

**QR-0002:
 Reliability Qualification Report for
 IRS2153DPBF**

Date: November 1st, 2005

Qualification Vehicle: IRS2153DPBF in 8L-PDIP package:

Based on the reliability test results, the IRS2153DPBF has passed standard International Rectifier industrial-level qualification.

Device and Lot Information

Reliability Number	3612/10238
Product/Part #	IRS2153DPBF
Qualification Level	Lead-Free Industrial per COP800-08-Rev00
Silicon Technology	600 V HVIC
Silicon Generation	Gen 5
Wafer Fab	Fab11
Package	8L-PDIP
Lead Finish Plating	100% Sn
Reliability Test Location	IR Temecula, USA

Reliability Test Results:

Samples from three wafer lots and three assembly lots were tested in the following reliability tests to determine typical lifetime performance under industrial level qualification. The tests samples passed AC, TC, THB and HTB reliability test requirements.

Stress Test Conditions and Results are as follows:

Reliability Test #1 - Autoclave Test (AC):
 Test Duration: 96 Hours
 Test Condition: +121 °C, 100%RH and 15 PSIG
 Bias Condition: None
 Electrical Testing: @ Room

Device	Lot #	Hour	SS	Reject	Remark
IRS2153D	IC0405JE	96	80	0	
	IC0505DJ	96	80	0	
	IC0505DM	96	80	0	

Reliability Test #2 - Temperature Cycling (TC):
 Test Duration: 1000 Cycles
 Test Condition: -55 °C to 150 °C ($\Delta T=205$ °C, Dry-Air to Dry-Air)
 Bias Condition: None
 Electrical Testing: @ Room

Device	Lot #	Cycle	SS	Reject	Remark
IRS2153D	IC0805BW	1000	80	0	
	IC0805BX	1000	80	0	
	IC0805BY	1000	80	0	

Reliability Test #3 - Temperature Humidity Bias (THB) Test:
 Test Duration: 1000 Hours
 Test Condition: 85 °C, 85% RH
 Bias Condition: $V_{CC}/V_B=14$ V
 Electrical Testing: @ Room

Device	Lot ID	Hour	SS	Reject	Remark
IRS2153D	IC0405JE	1000	80	0	
	IC0505DJ	1000	80	0	
	IC0505DM	1000	80	0	

Reliability Test #4 - High Temperature Bias (HTB) Test:
 Test Duration: 1008 Hours
 Test Condition: $T_j=150$ °C
 Bias Condition: $V_{CC}=14$ V, $V_{BS}=14$ V, $V_S=480$ V,
 Electrical Testing: @ Room

Device	Lot ID	Hour	SS	Reject	Remark
IRS2153D	IC0405JE	1000	80	0	
	IC0505DJ	1000	80	0	
	IC0505DM	1000	80	0	

Other Required Tests Results:

- CSAM:** 100% CSAM on Pre AC & TC and sample CSAM after AC, TC & THB Rel Tests – No die top delamination - Passed.
- Destructive Physical Analysis:** on end of test (EOT) of TC and THB tests (SS = 1 unit/test/lot) – Passed (reference report: Q05A531 and 05-3924/3612A-02-B5-1001)
- Resistance to Solder Heat/Wave-Solder:** Test 30 devices from one lot per package/device-vehicle in accordance with JEDEC, JESD22A111 – Passed (reference report: 3237A-04-R9).
- Solderability:** Test 15 devices from one lot per package/device-vehicle in accordance with JESD-106-B – Passed (reference report: 3237A-04-S10).
- ESD:** The following is the results of ESD tests that were performed by the R/D (Design Center) group.

Device: IRS2153DPBF
 Lot# IC05JE
 Number of samples: 3 per test combination
 Test Date: 06/15/04

Human Body Model ESD (100 pF/1500 Ω)	
Test Pin Combination	Rating
All Pin Combinations	2500 V

Machine Model ESD (200 pF/ 0 Ω)	
Test Pin Combination	Rating
VS-HO	100 V
All other pin combinations	500 V

6. **LATCH-UP:** The following is the results of the LU test that was performed by the R/D (Design Center) group.

Device: IRS2153DPBF

Lot#: IC04051B

Number of samples per test: 3 devices per test

HO > VB	Latches up @ 800 mA
HO < VS	Latches up @ 600 mA
LO > VCC	Latches up @ 1.2 A
LO < COM	Latches up @ 1.6 A

End of report.