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	<i>This document specifies that referenced product(s) is(are) compliant to MIL-PRF-38535 Class V requirements</i>	

PRODUCT DESCRIPTION	E2V PART-NUMBER	STANDARD MICROCIRCUIT DRAWING
10-bit 1.5Gsps MuxDAC	EV10AS180AMLG-V	5962-1522301VXC
	EV10AS180AMGS-V	5962-1522301VYF
	EV10AS180AMGC-V	5962-1522301VZF

<b>QUALIFICATION STATUS</b>	<input checked="" type="checkbox"/> ACCEPTED	<input type="checkbox"/> PENDING	<input type="checkbox"/> REJECTED
<i>Products listed above have met all requirements of PGQ15</i>			

<b>DICE INFORMATION</b>	Wafer fab	INFINEON - Regensburg (Germany)
	Process	B7HF200
	Technology	200Ghz SiGe Bipolar
	Mask	VN41A
	Die size	4.81 x 4.81 mm (23.1 mm <sup>2</sup> )
	Die thickness	300 µm
	Passivation	SiO <sub>2</sub> (0.35 µm) & SiN (0.9 µm)
	Last metallization layer	Au (500nm) / Pt (60nm) / Ti (60nm)
<b>PACKAGE INFORMATION</b>	Outline	21 x 21 mm
	Pitch	1.27 mm
	Die attach material	JM7000
	Wire	Au 23 µm
	Lid	COMBO HIREL OD .645SQ
	Marking ink	Markem 4489 black
	LG	CLGA 255 - Au pad termination
	GS	CI-CGA 255 - Solder column interposer Pb 90 / Sn 10
GC	CCGA 255 - Cu spiral column Pb 80 / Sn 20	
<b>ASSEMBLY LOCATION</b>	e2v semiconductors - St Egrève - France	
<b>TEST LOCATION</b>		

Authorized Signature	Validation Date (Last update)
<b>Christian CARMONA</b> Semiconductors Quality Officer & DLA point of contact 	<b>September 23<sup>rd</sup> 2015</b>

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QUALIFICATION BATCH INFORMATION			
Mask VN41A	Diffusion lot RU039535	Assy lot ID 1162495	Date Code 1111

TEST	METHODE	COND	DESCRIPTION	Qualif. sample	$\Sigma$ (1)
Construction analysis	MIL-STD-883 TM2018 ESA/SCC N°21400		6 dice from RU039535 diff lot	Pass	All diffusion lot
ESD HBM	JESD22-A114E	>1000V	Class 1C	3(0)	-
LATCH UP	JEDEC 78B		Class I Class II	6(0) 6(0)	- -
HTOL Test	MIL-STD-883 TM1005		4000Hrs / Tj 165°C 2000Hrs / Tj 165°C	16(0) 16(0)	0 31(0)
Reflow simulation	J-STD-020D	3x	SnPb profil peak >220°C	5 (0)	12 (0)
Seal (fine & gross leaks)	MIL-STD-883 TM1014	A. & C.			
Interm. electrical	Device specification				
Reflow simulation	J-STD-020D	3x	SnPb profil peak >220°C		
Seal (fine & gross leaks)	MIL-STD-883 TM1014	A. & C.			
Interm. & End-point elect.	Device specification				
Temperature cycling	MIL STD 883 TM1010	C.	100cy	5 (0)	12(0)
Thermal shock	MIL STD 883 TM1011	C. 100cy	-65°C/2min then +150°C/2min		
Seal (fine & gross leaks)	MIL-STD-883 TM1014	A. & C.			
Temp. cycling	MIL STD 883 TM1010	C.	400cy		
Seal (fine & gross leaks)	MIL-STD-883 TM1014	A. & C.			
External visual inspection	ESCC 20500				
End-point elect.	Device specification				
DPA	Internal inspection		wire loops & pad intermetallic		
Mechanical Shock	MIL STD 883 TM 2002	B. 5x	6 axis: duration of pulse 0.5ms/1500g		
Vibration	MIL STD 883 TM 2007	A. 12x	3 axis: 20-2000 Htz/20G/4min		
Seal (fine & gross leaks)	MIL-STD-883 TM1014	A. & C.			
External visual inspection	ESCC 20500				
Intermediate-point elect.	Device specification				
Mechanical Shock	MIL STD 883 TM 2002	B. 45x	6 axis: duration of pulse 0.5ms/1500g		
Vibration	MIL STD 883 TM 2007	A. 108x	3 axis: 20-2000 Htz/20G/4min		
Seal (fine & gross leaks)	MIL-STD-883 TM1014	A. & C.			
External visual inspection	ESCC 20500				
End-point elect.	Device specification				

<sup>(1)</sup>  $\Sigma$  cumulative tests done on same product family

RELIABILITY REPORT Cumulative EFR & LFR	Equivalent Tj Tj 125°C	Nb components hours 2 252 379	Nb failure 1	Activation Energy 0.7 eV
e2v Calculation	For Tj 125°C	Confidence level: 60 %	LFR = 898 FIT	MTTF = 1 113 661 Hrs (127 Years)
Extrapolation with ARRHENIUS law	For Tj 110°C	Confidence level: 60 %	LFR = 404 FIT	MTTF = 2 473 972 Hrs (282 Years)
	For Tj 90°C	Confidence level: 60 %	LFR = 126 FIT	MTTF = 7 945 983 Hrs (907 Years)

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PRODUCT FAMILY INFORMATION (for cumulative calculation)			
Mask	Product	Description	Package
VN15A	EV10DS130A	10bit 3Gsp MuxDAC	CLGA255 / CI-CGA255 / CCGA255
VN15A	EV12DS130A	12bit 3Gsp MuxDAC	CLGA255 / CI-CGA255 / CCGA255
VN41A	EV10AS180A	10bit 1.5Gsp ADC	CLGA255 / CI-CGA255 / CCGA255

LAT Sub.	TEST	METHODE	COND	DESCRIPTION	LAT-QCI sample <sup>(2)</sup>	$\Sigma$ <sup>(3)</sup>
LAT3 B1	Resistance to solvents	MIL-STD-883 TM2015			3(0)	6(0)
	Permanence of marking	ESCC 24800			10(0)	20(0)
LAT3 B2	Internal visual inspection	MIL-STD-883 TM2010			8(0)	19(0)
	Bond strength	MIL-STD-883 TM2011	D	20 bonds x 2 devices	160(0)	360(0)
	Bond shear	ASTM-F1269-06		10 bonds x 4 devices	160(0)	360(0)
	Substrate attach strength	MIL-STD-883 TM2027			8(0)	18(0)
LAT3 B3	Solderability	MIL-STD-883 TM2003			3(0)	7(0)
		JESD22-B102E			3(0)	9(0)
LAT3 B4	Solder column pull test	MIL-STD-883 TM2038		45 columns from 2 parts	48(0)	144(0)
LAT2 C	HTOL Test	MIL-STD-883 TM1005		4000Hrs / Tj 165°C 2000Hrs / Tj 165°C	16(0) 16(0)	0 31(0)
	Seal (fine & gross leaks)	MIL-STD-883 TM1014	A. & C.		100%(0)	100%(0)
	External visual inspection	MIL-STD-883 TM2009				
	Interm. & End-point elect.	Device specification				
D1	Physical dimensions	MIL-STD-883 TM2016		Included in screening	100%(0)	100%(0)
LAT1 D3	Thermal shock	MIL-STD-883 TM1011	C. 15cy		48(0)	128(0)
	Temperature cycling	MIL-STD-883 TM1010	C. 100cy			
	Moisture resistance	MIL-STD-883 TM1004				
	Seal (fine & gross leaks)	MIL-STD-883 TM1014	A. & C.			
	External visual inspection	MIL-STD-883 TM2009				
	End-point electrical	Device specification				
LAT1 D4	Mechanical shock	MIL-STD-883 TM2002	B.		48(0)	128(0)
	Vibration	MIL-STD-883 TM2007	A.			
	Constant acceleration	MIL-STD-883 TM2001	D. Y1			
	Seal (fine & gross leaks)	MIL-STD-883 TM1014	A. & C.			
	External visual inspection	MIL-STD-883 TM2009				
	End-point electrical	Device specification				
D5	Salt atmosphere	MIL-STD-883 TM1009	A.		15(0)	15(0)
	External visual inspection	MIL-STD-883 TM2009				
	Seal (fine & gross leaks)	MIL-STD-883 TM1014	A. & C.			
D6	Internal water vapor test	MIL-STD-883 TM1018		Monitoring	3(0)	-
D9	Soldering heat	MIL-STD-883 TM2036			3(0)	3(0)
	Seal (fine & gross leaks)	MIL-STD-883 TM1014	A. & C.			
	External visual inspection	MIL-STD-883 TM2009				
	End-point electrical	Device specification				

<sup>(2)</sup> LAT & QCI tests done on EV10AS180A devices

<sup>(3)</sup> cumulative LAT & QCI tests done on same product family