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To: Distribution

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RELIABILITY QUALIFICATION REPORT FOR PVY116

The PVY116 device underwent four main tests during the qualification. The tests include Autoclave (AC), Temperature Cycling (TC), High Temperature Reverse Bias (HTRB) and Temperature Humidity Bias (THB) tests. All tests passed reliability tests except 1 assembly related failure at 16 hour AC. The vendor and product group optimized the forming tool in order to optimize the forming process. Validation lot samples were subjected to reliability tests in order to validate the optimization of the forming process. Based on these reliability test results, the PVY116 in 4L_SOP package is qualified and released for production.

The tests conditions and results are as follows:

Rel Test #1 - Autoclave Humidity Test:

Test Condition: 16 Hours of Autoclave @ +121°C, 100%RH and 15 PSIG.

Bias Condition: None, Preconditioning: None

Results:

Qual Vehicles	Package	Lot No.	Lot Description	Hour	SS	Rej	Remarks
PVY116	4L-SOP	ED11864	Qual Lot1	16	20	0	
	4L-SOP	ED14405	Qual Lot2	16	20	0	
	4L-SOP	ED14780	Qual Lot3	16	20	1	S#18 (PVG lot: P110833A) failed Irout. Die crack at the corner of the die caused the leakage of drain to source per CRNY01A555.
	4L-SOP	ED31044	Validation Lot	16	77	0	

International IOR Rectifier

Rel Test #2 - Temperature Cycling:

Test Condition: 1000 cycles between -40°C to 125°C ($\Delta T=165^{\circ}\text{C}$, Dry-Air to Dry-Air)

Bias Condition: None, Preconditioning: None

Results:

Qual Vehicles	Package	Lot No.	Lot Description	Hour	SS	Rej	Remarks
PVY116	4L-SOP	ED11864	Qual Lot1	1000	20	0	
	4L-SOP	ED14405	Qual Lot2	1000	20	0	
	4L-SOP	ED14780	Qual Lot3	1000	20	0	
	4L-SOP	ED31044	Validation Lot	1000	77	0	

Rel Test #3 - High Temperature Reverse Bias (HTRB) Test:

Test Condition: 1008 Hours @ $T_j=110^{\circ}\text{C}$

Bias Condition: $V_{in} = 6$ Volts, $V_{out} (V_{ds}) = 32\text{V}$ Preconditioning: not required

Results:

Qual Vehicles	Package	Lot No.	Lot Description	Hour	SS	Rej	Remarks
PVY116	4L-SOP	ED11864	Qual Lot1	1008	20	0	
	4L-SOP	ED14405	Qual Lot2	1008	20	0	
	4L-SOP	ED14780	Qual Lot3	1008	20	0	
	4L-SOP	ED31044	Validation Lot	1008	77	0	

Rel Test #4 - Temperature Humidity Bias (THB) Test:

Test Condition: 1008 Hours @ $+85^{\circ}\text{C}$ and 85%RH

Bias Condition: $V_{in} = 6$ Volts, $V_{out} (V_{ds}) = 10\text{Volts}$, Preconditioning: None

Results:

Qual Vehicles	Package	Lot No.	Lot Description	Hour	SS	Rej	Remarks
PVY116	4L-SOP	ED11864	Qual Lot1	1008	20	0	
	4L-SOP	ED14405	Qual Lot2	1008	20	0	
	4L-SOP	ED14780	Qual Lot3	1008	20	0	
	4L-SOP	ED31044	Validation Lot	1008	77	0	