

PDN Number:	20230320003.3	PDN Date:	March 21, 2023
Title:	Discontinuance of select MicroStar BGA Jr. devices		
Customer Contact:	PCN Manager	Dept:	Quality Services
Last date to order:	Sept 20, 2023	Last date to ship:	March 20, 2024
Change Type:	Product Discontinuance - End Of Life		

Product Discontinuance Notification Details

Description of Discontinuance:

Texas Instruments, Incorporated (TI) is announcing the discontinuance of select MicroStar BGA Jr. package devices. A non-cancelable, non-refundable last time buy is being offered per the date shown above. Part numbers are shown in the Product Affected section below. Recommended replacements are being offered as shown in the Product Affected Section.

Availability of replacement device samples (in nFBGA packages) is estimated to be 30 days after this notification. These devices are estimated to be released to production in August 2023. For questions regarding the sample/release status of a particular device, please contact tm4c_zrb@list.ti.com.

The devices in the MicroStar BGA package were redesigned using a laminate BGA package (nFBGA). nFBGA provides the same X and Y dimensions as MicroStar BGA, and provides pin-to-pin and footprint compatibility. However the nFBGA PCB land pattern and stencil recommendations have been updated to achieve better soldering results after extensive testing and evaluation. For more details, please refer to this [nFBGA application note](#).

BOM for new nFBGA Package:

	Assembly Site nFBGA
Assembly Site	TI Philippines (no change)
Mount Compound	film/epoxy
Mold compound	4212500 / 4205283
Wire Type	Cu
Substrate	Laminate

NOTE: There are no samples offered for withdrawn/obsolete products. For samples of any replacement products, please contact your local sales representative.

Reason for Withdrawal/Discontinuance:

Due to an equipment End-Of-Life notice from our substrate supplier, we are phasing out certain MicroStar BGA Jr package devices and offering a last time buy.

Product Affected:

DEVICES BEING DISCONTINUED	RECOMMENDED REPLACEMENT PRODUCTS	Pin to Pin Match (Yes/No)
TM4C123BH6ZRBI	TM4C123BH6NMRI	Yes
TM4C123BH6ZRBI7	TM4C123BH6NMRI7	Yes
TM4C123BH6ZRBI7R	TM4C123BH6NMRI7R	Yes
TM4C123BH6ZRBIR	TM4C123BH6NMRIR	Yes
TM4C123GH6ZRBI	TM4C123GH6NMRI	Yes
TM4C123GH6ZRBI7	TM4C123GH6NMRI7	Yes
TM4C123GH6ZRBI7R	TM4C123GH6NMRI7R	Yes

TM4C123GH6ZRBI	TM4C123GH6NMRIR	Yes
TM4C123GH6ZRB	TM4C123GH6NMRT	Yes
TM4C123GH6ZRB7	TM4C123GH6NMRT7	Yes
TM4C123GH6ZRB7R	TM4C123GH6NMRT7R	Yes
TM4E1231H6ZRBI	TM4E1231H6NMRI	Yes
TM4E1231H6ZRBI7R	TM4E1231H6NMRI7R	Yes
TM4E123GH6ZRBI7	TM4E123GH6NMRI7	Yes
TM4E123GH6ZRBI7R	TM4E123GH6NMRI7R	Yes
TM4E1G31H6ZRBI	TM4E1G31H6NMRI	Yes

Qualification Report (nFBGA)
Approve Date 20-Jan-2020

Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed

Type	Test Name / Condition	Duration	Qual Device: <u>OM AP5 912 ZV L</u>	QBS Package Reference: <u>AM351 7ZCN</u>	QBS Package Reference: <u>CODM IO ZW CR</u>	QBS Package Reference: <u>LMK0 4616Z CRR</u>	QBS Package Reference: <u>MSP43 0FG43 91ZCA</u>	QBS Package Reference: <u>MSP43 0FR59 941ZV W</u>	QBS Package Reference: <u>PCD32 15C00 AZBH R, PCD32 15C00 BZBH R</u>	QBS Package Reference: <u>TMP5 70LS3 137BZ WTO Q1</u>	QBS Package Reference: <u>TMS32 0DM64 46ZWT</u>	QBS Package Reference: <u>TPS65 9038T ZWSR Q1</u>	QBS Package Reference: <u>TS3DD R400 ZBAR</u>
ACC	Autoclave 121C	96 Hours	-	-	-	-	-	3/231/0	-	-	-	-	-
BLR	Board Level Reliability, Temp Cycle, -40/125C	1000 Cycles	-	1/32/0	1/32/0	-	-	-	-	1/32/0	-	-	-
BLR	Board Level Reliability, Temp Cycle, -40/85C	1000 Cycles	-	-	-	-	-	-	1/32/0	-	-	-	-
CDM	ESD - CDM	250 V	1/3/0	-	-	-	2/6/0	1/3/0	-	-	-	-	-
CDM	ESD - CDM	500 V	1/3/0	-	-	-	-	-	-	1/3/0	1/3/0	1/3/0	-
CDM	ESD - CDM	750 V	-	-	-	-	-	-	-	1/3/0	1/3/0	1/3/0	-
CDM	ESD - CDM	1000 V	-	-	-	-	-	-	-	-	1/3/0	-	1/3/0
CDM	ESD - CDM	1500 V	-	-	-	1/3/0	-	-	6/18/0	-	-	-	-
ED	Electrical Characterization, side by side	Per Datashet Parameters	Pass	-	-	-	-	-	-	-	-	-	-
ED	Electrical Character	Per Datash	-	-	Pass	-	-	-	Pass	Pass	Pass	Pass	Pass

Type	Test Name / Condition	Duration	Qual Device: <u>OM</u> <u>AP5</u> <u>912</u> <u>ZV</u> <u>L</u>	QBS Package Reference: <u>AM351</u> <u>7ZCN</u>	QBS Package Reference: <u>CODM</u> <u>IOZW</u> <u>CR</u>	QBS Package Reference: <u>LMK0</u> <u>4616Z</u> <u>CRR</u>	QBS Package Reference: <u>MSP43</u> <u>0FG43</u> <u>9IZCA</u>	QBS Package Reference: <u>MSP43</u> <u>0FR59</u> <u>94IZV</u> <u>W</u>	QBS Package Reference: <u>PCD32</u> <u>15C00</u> <u>AZBH</u> <u>R</u> <u>PCD32</u> <u>15C00</u> <u>BZBH</u> <u>R</u>	QBS Package Reference: <u>TMP5</u> <u>70LS3</u> <u>137BZ</u> <u>WTQ</u> <u>Q1</u>	QBS Package Reference: <u>TMS32</u> <u>0DM64</u> <u>46ZW</u> <u>T</u>	QBS Package Reference: <u>TPS65</u> <u>9038T</u> <u>ZWSR</u> <u>Q1</u>	QBS Package Reference: <u>TS3DD</u> <u>R4000</u> <u>ZBAR</u>
	ization	Test Parameters											
FLAM	Flammability (IEC 695-2-2)	-	-	-	-	-	-	-	3/15/0	-	-	-	3/15/0
FLAM	Flammability (UL 94V-0)	-	-	-	-	-	-	-	3/15/0	-	-	-	3/15/0
FLAM	Flammability (UL-1694)	-	-	-	-	-	-	-	3/15/0	-	-	-	3/15/0
HAST	Biased HAST, 110C/85%RH	264 Hours	-	3/231/0	-	3/231/0	-	3/231/0	3/231/0	-	-	-	1/77/0
HBM	ESD - HBM	1000 V	-	-	-	-	2/6/0	1/3/0	-	-	1/3/0	-	-
HBM	ESD - HBM	2000 V	-	-	-	-	2/6/0	-	6/18/0	1/3/0	1/3/0	1/3/0	-
HBM	ESD - HBM	3000 V	-	-	-	-	-	-	-	-	-	-	1/3/0
HBM	ESD - HBM	4000 V	-	-	-	1/3/0	-	-	-	-	-	-	-
HTOL	Life Test, 90C	2000 Hours	-	-	-	-	-	-	-	-	3/387/0	-	-
HTOL	Life Test, 125C	1000 Hours	-	-	-	-	-	-	6/462/0	3/231/0	-	3/231/0	-
HTOL	Life Test, 115C	1000 Hours	-	-	-	1/77/0	-	-	-	-	-	-	-
HTOL	Life Test, 140C	480 hours	-	-	-	-	-	-	-	-	-	-	1/77/0
HTSL	High Temp Storage Bake 150C	1000 Hours	3/231/0	3/45/0	-	1/77/0	3/231/0	3/231/0	3/231/0	1/45/0	3/231/0	-	-
HTSL	High Temp Storage Bake 150C	500 Hours	-	-	-	-	-	-	-	-	-	2/90/0	-
HTSL	High Temp Storage Bake 170C	420 hours	-	-	-	-	-	-	-	-	-	-	3/231/0
MQ	Manufacturability (Assembly)	(per mfg. Site specification)	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
MSL	Moisture Sensitivity, JEDEC	Level 3-260C	3/36/0	-	-	-	3/36/0	3/36/0	3/36/0	3/36/0	3/36/0	3/36/0	3/36/0
PD	Physical Dimension	(per mechan)	3/15/0	-	-	-	1/5/0	-	3/15/0	-	-	3/30/0	3/15/0

Type	Test Name / Condition	Duration	Qual Device: <u>OMAP5912ZVL</u>	QBS Package Reference: <u>AM3517ZCN</u>	QBS Package Reference: <u>CODMIOZWCRCR</u>	QBS Package Reference: <u>LMK04616ZCRR</u>	QBS Package Reference: <u>MSP430FG439IZCA</u>	QBS Package Reference: <u>MSP430FR5994IZVW</u>	QBS Package Reference: <u>PCD3215C00AZBHR, PCD3215C00BZBHR</u>	QBS Package Reference: <u>TMP570LS3137BZWTQO1</u>	QBS Package Reference: <u>TMS320DM6446ZWT</u>	QBS Package Reference: <u>TPS659038TZWSRQ1</u>	QBS Package Reference: <u>TS3DDR400ZBAR</u>
	ns	ical drawing)											
SB S	Ball Shear	Balls	3/90/0	3/150/0	-	3/240/0	3/60/0	3/60/0	3/540/0	1/50/0	-	3/150/0	3/60/0
SD	Solderability	PB-Free Solder	3/66/0	-	-	-	1/12/0	-	3/66/0	-	-	-	3/66/0
TC	Temperature Cycle, -55/125C	1000 Cycles	-	3/231/0	-	-	-	-	-	3/231/0	3/231/0	3/231/0	-
TC	Temperature Cycle, -55/125C	700 Cycles	3/231/0	-	-	3/231/0	3/231/0	3/231/0	3/231/0	-	-	-	3/231/0
THB	Biased Temperature and Humidity, 85C/85% RH	1000 Hours	-	-	-	-	-	-	-	3/230/0	3/231/0	3/231/0	-
U HAST	Unbiased HAST 110C/85%RH	264 Hours	3/231/0	-	-	3/231/0	3/231/0	-	3/231/0	3/231/0	3/231/0	3/231/0	-
U HAST	Unbiased HAST 130C/85%RH	96 Hours	-	3/231/0	-	-	-	-	-	-	-	-	3/231/0
WBP	Wire Pull	Wires	1/76/0	3/228/0	-	3/228/0	3/228/0	3/228/0	3/228/0	3/300/0	3/228/0	3/300/0	3/228/0
WBS	Ball Bond Shear	Wires	1/76/0	3/228/0	-	3/228/0	3/228/0	3/228/0	3/228/0	3/300/0	3/228/0	3/300/0	3/228/0

- QBS: Qual By Similarity*

- Qual Device OMAP5912ZVL is qualified at LEVEL3-260CG

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable

- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours

- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours

- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Quality and Environmental data is available at TI's external Web site: <http://www.ti.com/>

Green/Pb-free Status:

Qualified Pb-Free(SMT) and Green

For questions regarding this notice, e-mails can be sent to the contact shown below or your local Field Sales Representative.

Location	E-Mail
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