GungActive2 Bat Webst Search 105un(Che1) 1	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST High Temperature Storage HTGL WBP SolideDilly BoldeDilly WBP SolideDilly Home Bock Model Charge Doub Latchie (Class II) Char Char Char Char Char Char Char Char	Koot Types to Kol Don Lipses (K) Die Types (K) Die EpseySoder Type Die Analy Min Bend Pad Pitch Kongener Ladermen Type Ladermen Type Ladermen Type Ladermen Type Company Types Company Types Company Types Company Types Company Types Restaurung	Limits 24 Hrs 3 cycles 500 cycles 96 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 1000 Hrs Cplc1.66 Cplc1.66 Cplc1.86 Cplc1.87 1000 Hrs 1000 Hrs	0/154 0/154 0/154 0/77 0/77 0/77 0/77 0/77 0/77 0/77 0/7	JUSC(Doc) Bat Wesser Viesser Stort Vas X X X X X X X X X X X X X X X X X	Pass Pass	Gunga,ettoki2) Bati Wedge Bati Wedge Bati Wedge Bati Bati Bati Bati Bati Bati Bati Bati	Pass Pass	Guardia, at the second	Pass Pass	Guardia, a (role) - Bal - Wedge - Egory - 105, m(Dat) - 105, m(Dat) - 105, m(Dat) - 105, m(Dat) - 100, m(Dat)	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	GungActive2 Bat Webst Search 105un(Che1) 1	Pass Pass Pass Pass Pass Pass Pass Pass
Test MSL3 Pre-cond Temp Cycle (TC) HAST High Temperature Storage HTOL WBS WBS Solderphility WBS Solderphility Physical Dimensions Human Body Model Charged Device Model Latch-sp (Class II)	Boor, Type Id Xhor Boor, Type Id Xhor De Exceptioner Type De Kategorie Min Boord Publish of a packabilish Pitch Leadman Type De Kategorie Madding Compound Type Categorie Lead Franc (* csklo) Lead France (* csklo) Lead Stoc (* csklo) Lead	Limits 24 Hrs 3 cycles 500 cycles 96 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 168 Hrs 500 Hrs 1000 Hrs Cplc1.66 Cplc1.66 Cplc1.86 Cplc1.87 1000 Hrs 1000 Hrs	0/154 0/154 0/154 0/77 0/77 0/77 0/77 0/77 0/77 0/77 0/7	JUSC(Doc) Bat Wesser Viesser Stort Vas X X X X X X X X X X X X X X X X X	Pass Pass	Gunga,ettokic) Bali Wedge Egory 105,000,000 105,000,000,000,000,000,000,000,000,000,	Pass Pass	Guardia, at the second	Pass Pass	Guardia, a (role) - Bal - Wedge - Egory - 105, m(Dat) - 105, m(Dat) - 105, m(Dat) - 105, m(Dat) - 100, m(Dat)	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	GungActive2 Bat Webst Search 105un(Che1) 1	Pass Pass Pass Pass Pass Pass Pass Pass



Description: Qualification of PI3USB9281CXWEX at JCET-SQ

					Qual Device 1 - Lot 1		Qual Device 1 - Lot 2		Qual Device 1 - Lot 3	
General	Part Number				PI3USB9281CXWEX		PI3USB9281CXWEX		PI3USB9281CXWEX	
	Package				QFNWB3*4-20L		QFNWB3*4-20L		QFNWB3*4-20L	
	PTC Package Code				XW20		XW20		XW20	
	Wire Bond, Cu Piller, CSP				Wirebond		Wirebond		Wirebond	
	MSL Level				MSL1		MSL1		MSL1	
	Package Size				3.0mm x 4.0mm		3.0mm x 4.0mm		3.0mm x 4.0mm	
	Die Quantity (eg. Die per package)				1		1		1	
	Die Name(1)				M031-W1111		M031-W1111		M031-W1111	
	Die Size (W/L/Thickness				1.58 x 2.08mm		1.58 x 2.08mm		1.58 x 2.08mm	
	Die Process / Technology				MGN 0.35um		MGN 0.35um		MGN 0.35um	
	Wire Bond Material (Au, Cu, Al)				AuPdCu		AuPdCu		AuPdCu	
	Wire Diameter				1.0mil		1.0mil		1.0mil	
Fab	Wafer FAB				MGN		MGN		MGN	
	Wafer Diameter				8"		8"		8"	
	Wafer Thickness				725um		725um		725um	
	Top Metal Type/Bond Pad Composition				AJ/Cu		Al/Cu		AI/Cu	
Package	BackgrindThinkness				230±10um		230±10um		230±10um	
	Backgrind Location				JCET-SQ	1	JCET-SQ	1	JCET-SQ	
	Bond Type (at Die)				Ball	1	Ball	1	Ball	
	Bond Type (at LF)				Wedge		Wedge	İ	Wedge	
	DB Epoxy/Solder Type				Epoxy		Epoxy		Epoxy	
	Die Attach Material				EN-4900GC		EN-4900GC		EN-4900GC	
	Min Bond Pad Pitch				150um		150um		150um	
	# of pad/ball/pin Pitch				72pads/NA/0.5mm		72pads/NA/0.5mm		72pads/NA/0.5mm	
	Leadframe Type				Etched		Etched		Etched	
	Leadframe Material and Finish				Cu /Pb-free(Matte Tin)		Cu /Pb-free(Matte Tin)		Cu /Pb-free(Matte Tin)	
	Molding Compound Type				EME-G700LALA		EME-G700LALA		EME-G700LALA	
	Green Compound (Yes/No)				Yes		Yes		Yes	
	Lead Free (Yes/No)				Yes		Yes		Yes	
Assy / Test / Rel	Assembly Site				JCET-SQ		JCET-SQ		JCET-SQ.	
	FT Test Site				JCET-SQ		JCET-SQ		JCET-SQ.	
	Reliability Test Site				JCET-SQ		JCET-SQ		JCET-SQ.	
	Qual Plan #				20111203		20111203		20111203	
	Reliability Test Site									
	Reliability Test Site									
Test	Test Conditions	Duration / Limits	Fail/SS	Lots Required	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail	X = Test Needed	Results Pass/Fail
MSL1 Pre-cond	(JESD22-A113) Bake 125C	24 Hrs	0/154	3 Assy lots	0 / 1 x 240pcs	Pass	0 / 1 x 240pcs	Pass	0 / 1 x 240pcs	
	Soak 85C, 85% RH	168Hrs	0/154	3 Assy lots	0 / 1 x 240pcs	Pass	0 / 1 x 240pcs	Pass	0 / 1 x 240pcs	Pass
	IR reflow 260C	3 cycles	0/154	3 Assy lots	0 / 1 x 240pcs	Pass	0 / 1 x 240pcs	Pass	0 / 1 x 240pcs	Pass
Temp Cycle (TC)	(JESD22-A104) -65C-150C	500 cycles	0/77	3 Assy lots	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass
	Mounted on PCB Board (Daughter Card)	1000 cycles	0/77	3 Assy lots	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass
HAST	JESD22-A101/A110 130C, 85%RH, 192hrs 33.3 psia Vcc = Op Max	96 Hrs	0/77	3 Assy lots	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass
UHAST	JESD22-A118 130C, 85%RH 33.3 psia	96 Hrs	0/77	3 Assy lots	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass
HTSL High Temperature Storage		168 Hrs	0/77	3 Assy lots	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass
	(JESD22-A103) Ta>150C	500 Hrs	0/77	3 Assy lots	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass
		1000 Hrs	0/77	3 Assy lots	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass	0 / 1 x 80pcs	Pass
WBS	JESD22-B116B	Cpk>1.66	0/5	3 Assy lots	Cpk 4.39	Pass	Cpk 4.67	Pass	Cpk 4.04	Pass
WBP	MIL-STD883-2011	Cpk>1.66	0/5	3 Assy lots	Cpk 2.76	Pass	Cpk 3.45	Pass	Cpk 2.63	Pass
SD Solderability	>95% Coverage	5 Seconds	0/15	3 Assy lots	0 / 1 x 15pcs	Pass	0 / 1 x 15pcs	Pass	0 / 1 x 15pcs	Pass
PD Physical Dimensions		Package Outline	Ppk>1.67 Cpk>1.33	3 Assy lots	Cpk > 1.67	Pass	Cpk > 1.67	Pass	Cpk > 1.67	Pass
Summary: Submitted By:	V. Cheung									
Approved By:	Pam Finer 12/01/2020									



Description: Qualification of Lead Frame for SOT-353/363

						Qual Device 1 - Lot 1		Qual Device 1 - Lot 2		Qual Device 1 - Lot 3	
General	Part Number					PI5A4157CEX		PI5A4157CEX		PI5A4157CEX	
	Diodes Package ID #					SOT363 (SC70)		SOT363 (SC70)		SOT363 (SC70)	
	PTC Package Code					C6 (Au) Sn		C6 (Au) Sn		C6 (Au) Sn	
	Construct Type: Wire Bond, Cu Pillar, CSP MSL Level					Wire Bond MSL-1		Wire Bond MSL-1		Wire Bond MSL-1	-
	Package Size in mm					2x 1.25 x 1.1 (mm)		2x 1.25 x 1.1 (mm)		2x 1.25 x 1.1 (mm)	-
	Die Quantity (eg. Die per package)					1		1		1	
	Die Name(1)					F3M023-ZZ32		F3M023-ZZ32		F3M023-ZZ32	
	Die Size (W/L/Thickness)					0.71mm*0.43mm		0.71mm*0.43mm		0.71mm*0.43mm	
	Wafer Fab/Die Process / Technology					Key Foundry 3		Key Foundry 3		Key Foundry 3	
						0.5um CMOS		0.5um CMOS		0.5um CMOS	
	Top Metal Type/Bond Pad Composition Wire Bond Material (Au, PdCu, Cu, Al)					AI/Cu Au-wire		Al/Cu Au-wire		Al/Cu Au-wire	-
	Wire Bond Waterial (Ad, Fdcd, Cd, Al) Wire Diameter					0.8mil		0.8mil		0.8mil	
Wafer/Fab	Wafer Fab					Key Foundry 3		Key Foundry 3		Key Foundry 3	
	Wafer Diameter					200		200		200	
	Wafer Thickness					725		725		725	
	Top Metal Thickness					0.9		0.9		0.9	
	Die passivation thickness range					Nitride (1um)		Nitride (1um)		Nitride (1um)	
	No. of bond over active area					zero		zero		zero	
	Glass Transition Temp					130C		130C		130C	
	Max Junction Temp					150		150		150	
	Max Thermal resistance Junc (case)					229		229		229	
	Max Thermal resistance Junc (ambient) Power Consumption					340 55uW		340 55uW	<u> </u>	340 55uW	
Package	Power Consumption Backgrind Thickness					230±20 (um)		230±20 (um)		230±20 (um)	
Fackage	Backgrind Location					JCET	I	JCET		JCET	
	Bond Type (at Die)					Ball		Ball		Ball	
	Bond Type (at LF)					Wedge	1	Wedge		Wedge	
	DB Epoxy/Solder Type					Epoxy		Epoxy		Ероху	
	Die Attach Material					84-3J		84-3J		84-3J	
	Min Bond Pad Pitch					75um		75um		75um	
	# of pad/ball/pin Pitch					15pads/NA/0.65mm		15pads/NA/0.65mm		15pads/NA/0.65mm	
	Leadframe Type					Stamping		Stamping		Stamping	
	Leadframe Material / Lead Finish					Fe with Matte Sn		Fe with Matte Sn		Fe with Matte Sn	
						ELER-8-100HFV		ELER-8-100HFV		ELER-8-100HFV	
	Molding Compound Type										
	Green Compound (Yes/No)					Yes		Yes		Yes	
	Green Compound (Yes/No) Lead-Free (Yes/No)					Yes Yes		Yes Yes		Yes Yes	
Assy/Test/Reliability	Green Compound (Yes/No) Lead-Free (Yes/No) Assembly Site					Yes Yes JCET		Yes Yes JCET		Yes Yes JCET	
Assy/Test/Reliability	Green Compound (Yes/No) Lead-Free (Yes/No) Assembly Site FT Test Site					Yes Yes JCET JCET		Yes Yes JCET JCET		Yes Yes JCET JCET	
Assy/Test/Reliability	Green Compound (Yes/No) Lead-Free (Yes/No) Assembly Site FT Test Site Reliability Test Site					Yes Yes JCET JCET IST		Yes Yes JCET JCET IST		Yes Yes JCET JCET IST	
Assy/Test/Reliability	Green Compound (Yes/No) Lead-Free (Yes/No) Assembly Site FT Test Site Reliability Test Site Qual Plan #					Yes Yes JCET JCET		Yes Yes JCET JCET		Yes Yes JCET JCET	
Assy/Test/Reliability	Green Compound (Yes/No) Lead-Free (Yes/No) Assembly Site FT Test Site Reliability Test Site					Yes Yes JCET JCET IST		Yes Yes JCET JCET IST		Yes Yes JCET JCET IST	
Assy/Test/Reliability Test	Green Compound (Yes/No) Lead-Free (Yes/No) Assembly Site FT Test Site Reliability Test Site Qual Plan #	Duration / Limits	Test Method	Fail/SS	Lots Required	Yes Yes JCET JCET IST	Results Pace/Fail	Yes Yes JCET JCET IST	Results Pace/Fail	Yes Yes JCET JCET IST	Results
	Green Compound (Yes/No) Lead Free (Yes/No) Assembly Site FT Test Site Reliability Test Site Qual Plan # Reliability Testing Test Conditions	· · · · · · · · · · · · · · · · · · ·	Test Method	Fail/SS	Lots Required	Yes Yes JCET JCET IST 21030404 X = Test Needed	Pass/Fail	Yes Yes JCET JCET IST 21030404 X = Test Needed	Pass/Fail	Yes Yes JCET JCET IST 21030404 X = Test Needed	Pass/Fail
Test	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Stre FT Tes Stre Reliability Test Stre Qual Plan # Reliability Test 5 Reliability Test 5 Reliab	24 Hrs	Test Method			Yes Yes JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs	Pass/Fail Pass	Yes Yes JCET ICET IST 21030404 X = Test Needed 0 / 1 x 240pcs	Pass/Fail Pass	Yes Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs	Pass/Fail Pass
	Green Compound (Yes/No) Lead Free (Yes/No) Assembly Site FT Test Site Reliability Test Site Qual Plan # Reliability Testing Test Conditions	· · · · · · · · · · · · · · · · · · ·		Fail/SS 0/231	Lots Required 3 Assy lots	Yes Yes JCET JCET IST 21030404 X = Test Needed	Pass/Fail	Yes Yes JCET JCET IST 21030404 X = Test Needed	Pass/Fail	Yes Yes JCET JCET IST 21030404 X = Test Needed	Pass/Fail
Test	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Stre FT Tes Stre Reliability Test Stre Qual Plan # Reliability Test 5 Reliability Test 5 Reliab	24 Hrs	JESD22 A113			Yes Yes JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs	Pass/Fail Pass	Yes Yes JCET ICET IST 21030404 X = Test Needed 0 / 1 x 240pcs	Pass/Fail Pass	Yes Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs	Pass/Fail Pass
Test	Green Compound (Yes/No) Lead-Yree (Yes/No) Assembly Site FT Fes Site Reliability Test Site Qual Plan # Beitability Testing Test Conditions (JESD22-A113) Bake 125C Soak 85C, 85% RH	24 Hrs 168Hrs 3 cycles	JESD22 A113	0/231		Yes Yes JCET JCET ST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs	Pass/Fail Pass Pass Pass	Yes Yes JCET JCET ICT 21030404 X = Test Needed 0 / 1x 240pcs 0 / 1x 240pcs 0 / 1x 240pcs	Pass/Fail Pass Pass Pass	Yes Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs	Pass/Fail Pass Pass Pass
Test MSL1 Pre-cond	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Stre FT Test Stre Reliability Test Stre Qual Plan # Reliability Testis Test Conditions (ESD22-A113) Bake 125C Soak 85C, 85% RH iR reflow 260C	24 Hrs 168Hrs 3 cycles 500 cycles - ATE	JESD22 A113 JEDEC J-STD-020		3 Assy lots	Yes Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs	Pass/Fail Pass Pass	Yes Yes JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs	Pass/Fail Pass Pass	Yes Yes JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs	Pass/Fail Pass Pass
Test	Green Compound (Yes/No) Lead-Yree (Yes/No) Assembly Site FT Fes Site Reliability Test Site Qual Plan # Beitability Testing Test Conditions (JESD22-A113) Bake 125C Soak 85C, 85% RH	24 Hrs 168Hrs 3 cycles 500 cycles - ATE (qual point)	JESD22 A113	0/231 500h = 0/77		Yes Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs	Pass/Fail Pass Pass Pass Pass	Yes Yes JCET JCET ICT ST 21030404 X = Test Needed 0 / 1x 240pcs 0 / 1x 240pcs 0 / 1x 240pcs 0 / 1x 80pcs	Pass/Fail Pass Pass Pass Pass	Yes Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs	Pass/Fail Pass Pass Pass Pass
Test MSL1 Pre-cond	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Stre FT Test Stre Reliability Test Stre Qual Plan # Reliability Testis Test Conditions (ESD22-A113) Bake 125C Soak 85C, 85% RH iR reflow 260C	24 Hrs 168Hrs 3 cycles 500 cycles - ATE	JESD22 A113 JEDEC J-STD-020	0/231	3 Assy lots	Yes Yes JCET JCET ST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs	Pass/Fail Pass Pass Pass	Yes Yes JCET JCET ICT 21030404 X = Test Needed 0 / 1x 240pcs 0 / 1x 240pcs 0 / 1x 240pcs	Pass/Fail Pass Pass Pass	Yes Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs	Pass/Fail Pass Pass Pass
Test MSL1 Pre-cond Temp Cycle	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Stre FT Test Stre Reliability Test Stre Qual Plan # Reliability Testis Test Conditions (ESD22-A113) Bake 125C Soak 85C, 85% RH iR reflow 260C	24 Hrs 168Hrs 3 cycles 500 cycles - ATE (qual point) 1000 cycles - ATE (for reference)	JESD22 A113 JEDEC J-STD-020 JESD22-A104	0/231 500h = 0/77 1000h = 0/72	3 Assy lots 3 Assy lots	Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass	Yes JCET JCET 15T 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass	Yes VCFT JCET 15T 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass
Test MSL1 Pre-cond	Green Compound (Ves/No) Lead-Yree (Yes/No) Assembly Stre FF Tes Stre Reliability Test Stre Qual Plan # Beilability Testing Test Conditions (ESD22-A113) Bake 125C Soak 85C, 85% RH IR reflow 260C (ESD22-A104) -65C-150C	24 Hrs 168Hrs 3 cycles 500 cycles - ATE (qual point) 1000 cycles - ATE	JESD22 A113 JEDEC J-STD-020	0/231 500h = 0/77	3 Assy lots	Yes Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs	Pass/Fail Pass Pass Pass Pass	Yes Yes JCET JCET ICT ST 21030404 X = Test Needed 0 / 1x 240pcs 0 / 1x 240pcs 0 / 1x 240pcs 0 / 1x 80pcs	Pass/Fail Pass Pass Pass Pass	Yes Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs	Pass/Fail Pass Pass Pass Pass
Test MSL1 Pre-cond Temp Cycle	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Ste FT Tes Ste Reliability Tests Tes Qual Plan # Reliability Testing Test Conditions (JESD22-A113) Bale 125C Scalk 85C, 85% RH IR reliow 260C JESD22-A104, 65C-150C JESD22-A104, A105 130C, 85%RH 33.3 pia Vcc = Op Max	24 Hrs 168Hrs 3 cycles 500 cycles - ATE (qual point) 1000 cycles - ATE (for reference)	JESD22 A113 JEDEC J-STD-020 JESD22-A104	0/231 500h = 0/77 1000h = 0/72	3 Assy lots 3 Assy lots	Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass	Yes JCET JCET 15T 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass	Yes VCFT JCET 15T 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass
Test MSL1 Pre-cond Temp Cycle BHAST	Green Compound (Ves/No) Lead-Yree (Yes/No) Assembly Stre FT Tes Stre Reliability Test 50 Reliability Test 50 Reliability Testing Test Conditions (ES022-A113) Bake 125C Soak 85C, 85% RH IR reflow 260C (ES022-A10) /A110 130C, 85%RH 33.3 pia Vcc = 0 pMax JES022-A118	24 Hrs 168Hrs 3 cycles 500 cycles - ATE (qual point) 1000 cycles - ATE (for reference) 96 Hrs	JESD22 A113 JEDEC J-STD-020 JESD22-A104 JESD22-A110	0/231 500h = 0/77 1000h = 0/72 0/77	3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots	Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass	Yes JCET JCET ST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass	Yes JCET JCET 15T 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass
Test MSL1 Pre-cond Temp Cycle	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Ste FT Tes Ste Reliability Tests Tes Qual Plan # Reliability Testing Test Conditions (JESD22-A113) Bale 125C Scalk 85C, 85% RH IR reliow 260C JESD22-A104, 65C-150C JESD22-A104, A105 130C, 85%RH 33.3 pia Vcc = Op Max	24 Hrs 168Hrs 3 cycles 500 cycles - ATE (qual point) 1000 cycles - ATE (for reference)	JESD22 A113 JEDEC J-STD-020 JESD22-A104	0/231 500h = 0/77 1000h = 0/72	3 Assy lots 3 Assy lots	Yes JCET JCET IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass	Yes JCET JCET 15T 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass	Yes VCFT JCET 15T 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass
Test MSL1 Pre-cond Temp Cycle BHAST	Green Compound (Ves/No) Lead-Yree (Yes/No) Assembly Stre FT Tas Site Reliability Test 5 Reliability Test 5 Reliability Test 5 Reliability Testis Reliability Testis Execution State 5 State 8 (ESD22-4113) Bake 125C State 8 State 8 (ESD22-4113) Bake 125C State 8 State 8 (ESD22-4113) Bake 125C State 8 State 8 (ESD22-410) A110 100C, 855KH 3.3.3 pia Vcc - Op Max ESD22-4118 130C, 855KH 3.3.3 pia Vcc - Op Max	24 Hrs 168Hrs 3 cycles 500 cycles - ATE (qual point) 1000 cycles - ATE (for reference) 96 Hrs 96 Hrs	JESD22 A113 JEDEC J-STD-020 JESD22-A104 JESD22-A110	0/231 500h = 0/77 1000h = 0/72 0/77 0/77	 3 Assy lots 	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass	Yes JEFT JEFT BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass	Yes JCET JCET 15T 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass
Test MSL1 Pre-cond Temp Cycle BHAST	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Ste FT ces Ste Reliability Tests Ste Qual Plan # Reliability Tests Test Conditions (JESD22-A113) Bale 125C Soak 85C, 85% RH IR reflow 260C JESD22-A104, 65C-150C JESD22-A104, 45C-150C JESD22-A104, 33 pain, no power JESD22-A103	24 Hrs 168Hrs 3 cycles 500 cycles - ATE (qual point) 1000 cycles - ATE (for reference) 96 Hrs 96 Hrs 500 Hrs	JESD22 A113 JEDEC J-STD-020 JESD22-A104 JESD22-A110	0/231 500h = 0/77 1000h = 0/72 0/77 0/77 0/77	3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass	Yes JCFT JCFT ST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas
Test MSL1 Pre-cond Temp Cycle BHAST UHAST	Green Compound (Ves/No) Lead-Yree (Yes/No) Assembly Stre FT Tas Site Reliability Test 5 Reliability Test 5 Reliability Test 5 Reliability Testis Reliability Testis Execution State 5 State 8 (ESD22-4113) Bake 125C State 8 State 8 (ESD22-4113) Bake 125C State 8 State 8 (ESD22-4113) Bake 125C State 8 State 8 (ESD22-410) A110 100C, 855KH 3.3.3 pia Vcc - Op Max ESD22-4118 130C, 855KH 3.3.3 pia Vcc - Op Max	24 Hrs 168Hrs 3 cycles 500 cycles - ATE (qual point) 1000 cycles - ATE (for reference) 96 Hrs 96 Hrs	JESD22 A113 JEDEC J-STD-020 JESD22-A104 JESD22-A110 JESD22 A118	0/231 500h = 0/77 1000h = 0/72 0/77 0/77	3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass	Yes JEFT JEFT ST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass	Yes JCET JCET 15T 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass
Test MSL1 Pre-cond Temp Cycle BHAST UHAST	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Ste FT ces Ste Reliability Tests Ste Qual Plan # Reliability Tests Test Conditions (JESD22-A113) Bale 125C Soak 85C, 85% RH IR reflow 260C JESD22-A104, 65C-150C JESD22-A104, 45C-150C JESD22-A104, 33 pain, no power JESD22-A103	24 Hrs 168Hrs 3 cycles 3 cycles - ATE (gual point) 1000 cycles - ATE (for reference) 96 Hrs 96 Hrs 500 Hrs 500 Hrs 1000 Hrs (gual point)	JESD22 A113 JEDEC J-STD-020 JESD22-A104 JESD22-A110 JESD22 A118	0/231 500h = 0/77 1000h = 0/72 0/77 0/77 0/77	3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass
Test MSL1 Pre-cond Temp Cycle BHAST UHAST HTSL WBS Wire Bond Shear	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Ste FT Tes Ste Reliability Test Ste Qual Plan # Reliability Tests (ESD22-A113) Bale 125C Scalk 85C, 85% RH IR reliow 250C (ESD22-A104) -65C-150C (ESD22-A104) -65C-150C JESD22-A104) -65C-150C JESD22-A103 Ta > 150C JESD22-A103 Ta > 150C JESD22-A103 Ta > 150C	24 Hrs 168Hrs 3 Crycles 500 crycles - ATE (qual point) 1000 crycles - ATE (for reference) 96 Hrs 96 Hrs 500 Hrs 1000 Hrs (qual point) Cplo-1.66	JESD22 A113 JEDEC J-STD-020 JESD22-A104 JESD22-A110 JESD22 A118 JESD22 A103 AEC-Q100-001	0/231 500h = 0/77 1000h = 0/72 0/77 0/77 0/77 0/5	3 Assy lots 3 OB 00005	Yes JCET JCET ST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes VCT JCT ST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 5cps 0 / 1 x 5cps 0 / 1 x 5cps	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCET JCET 15T 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 5cps	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas
Test MSL1 Pre-cond Temp Cycle BHAST UHAST HTSL	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Ste FT ces Ste Reliability Tests Ste Cual Plan # Reliability Tests (ES022-A113) Bale 125C Scalk 85C, 85% RH IR reflow 260C (ES022-A104) A5C-150C (ES022-A104/A110 130C, 85%RH 33.3 pia, no power JES022-A103 Ta > 150C	24 Hrs 168Hrs 3 cycles 3 cycles - ATE (gual point) 1000 cycles - ATE (for reference) 96 Hrs 96 Hrs 500 Hrs 500 Hrs 1000 Hrs (gual point)	JESD22 A113 JEDEC J-STD-020 JESD22 A104 JESD22 A104 JESD22 A118 JESD22 A103	0/231 500h = 0/77 1000h = 0/72 0/77 0/77 0/77	3 Assylots 3 Assylots 3 Assylots 3 Assylots 3 Assylots 3 Assylots	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fai Pass
Test MSLI Pre-cond Temp Cycle BHAST UHAST HTSL WBS Wire Bond Shear WBP Wire Bond Pull SD	Green Compound (Ves/No) Lead-free (Yes/No) Assembly Ste FT Tes Ste QualPlan # Reliability Testing QualPlan # Reliability Testing (ESD22-A13) Rake 125C Soak 85C, 85% RH IR reflow 250C (ESD22-A104) -45C-150C (ESD22-A104) -45C-150C (ESD22-A116) -45C-150C	24 Hrs 168Hrs 3 Crycles 500 crycles - ATE (qual point) 1000 crycles - ATE (for reference) 96 Hrs 96 Hrs 500 Hrs 1000 Hrs (qual point) Cplo-1.66	JESD22 A113 JEDEC J-STD-020 JESD22-A104 JESD22-A110 JESD22 A118 JESD22 A118 JESD22 A103 AEC-Q100-001 MIL-STD-883	0/231 500h = 0/77 1000h = 0/72 0/77 0/77 0/77 0/77 0/5 0/5	3 Assy lots 3 O Bonds	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCFT JCFT IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fai Pass Pass Pass Pass Pass Pass Pass Pa
Text MSL1 Pre-cond Temp Cycle BHAST UHAST HTSL WBS Wire Bond Shear WBP Wire Bond Pull SD Solderability	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Ste FT ers Ste Qual Plan # Reliability Tests Qual Plan # Reliability Tests (ESD22-A113) Bake 125C Soak 85C, 85% RH IR reflow 250C (ESD22-A104) -45C-150C (ESD22-A104) -45C-150C (ESD22-A105) -45C-150C (ESD22-A104) -45C-150C (ESD2-A104) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-45	24 Hrs 168Hrs 3 Crycles 500 cycles - ATE (gual point) 1000 cycles - ATE (for reference) 96 Hrs 96 Hrs 96 Hrs 1000 Hrs (gual point) Cpto-1.66 Cpto-1.66 S Seconds	JESD22 A113 JEDEC J-STD-020 JEDD22-A104 JESD22-A104 JESD22 A118 JESD22 A118 JESD22 A103 ML-STD-883 M2011 JESD22 B102	0/231 500h = 0/77 1000h = 0/72 0/77 0/77 0/77 0/77 0/5 0/5	3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 30 Bonds 30 Bonds 3 Assy	Yes JCET JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 8cps avg=7.0g; cpk=1.67 0 / 1 x 5pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCFT JCFT BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pc 0 / 1 x 8cps 0 / 1 x 8cps 0 / 1 x 8cps	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCET JCET ST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 50pc 0 / 1 x 5cps auge-7.01g ; cplo-1.67 0 / 1 x 5pcs	Pass/Fai Pass Pass
Test MSLI Pre-cond Temp Cycle BHAST UHAST HTSL WBS Wire Bond Shear WBP Wire Bond Pull SD	Green Compound (Ves/No) Lead-free (Yes/No) Assembly Ste FT Tes Ste QualPlan # Reliability Testing QualPlan # Reliability Testing (ESD22-A13) Rake 125C Soak 85C, 85% RH IR reflow 250C (ESD22-A104) -45C-150C (ESD22-A104) -45C-150C (ESD22-A116) -45C-150C	24 Hrs 168Hrs 3 Crycles 500 cycles - ATE (qual point) 1000 cycles - ATE (for reference) 96 Hrs 96 Hrs 96 Hrs 1000 Hrs (qual point) Cplo-1.66 Cplo-1.66	JESD22 A113 JESD22 A113 JEDEC J-STD-020 JESD22 A104 JESD22 A110 JESD22 A118 JESD22 A118 JESD22 A103 AEC-Q100-001 MIL-STD-883 M2011	0/231 500h = 0/77 1000h = 0/72 0/77 0/77 0/77 0/77 0/5 0/5	3 Assy lots 3 O Bonds	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCFT JCFT IST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pcs	Pass/Fail Pass
Test MSL1 Pre-cond Temp Cycle BHAST UHAST UHAST HTSL WBS Wire Bond Shear WBP Wire Bond Pull SD Solderability PD	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Ste FT ers Ste Qual Plan # Reliability Tests Qual Plan # Reliability Tests (ESD22-A113) Bake 125C Soak 85C, 85% RH IR reflow 250C (ESD22-A104) -45C-150C (ESD22-A104) -45C-150C (ESD22-A105) -45C-150C (ESD22-A104) -45C-150C (ESD2-A104) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-45	24 Hrs 168Hrs 3 Crycles 500 cycles - ATE (gual point) 1000 cycles - ATE (for reference) 96 Hrs 96 Hrs 96 Hrs 1000 Hrs (gual point) Cpto-1.66 Cpto-1.66 S Seconds	JESD22 A113 JEDEC J-STD-020 JESD22 A104 JESD22 A104 JESD22 A108 JESD22 A108 JESD22 A103 AEC-Q100-001 MIL-STD-883 M2011 JESD22 B102 JESD22 B102 JESD22 B102	0/231 500h = 0/77 1000h = 0/72 0/77 0/77 0/77 0/5 0/5 Ppk>1.67	3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 30 Bonds 30 Bonds 3 Assy	Yes JCET JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 8cps avg=7.0g; cpk=1.67 0 / 1 x 5pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCFT JCFT BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pc 0 / 1 x 8cps 0 / 1 x 8cps 0 / 1 x 8cps	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCET JCET ST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 50pc 0 / 1 x 5cps auge-7.01g ; cplo-1.67 0 / 1 x 5pcs	Pass/Fai Pass Pass
Test MSL1 Pre-cond Temp Cycle BHAST UHAST UHAST HTSL WBS Wire Bond Shear WBP Wire Bond Shear WBP Wire Bond Pull SS Olderability P0 Phytical Dimensions Summary:	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Ste FT Tes Ste Bellability Test Ste Caual Plan # Reitability Testing Test Conditions (JES022-A113) Gale 125C Soak 85C, 85% RH IR reflow 260C JES022-A104) -65C-150C JES022-A104) -65C-150C JES022-A103 130C, 85%RH 33.3 piak vc = 0p Max JES022-A103 Ta > 150C JES022-A118 130C, 85%RH, 33.3 piak vc = 0p Max JES022-A103 Ta > 150C JES022-A118 MIL-67D883-2011 Check solderzability on 5 units -95% Coverage Measure dimensions on 15 units	24 Hrs 168Hrs 3 Crycles 500 cycles - ATE (gual point) 1000 cycles - ATE (for reference) 96 Hrs 96 Hrs 96 Hrs 1000 Hrs (gual point) Cpto-1.66 Cpto-1.66 S Seconds	JESD22 A113 JEDEC J-STD-020 JESD22 A104 JESD22 A104 JESD22 A108 JESD22 A108 JESD22 A103 AEC-Q100-001 MIL-STD-883 M2011 JESD22 B102 JESD22 B102 JESD22 B102	0/231 500h = 0/77 1000h = 0/72 0/77 0/77 0/77 0/5 0/5 Ppk>1.67	3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 30 Bonds 30 Bonds 3 Assy	Yes JCET JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 8cps avg=7.0g; cpk=1.67 0 / 1 x 5pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCFT JCFT BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pc 0 / 1 x 8cps 0 / 1 x 8cps 0 / 1 x 8cps	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCET JCET ST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 50pc 0 / 1 x 5cps auge-7.01g ; cplo-1.67 0 / 1 x 5pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas
Text MSL1 Pre-cond Temp Cycle BHAST UHAST UHAST HTSL WBS Wire Bond Shear WBP Wire Bond Pull SS Solderability PD Physical Dimensions	Green Compound (Ves/No) Lead-Yee (Yes/No) Assembly Ste FT ers Ste Qual Plan # Reliability Tests Qual Plan # Reliability Tests (ESD22-A113) Bake 125C Soak 85C, 85% RH IR reflow 250C (ESD22-A104) -45C-150C (ESD22-A104) -45C-150C (ESD22-A105) -45C-150C (ESD22-A104) -45C-150C (ESD2-A104) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-450C) -45C-150C (ESD2-45	24 Hrs 168Hrs 3 Crycles 500 cycles - ATE (gual point) 1000 cycles - ATE (for reference) 96 Hrs 96 Hrs 96 Hrs 1000 Hrs (gual point) Cpto-1.66 Cpto-1.66 S Seconds	JESD22 A113 JEDEC J-STD-020 JESD22 A104 JESD22 A104 JESD22 A108 JESD22 A108 JESD22 A103 AEC-Q100-001 MIL-STD-883 M2011 JESD22 B102 JESD22 B102 JESD22 B102	0/231 500h = 0/77 1000h = 0/72 0/77 0/77 0/77 0/5 0/5 Ppk>1.67	3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 3 Assy lots 30 Bonds 30 Bonds 3 Assy	Yes JCET JCET JCET BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 8cpc 0 / 1 x 8cpc 0 / 1 x 8cpc	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCFT JCFT BT 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 80pc 0 / 1 x 8cps 0 / 1 x 8cps 0 / 1 x 8cps	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas	Yes JCET JCET ST 21030404 X = Test Needed 0 / 1 x 240pcs 0 / 1 x 80pcs 0 / 1 x 50pc 0 / 1 x 5cps auge-7.01g ; cplo-1.67 0 / 1 x 5pcs	Pass/Fail Pass Pass Pass Pass Pass Pass Pass Pas