

Product/Process Change Notification (PCN)

Customer: Digi-Key Corproation

Date: 01-22-2017

Customer Part # affected: A3921KLPTR-T

Originator: R. Fennelly

Phone: 508-853-5000

Duration of Change:

Permanent Temporary (explain)

Summary description of change: Part Change: Process Change: Other:

1) Allegro currently manufactures the A3921KLPTR-T on the 6" wafer fab ABCD4 technology line at Polar Semiconductor LLC (PSL), Bloomington, MN, USA. Allegro will closing the 6" wafer line in March 2018 and will transition manufacturing to the 8" ABCD4 technology wafer fab line at Polar Semiconductor LLC (PSL), Bloomington, MN, USA.

2) Allegro will permanently close its wafer probe operations in Worcester, Massachusetts, USA by March 31, 2018. Wafer probe operations will be moved to Allegro MicroSystems Philippines, Inc. (AMPI) located in Manila, Philippines.

What is the part or process changing from (provide details)?

1) Currently the A3921KLPTR-T is manufactured on Polar Semiconductor LLC (PSL), Bloomington, MN, USA 6" wafer fab ABCD4 technology line.

2) Currently the A3921KLPTR-T is probed at Allegro MicroSystems, LLC Worcester, USA

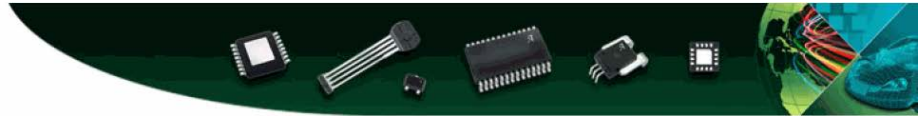
What is the part or process changing to (describe the anticipated impact of this change on form, fit and/or function)?

1) The A3921KLPTR-T will be manufactured on Polar Semiconductor LLC (PSL), Bloomington, MN, USA 8" wafer fab ABCD4 technology line.

2) Probe location for the A3921KLPTR-T will be moved to AMPI. Allegro is utilizing the same probe equipment, test programs and test methodologies in its Philippine facility as is currently being

performed in its US facility. Relocation of probe operations reduces movement of wafers between factories shortening overall cycle time and minimizing wafer handling. All expansions of probe capability and capacity will now occur at AMPI to support Allegro's future business growth.

Note: Validation of equivalence within a specific application is at the discretion of the Customer.



Reliability Qualification Results

Device: 3921 (7821)
Assy Lot #: 1701479UBCA
Number of Leads: 28
Fab Location: PSL

Package: LP (eTSSOP)
Assembly Location: Unisem
Lead Finish: 100% Sn
Tracking Number: 4152

Reason for Qualification: 3921 (7821) - Automotive Full Bridge MOSFET Driver

Reliability Qualification Results						
3921 - (7821), STR#4152						Requirements
Stress Test	Abv.	Test #	Test Method	Test Conditions	S.S.	Results
Preconditioning	PC	A1	JESD22-A113 / J-STD-020	85°C/60% RH, 168 hrs, Peak Reflow=260°C; MSL2, (HAST, AC, TC)	231	0 Rejects
HAST	HAST	A2	JESD22-A110	130°C, 2 ATM, 60% RH, 0, 96 hrs	77	0 Rejects
Autoclave	AC	A3	JESD22-A102	121°C, 100% RH, 15 PSIG, 0, 96 hrs	77	0 Rejects
Temperature Cycle	TC	A4	JESD22-A104	-65°C to +175°C, 0, 500, 1000 Cycles	77	0 Rejects
High Temperature Operating Life	HTOL	B1	JESD22-A108	150°C, 0, 1000 hrs	77	0 Rejects
Early Life Failure Rate	ELFR	B2	AEC-Q100-008 / JESD22-A108	150°C, 0, 48 hrs	800	0 Rejects
Wire Bond Pull	WBP	C2	Mil-Std-883 Method 2011	Temp conditions and sample size are defined in the test method. (after TC)		0 Rejects; Cpk>1.67
Electrostatic Discharge Human Body Model	HBM	E2	AEC-Q100-002	Test Conditions, Sampling Size are defined in the Test Method		Classification 2, HBM = 2.5kV
Electrostatic Discharge Charged Device Model	CDM	E3	AEC-Q100-011	Test Conditions, Sampling Size are defined in the Test Method		Classification = C6, >1kV
Latch-Up	LU	E4	JESD78	Test Conditions, Sampling Size are defined in the Test Method		Class II, Level A
Electrical Distributions	ED	E5	AEC Q100-009	Tri-Temp Electrical Distributions - 30 pcs.		0 Rejects; Cpk>1.67

This device qualification is considered to be passing all environmental stress evaluations per the Allegro MicroSystems qualification specifications and AEC-Q100.

Approved by:

Robert Demers

Robert Demers
 Sr. Product Safety and Reliability
 Allegro MicroSystems, LLC

