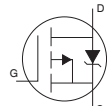


Electrical Characteristics @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

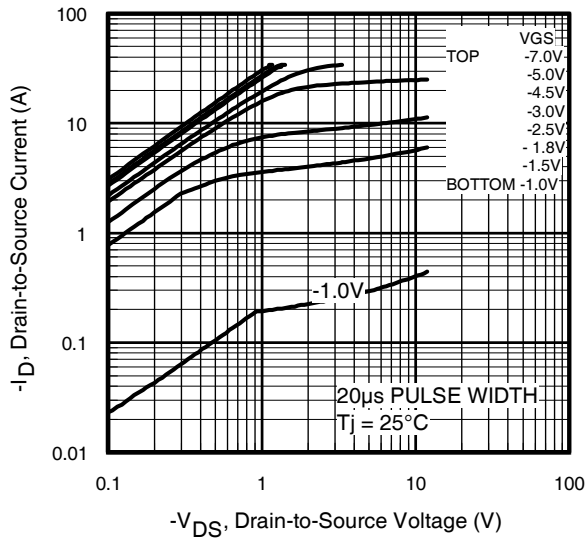
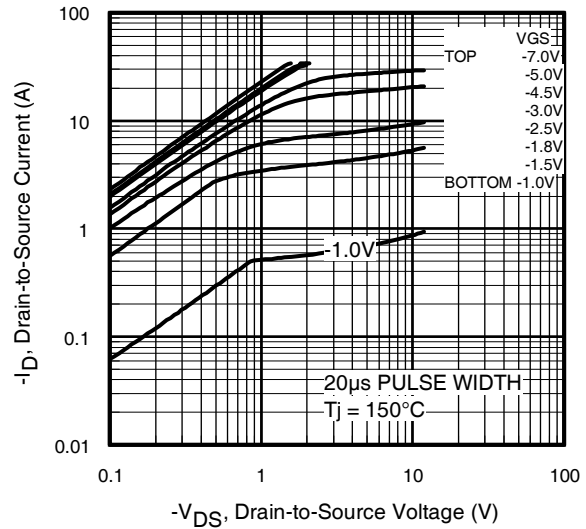
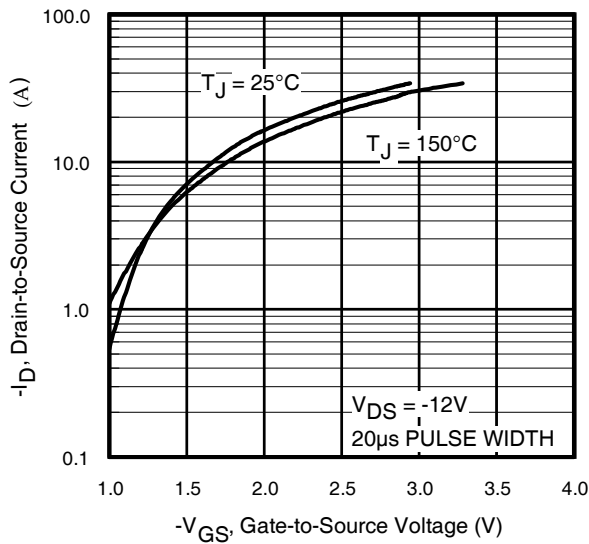
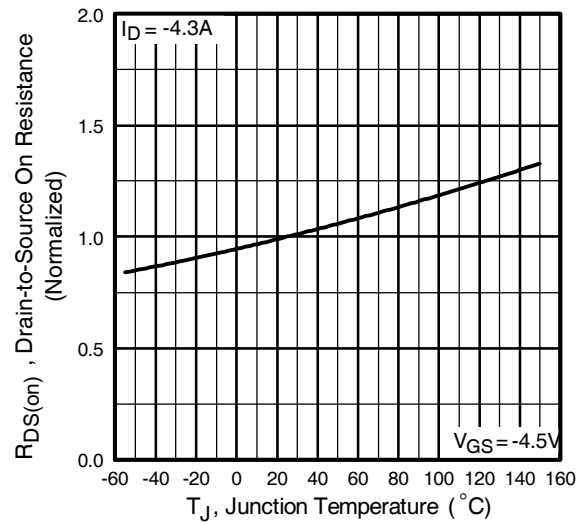
	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	-12	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	-0.007	—	V/ $^\circ\text{C}$	Reference to 25°C , $I_D = -1\text{mA}$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	—	0.050	Ω	$V_{GS} = -4.5V, I_D = -4.3A$ ②
		—	—	0.085		$V_{GS} = -2.5V, I_D = -2.5A$ ②
		—	—	0.125		$V_{GS} = -1.8V, I_D = -2.0A$ ②
$V_{GS(th)}$	Gate Threshold Voltage	-0.40	-0.55	-0.95	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
g_{fs}	Forward Transconductance	8.6	—	—	S	$V_{DS} = -10V, I_D = -4.3A$
I_{DSS}	Drain-to-Source Leakage Current	—	—	-1.0	μA	$V_{DS} = -12V, V_{GS} = 0V$
		—	—	-25		$V_{DS} = -9.6V, V_{GS} = 0V, T_J = 55^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	—	—	-100	nA	$V_{GS} = -8.0V$
	Gate-to-Source Reverse Leakage	—	—	100		$V_{GS} = 8.0V$
Q_g	Total Gate Charge	—	10	15	nC	$I_D = -4.3A$
Q_{gs}	Gate-to-Source Charge	—	1.4	2.1		$V_{DS} = -10V$
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	2.6	3.9		$V_{GS} = -5.0V$ ②
$t_{d(on)}$	Turn-On Delay Time	—	11	—	ns	$V_{DD} = -6.0V$
t_r	Rise Time	—	32	—		$I_D = -1.0A$
$t_{d(off)}$	Turn-Off Delay Time	—	250	—		$R_D = 6.0\Omega$
t_f	Fall Time	—	210	—		$R_G = 89\Omega$ ②
C_{iss}	Input Capacitance	—	830	—	pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance	—	180	—		$V_{DS} = -10V$
C_{rss}	Reverse Transfer Capacitance	—	125	—		$f = 1.0\text{MHz}$

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	-1.3	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	-34		
V_{SD}	Diode Forward Voltage	—	—	-1.2	V	$T_J = 25^\circ\text{C}, I_S = -1.3A, V_{GS} = 0V$ ②
t_{rr}	Reverse Recovery Time	—	22	33	ns	$T_J = 25^\circ\text{C}, I_F = -1.3A$
Q_{rr}	Reverse Recovery Charge	—	8.0	12	nC	$di/dt = -100A/\mu s$ ②

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.
- ③ Surface mounted on 1" square single layer 1oz. copper FR4 board, steady state.
- ④ Starting $T_J = 25^\circ\text{C}$, $L = 3.5\text{mH}$
 $R_G = 25\Omega$, $I_{AS} = -4.3A$.


Fig 1. Typical Output Characteristics

Fig 2. Typical Output Characteristics

Fig 3. Typical Transfer Characteristics

Fig 4. Normalized On-Resistance Vs. Temperature

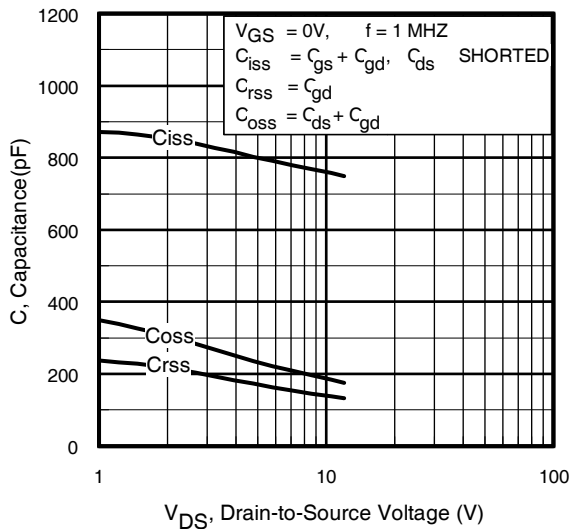


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

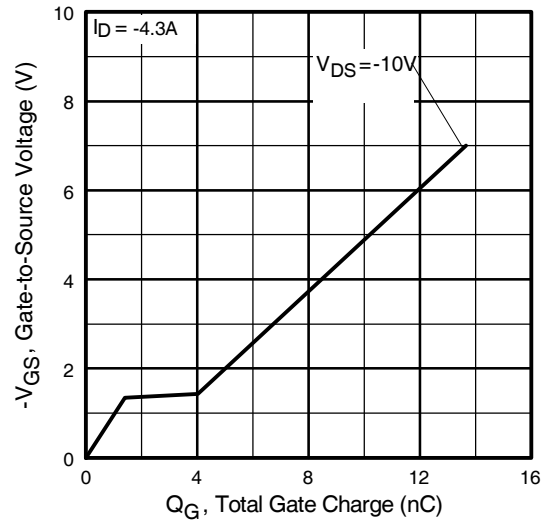


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

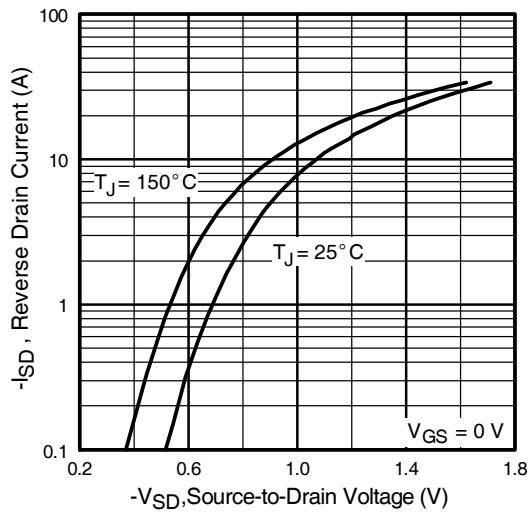


Fig 7. Typical Source-Drain Diode Forward Voltage

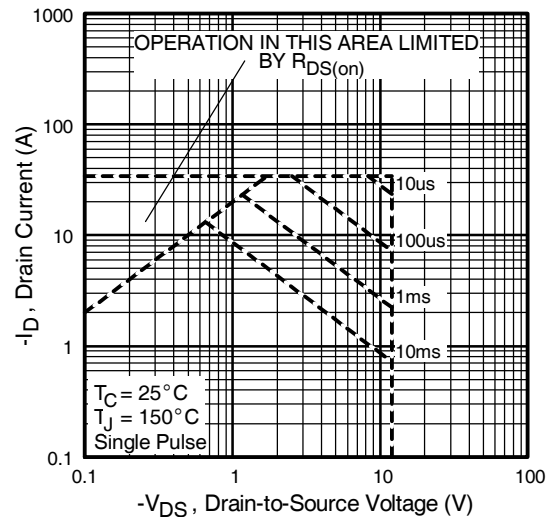


Fig 8. Maximum Safe Operating Area

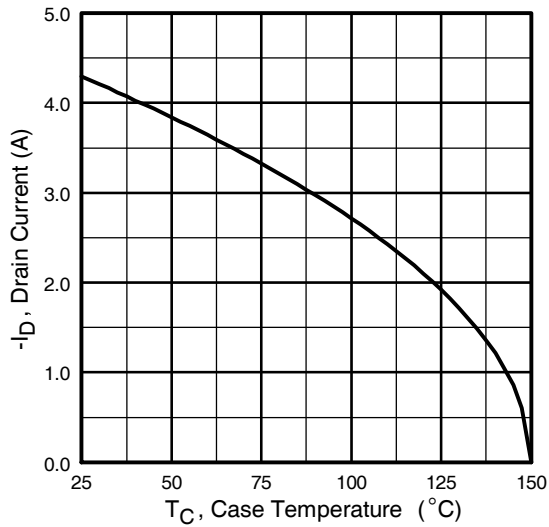


Fig 9. Maximum Drain Current Vs. Case Temperature

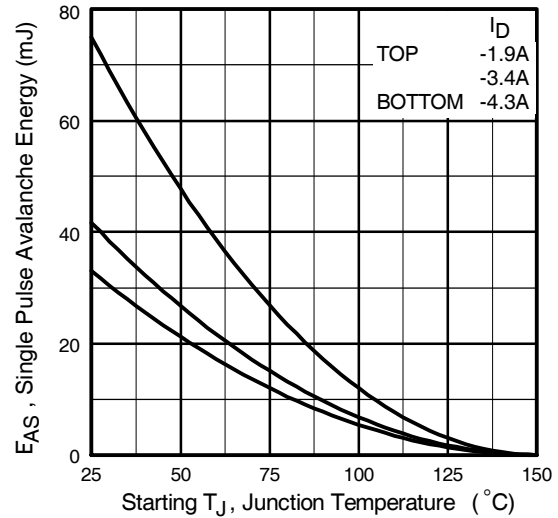


Fig 10. Maximum Avalanche Energy Vs. Drain Current

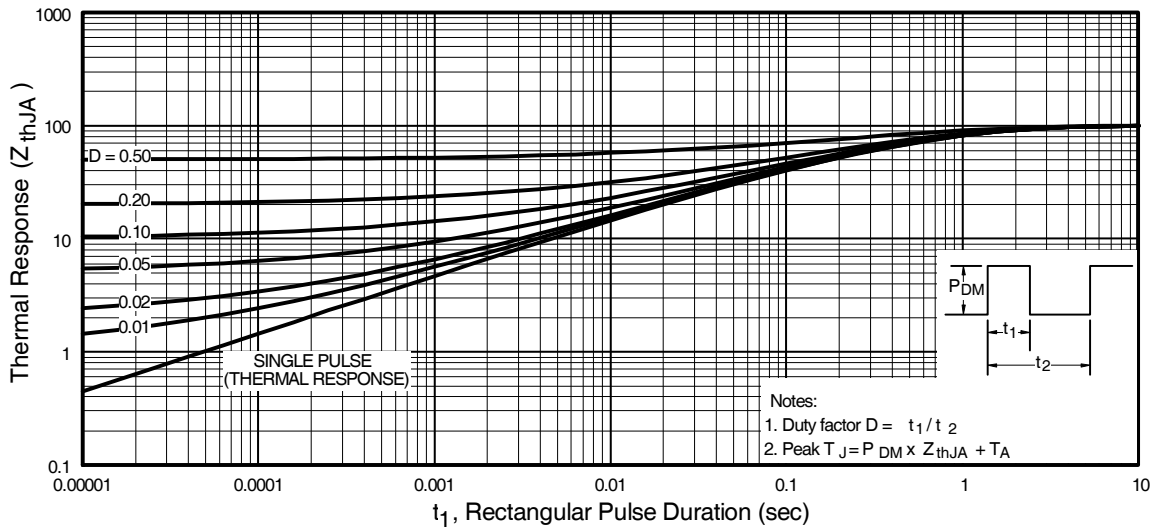


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

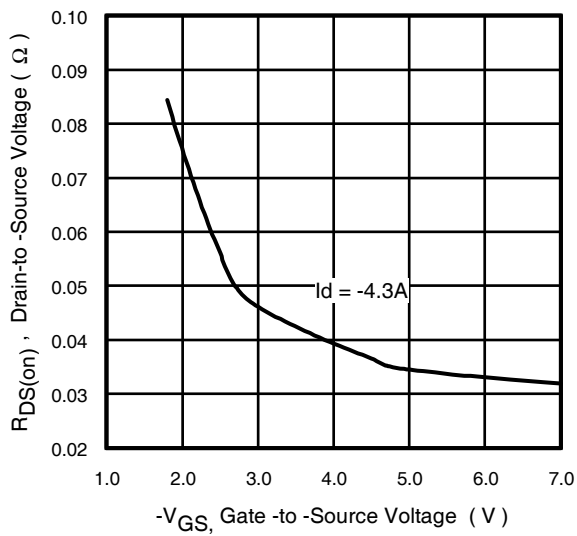


Fig 12. Typical On-Resistance Vs. Gate Voltage

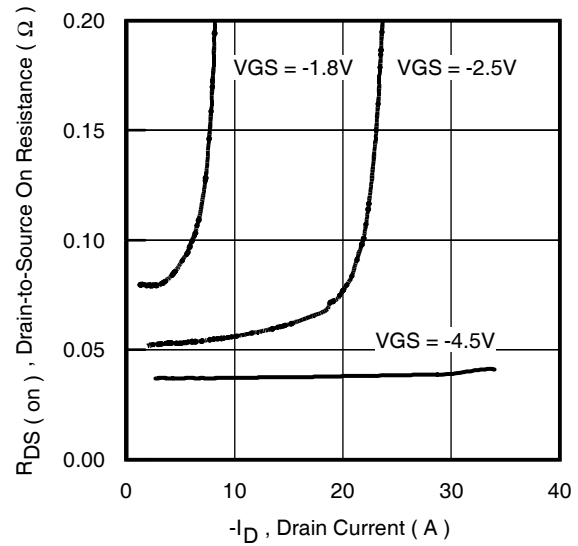


Fig 13. Typical On-Resistance Vs. Drain Current

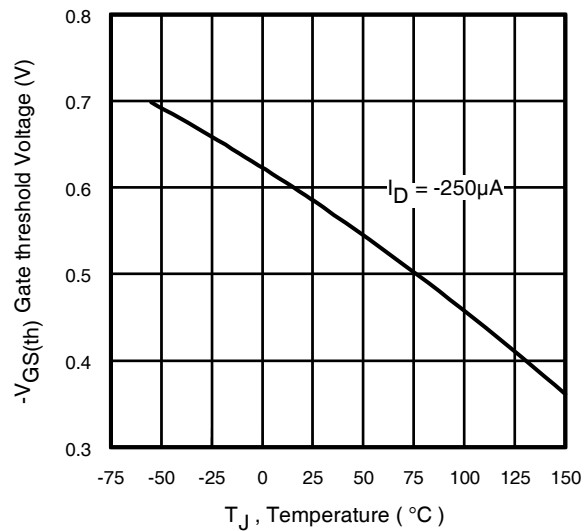
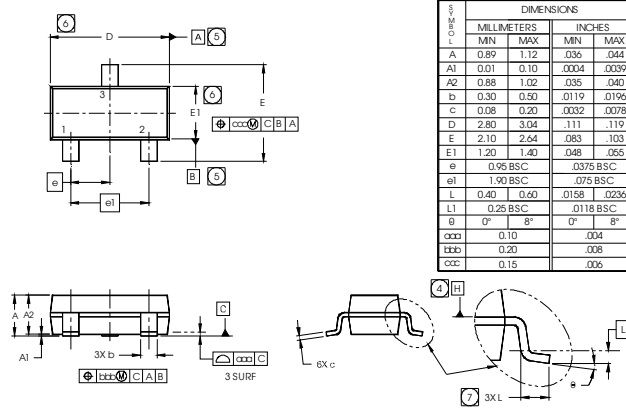


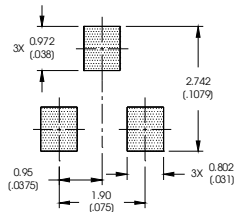
Fig 14. Typical Threshold Voltage Vs. Junction Temperature

Micro3 (SOT-23) (Lead-Free) Package Outline

Dimensions are shown in millimeters (inches)



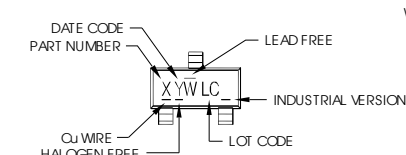
RECOMMENDED FOOTPRINT



NOTES

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
2. DIMENSIONS ARE SHOWN IN MILLIMETERS AND INCHES.
3. CONTROLLING DIMENSION: MILLIMETER.
4. DATUM PLANE H IS LOCATED AT THE MOLD PARTING LINE.
5. DATUM A AND B TO BE DETERMINED AT DATUM PLANE H.
6. DIMENSIONS D AND E1 ARE MEASURED AT DATUM PLANE H.
7. DIMENSION L IS THE LEAD LENGTH FOR SOLDERING TO A SUBSTRATE.
8. OUTLINE CONFORMS TO JEDEC OUTLINE TO-236AB.

Micro3 (SOT-23 / TO-236AB) Part Marking Information



X = PART NUMBER CODE REFERENCE:

A = IRLML2402	S = IRLML6244
B = IRLML2803	T = IRLML6246
C = IRLML6302	U = IRLML6344
D = IRLML5103	V = IRLML6346
E = IRLML6402	W = IRFML8244
F = IRLML6401	X = IRLML2244
G = IRLML2502	Y = IRLML2246
H = IRLML5203	Z = IRFML9244
I = IRLML0030	
J = IRLML2030	
K = IRLML0100	
L = IRLML0060	
M = IRLML0040	
N = IRLML2060	
P = IRLML9301	
R = IRLML9303	

Note: A line above the work week (as shown here) indicates Lead-Free.

W = (1-26) IF PRECEDED BY LAST DIGIT OF CALENDAR YEAR

YEAR	Y	WORK WEEK	W
2011	2001	1	01
2012	2002	2	02
2013	2003	3	03
2014	2004	4	04
2015	2005	5	
2016	2006	6	
2017	2007	7	
2018	2008	8	
2019	2009	9	
2020	2010	0	24
			25
			26
			X
			Y
			Z

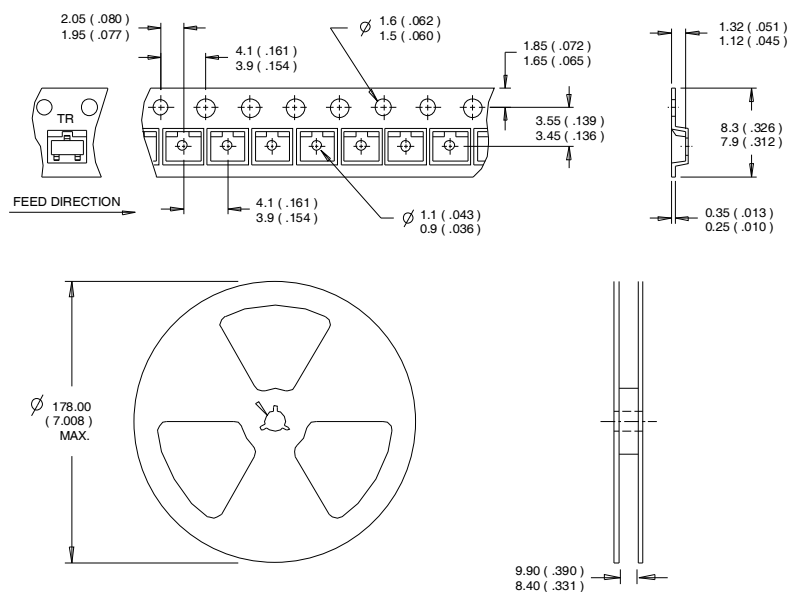
W = (27-52) IF PRECEDED BY A LETTER

YEAR	Y	WORK WEEK	W
2011	2001	A	27
2012	2002	B	28
2013	2003	C	29
2014	2004	D	30
2015	2005	E	
2016	2006	F	
2017	2007	G	
2018	2008	H	
2019	2009	J	
2020	2010	K	50
			51
			52
			X
			Y
			Z

Note: For the most current drawing please refer to IR website at <http://www.irf.com/package/>

Micro3™ Tape & Reel Information

Dimensions are shown in millimeters (inches)



NOTES:
1. CONTROLLING DIMENSION : MILLIMETER.
2. OUTLINE CONFORMS TO EIA-481 & EIA-541.

Note: For the most current drawing please refer to IR website at: <http://www.irf.com/package/>

Qualification information[†]

Qualification level	Industrial (per JEDEC JESD47F ^{††} guidelines)	
Moisture Sensitivity Level	Micro3™ (SOT-23)	MSL1 (per JEDEC J-STD-020D ^{††})
RoHS compliant	Yes	

[†] Qualification standards can be found at International Rectifier's web site: <http://www.irf.com/product-info/reliability>

^{††} Applicable version of JEDEC standard at the time of product release

Revision History

Date	Comment
10/28/2014	• Updated partmarking to reflect Industrial partmarking on page 7.

International
 Rectifier

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To contact International Rectifier, please visit <http://www.irf.com/whoto-call/>