

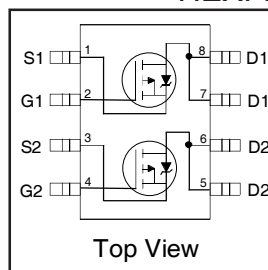
- Advanced Process Technology
- Ultra Low On-Resistance
- Dual P Channel MOSFET
- Surface Mount
- Available in Tape & Reel
- 150°C Operating Temperature
- Lead-Free

Description

These HEXFET® Power MOSFET's in a Dual SO-8 package utilize the latest processing techniques to achieve extremely low on-resistance per silicon area. Additional features of these HEXFET Power MOSFET's are a 150°C junction operating temperature, fast switching speed and improved repetitive avalanche rating. These benefits combine to make this design an extremely efficient and reliable device for use in a wide variety of other applications.

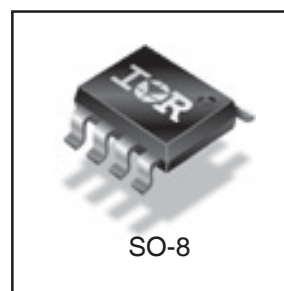
The efficient SO-8 package provides enhanced thermal characteristics and dual MOSFET die capability making it ideal in a variety of power applications. This dual, surface mount SO-8 can dramatically reduce board space and is also available in Tape & Reel.

HEXFET® Power MOSFET



$$V_{DS} = -55V$$

$$R_{DS(on)} = 0.105\Omega$$



Base Part Number	Package Type	Standard Pack		Orderable Part Number	EOL Notice
		Form	Quantity		
IRF7342QPbF	SO-8	Tube/Bulk	95	IRF7342QPbF	EOL 529
IRF7342QPbF	SO-8	Tape and Reel	4000	IRF7342QTRPbF	

Absolute Maximum Ratings

	Parameter	Max.	Units
V_{DS}	Drain- Source Voltage	-55	V
$I_D @ T_C = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	-3.4	A
$I_D @ T_C = 70^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	-2.7	
I_{DM}	Pulsed Drain Current ①	-27	
$P_D @ T_C = 25^\circ C$	Power Dissipation	2.0	W
$P_D @ T_C = 70^\circ C$	Power Dissipation	1.3	
	Linear Derating Factor	0.016	
V_{GS}	Gate-to-Source Voltage	± 20	V
V_{GSM}	Gate-to-Source Voltage Single Pulse $t_p < 10\mu s$	30	V
E_{AS}	Single Pulse Avalanche Energy ②	114	
dv/dt	Peak Diode Recovery dv/dt ③	5.0	V/ns
T_J, T_{STG}	Junction and Storage Temperature Range	-55 to + 150	$^\circ C$

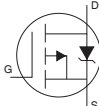
Thermal Resistance

	Parameter	Typ.	Max.	Units
$R_{\theta JA}$	Maximum Junction-to-Ambient ⑤	—	62.5	$^\circ C/W$

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	-55	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	-0.054	—	V/°C	Reference to 25°C , $I_D = -1mA$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	0.095	0.105	Ω	$V_{GS} = -10V, I_D = -3.4A$ ④
		—	0.150	0.170		$V_{GS} = -4.5V, I_D = -2.7A$ ④
$V_{GS(th)}$	Gate Threshold Voltage	-1.0	—	—	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
g_{fs}	Forward Transconductance	3.3	—	—	S	$V_{DS} = -10V, I_D = -3.1A$
I_{DSS}	Drain-to-Source Leakage Current	—	—	-2.0	μA	$V_{DS} = -55V, V_{GS} = 0V$
		—	—	-25		$V_{DS} = -55V, V_{GS} = 0V, T_J = 55^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	—	—	-100	nA	$V_{GS} = -20V$
	Gate-to-Source Reverse Leakage	—	—	100		$V_{GS} = 20V$
Q_g	Total Gate Charge	—	26	38	nC	$I_D = -3.1A$
Q_{gs}	Gate-to-Source Charge	—	3.0	4.5		$V_{DS} = -44V$
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	8.4	13		$V_{GS} = -10V$, See Fig. 10 ④
$t_{d(on)}$	Turn-On Delay Time	—	14	22	ns	$V_{DD} = -28V$
t_r	Rise Time	—	10	15		$I_D = -1.0A$
$t_{d(off)}$	Turn-Off Delay Time	—	43	64		$R_G = 6.0\Omega$
t_f	Fall Time	—	22	32		$R_D = 16\Omega$, ④
C_{iss}	Input Capacitance	—	690	—	pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance	—	210	—		$V_{DS} = -25V$
C_{rss}	Reverse Transfer Capacitance	—	86	—		$f = 1.0MHz$, See Fig. 9

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	-2.0	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	-27		
V_{SD}	Diode Forward Voltage	—	—	-1.2	V	$T_J = 25^\circ\text{C}, I_S = -2.0A, V_{GS} = 0V$ ③
t_{rr}	Reverse Recovery Time	—	54	80	ns	$T_J = 25^\circ\text{C}, I_F = -2.0A$
Q_{rr}	Reverse Recovery Charge	—	85	130	nC	$di/dt = -100A/\mu s$ ③

Notes:

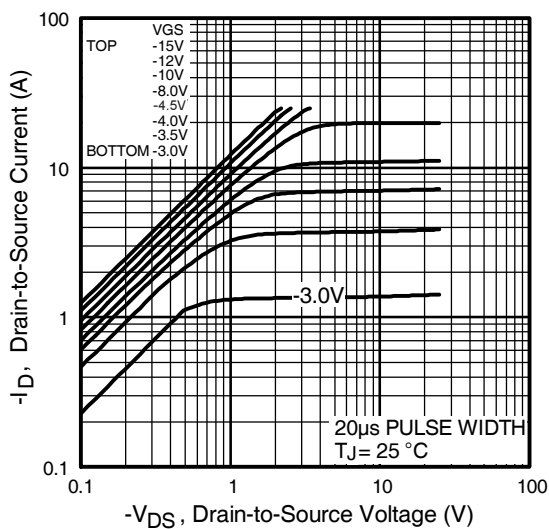
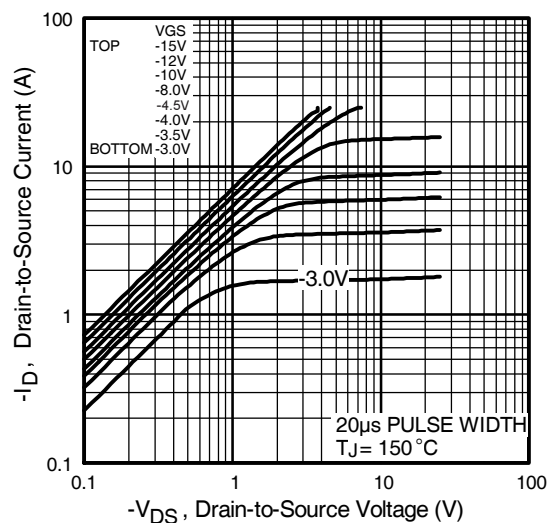
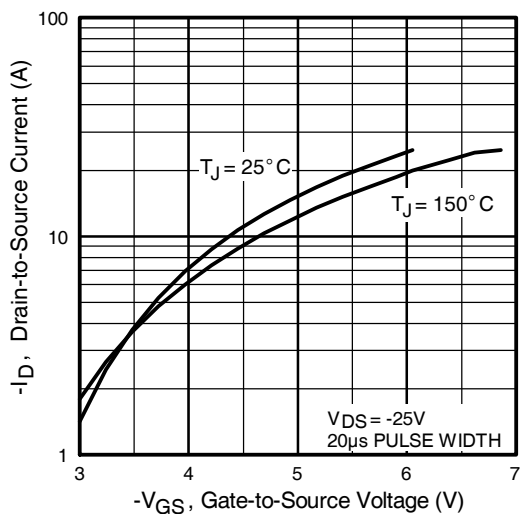
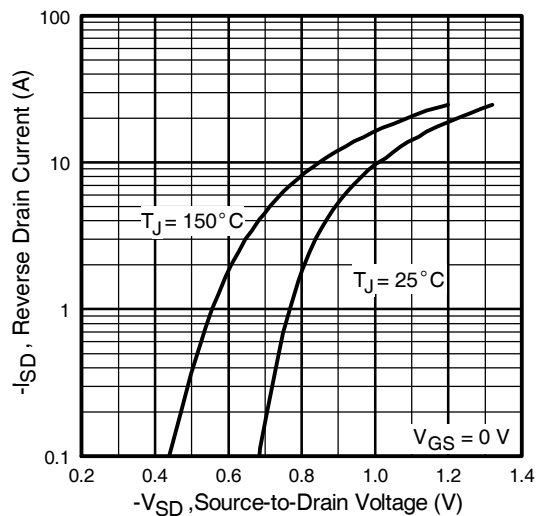
① Repetitive rating; pulse width limited by max. junction temperature. (See fig. 11)

② Starting $T_J = 25^\circ\text{C}$, $L = 20mH$
 $R_G = 25\Omega$, $I_{AS} = -3.4A$. (See Figure 8)

③ $I_{SD} \leq -3.4A$, $di/dt \leq -150A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$,
 $T_J \leq 150^\circ\text{C}$

④ Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.

⑤ When mounted on 1 inch square copper board, $t < 10$ sec


Fig 1. Typical Output Characteristics

Fig 2. Typical Output Characteristics

Fig 3. Typical Transfer Characteristics

Fig 4. Typical Source-Drain Diode Forward Voltage

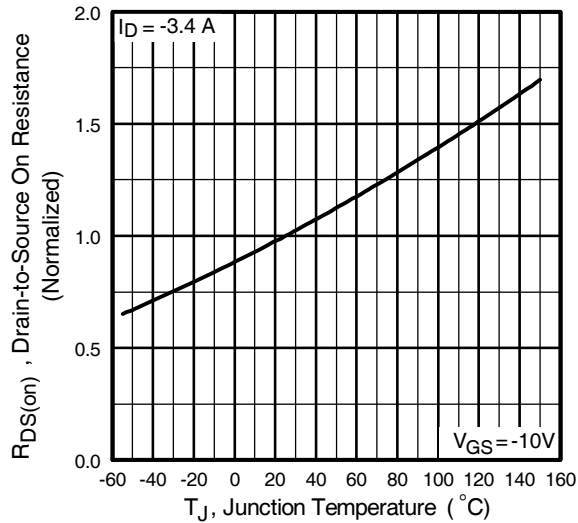


Fig 5. Normalized On-Resistance Vs. Temperature

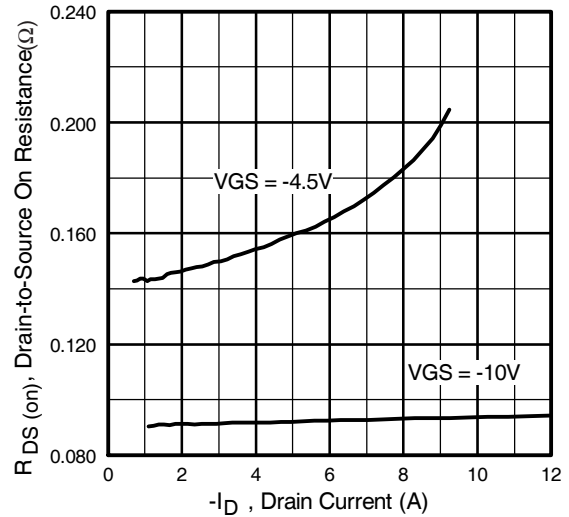


Fig 6. Typical On-Resistance Vs. Drain Current

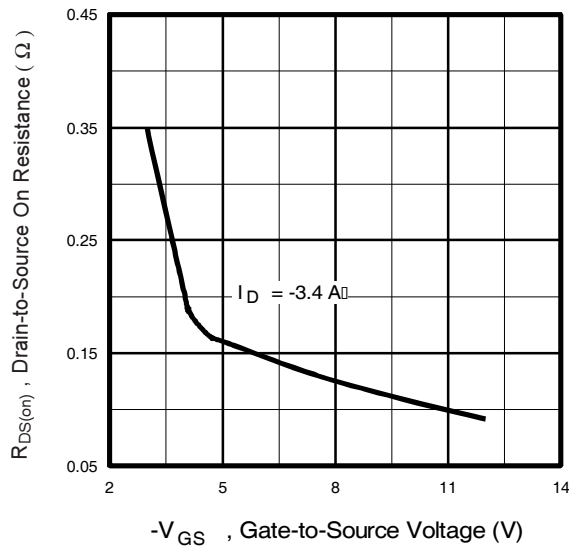


Fig 7. Typical On-Resistance Vs. Gate Voltage

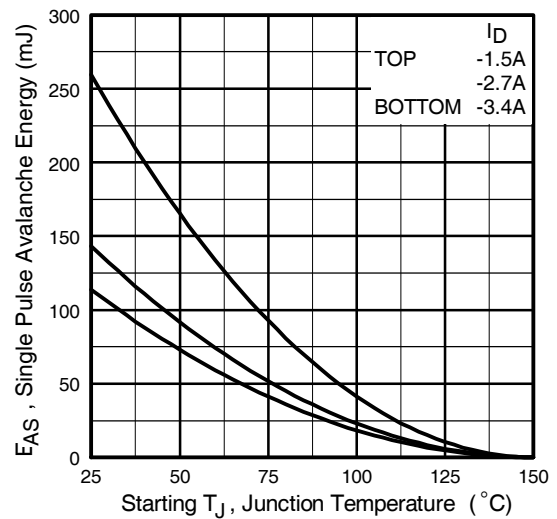


Fig 8. Maximum Avalanche Energy Vs. Drain Current

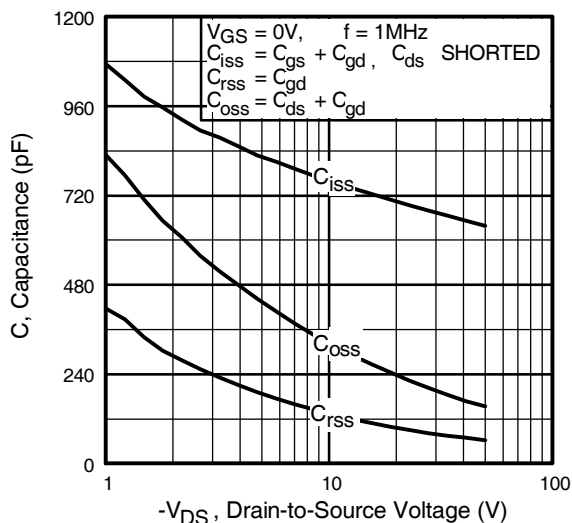


Fig 9. Typical Capacitance Vs. Drain-to-Source Voltage

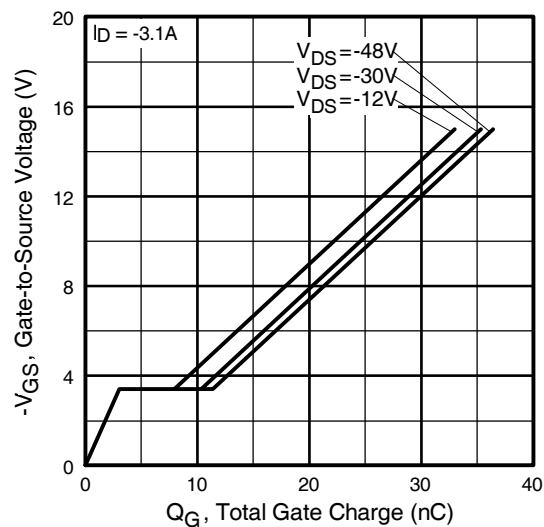


Fig 10. Typical Gate Charge Vs. Gate-to-Source Voltage

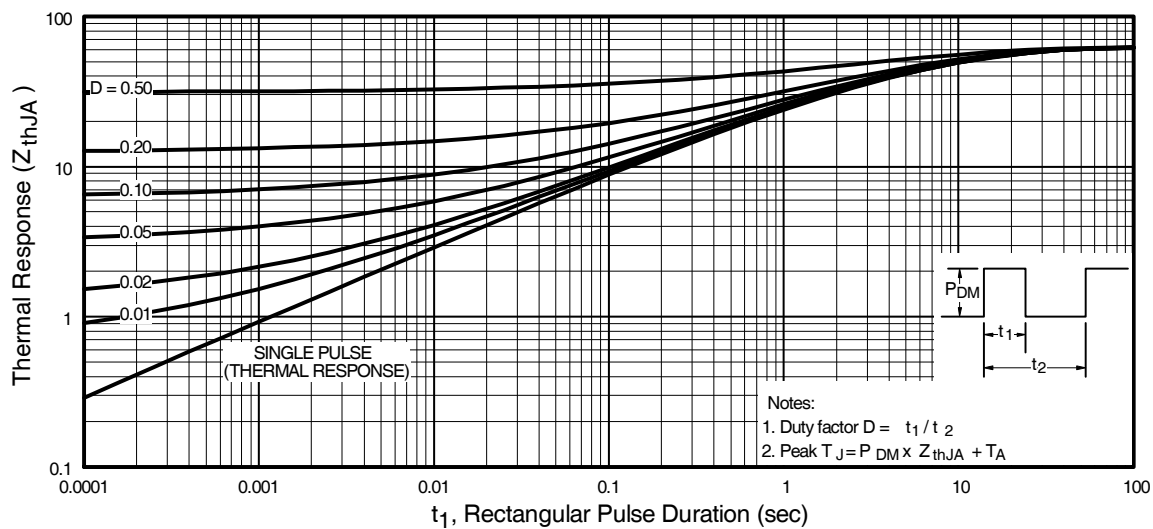
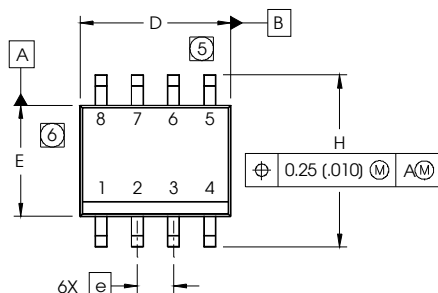


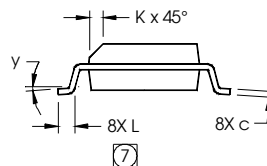
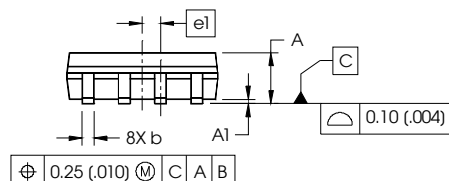
Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

SO-8 Package Outline

Dimensions are shown in millimeters (inches)

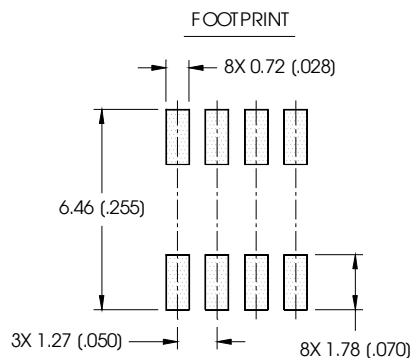


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40	1.27
y	0°	8°	0°	8°



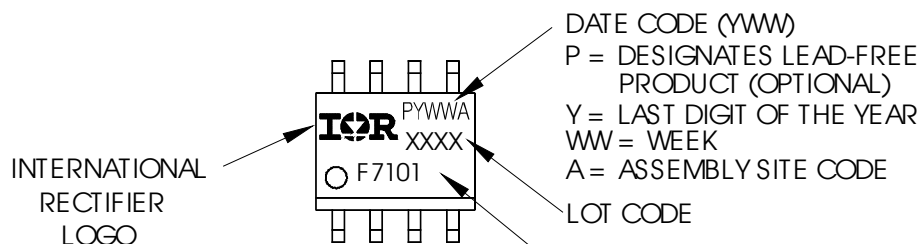
NOTES:

1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: MILLIMETER
3. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA
- ⑤ DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 (.006).
- ⑥ DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.25 (.010).
- ⑦ DIMENSION IS THE LENGTH OF LEAD FOR SOLDERING TO A SUBSTRATE.



SO-8 Part Marking

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

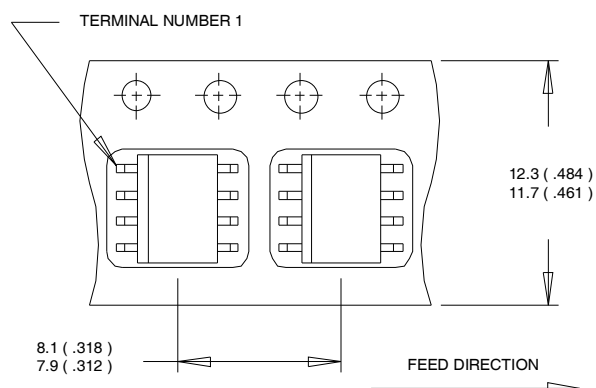


Note:

1. For an Automotive Qualified version of this part please see : <http://www.irf.com/product-info/auto/>
2. For the most current drawing please refer to IR website at: <http://www.irf.com/package/>

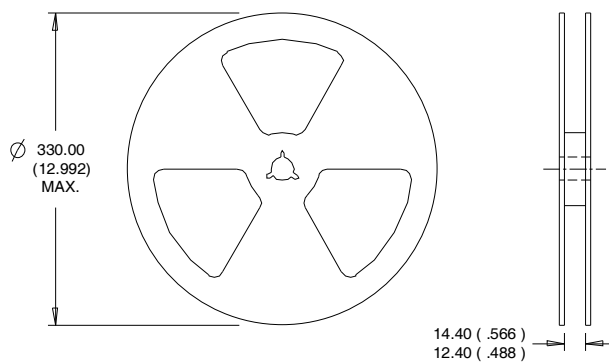
SO-8 Tape and Reel

Dimensions are shown in millimeters (inches)



NOTES:

1. CONTROLLING DIMENSION : MILLIMETER.
2. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS(INCHES).
3. OUTLINE CONFORMS TO EIA-481 & EIA-541.



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	SO-8	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
8/22/2014	- Updated data sheet based on corporate template. - Added Qual level on page 8. - Added ordering information and updated to reflect the End-Of-life (EOL) of the Tube option (EOL notice #529) on page1.

International
 Rectifier

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