

International IOR Rectifier

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To: Distribution

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Reliability Qualification of New Device PVT212 in 6L-PDIP/GW Packages (Project# 3006)

Three qualification lots of PVT212, 1 lot in 6L-PDIP and 2 lots in 6L-GW packages completed Autoclave, Temp-Cycling, THB and HTRB Reliability Tests. All three lots passed AC, TC, THB and HTRB tests except 1 unit of lot1 failed TC. FA was performed on the unit, but it was inconclusive to report the cause of the failure. Based on these reliability test results, the PVT212 in 6L-PDIP and PVT212S in 6L-GW Packages are qualified and released to production. The level of qualification is industrial level.

Each of the test conditions is described below and is accompanied by the summary of test results.

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

Device	Lot Number	Lot Description	Package	Hour	SS	Reject	Remarks
PVT212	B7P	Qual Lot1	6L-PDIP	16	77	0	
	C6Z	Qual Lot2	6L-GW	16	77	0	
	C7A	Qual Lot3	6L-GW	16	77	0	

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

Device	Lot Number	Lot Description	Package	Cycle	SS	Reject	Remarks
PVT212	B7P	Qual Lot1	6L-PDIP	1000	77	1 ^a	1 Irout at 1K cycles
	C6Z	Qual Lot2	6L-GW	1000	77	0	
	C7A	Qual Lot3	6L-GW	1000	77	0	

a. Inconclusive failure analysis.

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Rel Test #3 - Temperature Humidity Bias (THB) Test:

Test Condition: 1008 Hours @ +85°C and 85%RH
 Bias Condition: Vin = 0 Volts, Vout (Vds) = 10Volts, Preconditioning: None
 Note: the THB GW samples were mounted by reflow, 1 pass with the PRT=225C.

Results

Device	Lot Number	Lot Description	Package	Hour	SS	Reject	Remarks
PVT212	B7P	Qual Lot1	6L-PDIP	1008	77	0	
	C6Z	Qual Lot2	6L-GW	1008	77	0	
	C7A	Qual Lot3	6L-GW	1008	77	0	

Rel Test #4 - High Temperature Reverse Bias (HTRB) Test:

Test Condition: 1008 Hours @ +110°C
 Bias Condition: Vin = 0 Volts, Vout (Vds) = 96Volts, Preconditioning: Not required
 Note: the HTRB GW samples were mounted by reflow, 1 pass with the PRT=225C.

Results

Device	Lot Number	Lot Description	Package	Hour	SS	Reject	Remarks
PVT212	B7P	Qual Lot1	6L-PDIP	1008	77	0	
	C6Z	Qual Lot2	6L-GW	1008	77	0	
	C7A	Qual Lot3	6L-GW	1008	77	0	

PVT212/S's DEVICE/LOT INFORMATION

PACKAGES	TYPE	6 LEAD GW 6 LEAD PDIP
	MC MATERIAL	Toshiba KE-95
SILICON TECHNOLOGY/FAB		FET DIE: Gen3 LQ Cells/Fab2 PVG DIE: Gen2/Fab3 LED DIE: 43-7479
ASSEMBLY		Cirtek, Philippines
FT TEST		Cirtek, Philippines
RELIABILITY		IR REL Lab, CA USA
REMARKS:		