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12 bit 4.8 Gsps MuxDAC - EV12DS480AMZP-N1

FpBGA 196

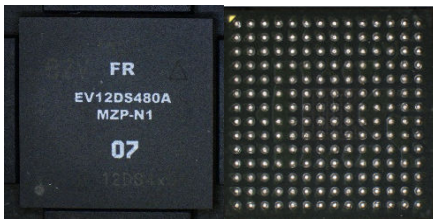
Qualification status: ☒ ***Accepted*** ☐ *Pending* ☐ *Rejected*

This product as met all PEM-INST-001 – Level 1 qualification requirements

Device description:

Teledyne-e2v part number:	Temperature range :	Screening Level:
EV12DS480AMZP-N1	**-55°C < Tc , Tj < +125°C**	**PEM – INST - 001 – Level 1**

Device description:

Technology: **200 GHz - SiGe Bipolar**	Process : **B7HF200 - Infineon**	Exernal view (example) : **Top** **Bottom** 
Die size: **4.58 mm x 4.58 mm**	Passivation : **SiO2 (0.3 µm) & SiN (0.55 µm)**	
Wafer diffusion lot number / Mask : **RU516515 / VN62A**	Assy Date Code : **1527**	
Outline / Pitch: **15 x 15 x 1.2 mm / 1.00 mm**	Solder ball composition: **Sn 62 / Pb 36 / Ag 2**	
Assy plant: **Unisem Batam**	MSL / Max. peak reflow: **MSL 3 / 235°C**	

Testing lot references:

Testing Production Order:	Testing Batch number:
660326664	**0000038125**
660325259	**0000037936**

Screening and Qualification tests Summary

SubGroup	*Description*	*Standard / Method / Cond*	*Sample*	*Status*	*Note*
N1 Flow	NASA Level 1 Process Flow	EEE-INST-002 / PEM-INST-001	-	***Pass***	*See page 2*
Q1 Flow	Devices issued from N1 FLOW	EEE-INST-002 Table 3 Preconditionning flow	32 (0) parts	***Pass***	*See page 2*
Sub-group 1	Devices issued from Q1 FLOW	EEE-INST-002 Table 3 HTOL / Temp Cycling	22 (0) parts	***Pass***	*See page 3*
Sub-group 2	Devices issued from Q1 FLOW	EEE-INST-002 Table 3 HAST	10(0) parts	***Pass***	*See page 3*

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N1 Flow Steps – Summary of main steps

Launch from T-e2v stock	*PO: 660326664* *PO: 660325259*	
Marking + serialization / polymerization	*# 1 to 117*	*Done*
Temperature Cyling	*TM1010/B/20cy*	*Done*
X-Ray inspection	*TM2012*	*Done*
C-SAM inspection	*internal proc.*	*Done*
Initial Pre-Static electrical measurements	*Amb / Cold / Hot*	*Done*
Engineering review	*internal proc.*	*Done*
Static Burn-In	120Hrs / 125°C	*Done*
Post Static and initial Burn-In electrical measurements	Ambient	*Done*
Engineering review	*internal proc.*	*Done*
Dynamic Burn-In	240Hrs / 125°C	*Done*
Final Post-Burn-in electrical measurements + drift	*Amb / Cold / Hot*	*Done*
Engineering review	*internal proc.*	*Done*
PDA calculation	<5%	3.13% → Pass
Physical dimension control		*Done*
External Visual inspection		*Done*
Final quantity		32

Q1 FLOW - QUALIFICATION TESTS – devices issued from N1 Flow

Subgroup	*Step*	*Test / cond.*	*Sample*	*Date Code / serial numbers*	*Status*	*Note*
Q1 Flow	*1*	**Initial Electrical** *EV12DS480AMZP-N1 prog.* *+25°C /+125°C / -55°C*	32(0) parts	**DC 1527** s/n # 1, 3, 5, 7, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 27, 29, 30, 31, 160, 161, 165, 166, 168, 169, 171, 174, 175, 176	***Pass***	*see note A*
	2	**Visual examination** *MIL-STD-883 TM2009*	32(0) parts		***Pass***	-
	3	**C-SAM (T0)** *Per paragraph 5.3.3. of PEM-INST-001*	32(0) parts	**DC 1527** s/n # 1, 3, 5, 7, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 27, 29, 30, 31, 160, 161, 165, 166, 168, 169, 171, 174, 175, 176	***NA***	-
	4	**Preconditioning MSL3** *J-STD-020E* ***Baking*** *24 h, 125 °C* ***Moisture Soak*** *192 h, 30 °C, 60 % RH* ***Reflow*** *3 reflows, SnPb, profile peak 235 °C*	32(0) parts	**DC 1527** s/n # 1, 3, 5, 7, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 27, 29, 30, 31, 160, 161, 165, 166, 168, 169, 171, 174, 175, 176	***Pass***	*see note C*
	5	**Visual examination** *MIL-STD-883 TM2009*	32(0) parts		***Pass***	-
	6	**C-SAM (T1)** *Per paragraph 5.3.3. of PEM-INST-001*	32(0) parts	**DC 1527** s/n # 1, 3, 5, 7, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 27, 29, 30, 31, 160, 161, 165, 166, 168, 169, 171, 174, 175, 176	***Pass***	*see note D*
	7	**Final Electrical** *EV12DS480AMZP-N1 prog.* *+25°C /+125°C / -55°C*	32(0) parts	**DC 1527** s/n # 1, 3, 5, 7, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 27, 29, 30, 31, 160, 161, 165, 166, 168, 169, 171, 174, 175, 176	***Pass***	-
	8	**Visual examination** *MIL-STD-883 TM2009*	32(0) parts		***Pass***	-

Note C : PVT_09362_01 (10 FM) and PVT_09580_01 (22 FM) Preconditioning MSL3

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Note D : C-SAM T1 - Qualification Devices - EV12DS480AMZP-N1 - DC1527 – report : 180634-e2v-rb-FpBGA196-22p-T1

SUB-GROUP 1 – HTOL / Temp Cycling tests - Devices issued from Q1 FLOW

Subgroup	Step	Test / cond.	Sample	Date Code / serial numbers	Status	Note
SubGr1	1	***HTOL 1500Hrs*** *Step 500Hrs / 1000Hrs* *Method 1005 / Cond.D / 125°C*	22(0) parts	**DC 1527** s/n # 1, 3, 5, 7, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 27, 29, 30, 31	***Pass***	-
	2	**Intermediate Electrical** *EV12DS400AMZP-N1 prog.* *+25°C /+125°C / -55°C*			***Pass***	-
	3	**Visual examination** *MIL-STD-883 TM2009.*			***Pass***	-
	4	**Temperature cycling 500 Cycles** *MIL-STD-883 TM1010, Cond.B* *(-55°C to +125°C)*			***Pass***	*see note E*
	5	**Final Electrical** *EV12DS400AMZP-N1 prog.* *+25°C /+125°C / -55°C*			***Pass***	-
	6	**C-SAM (T2)** *Per paragraph 5.3.3. of PEM-INST-001*			***Pass***	*see note F*
	7	**Visual examination** *MIL-STD-883 TM2009.*			***Pass***	-

Note E : PO : 990007996 - VRT 500 cycles –internal procedure

Note F : C-SAM T2 - Qualification Devices - EV12DS480AMZP-N1 - DC1527- report : 180634-e2v-rb-FpBGA196-32p-T2

SUB-GROUP 2 - HAST test- Devices issued from Q1 FLOW

Subgroup	Step	Test / cond.	Sample	Diff. Lot / Batch number / Serial numbers	Status	Note
SubGr2	1	***Biased HAST*** *JESD22-A110E* *96 hours, +130°C, 85% RH* *1Hr ON / 1Hr OFF*	10(0) parts	**DC 1527** s/n # 160, 161, 165, 166, 168, 169, 171, 174, 175, 176	***Pass***	*see note G*
	2	**Intermediate Electrical** *EV12DS400AMZP-N1 prog.* *+25°C /+125°C / -55°C*				
	3	**Visual examination** *MIL-STD-883 TM2009.*				

Note G :report: PVT_09464_01 – HAST 96H – 5 parts
report: PVT_09463_01 – HAST 96H – 5 parts

Qualification tests conclusions:

☒ **EV12DS480AMZP-N1 devices with DC 1527 have passed with success all PEM-INST-001 Level 1 requirements**

☐ *Rejected*

Authorized Signature: **Rolande Blanc** ***July 10th, 2019***

Semiconductor Quality Eng.
& DLA point of contact

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