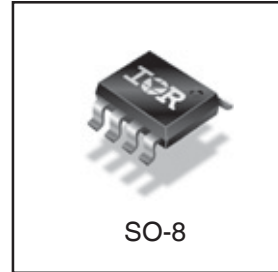
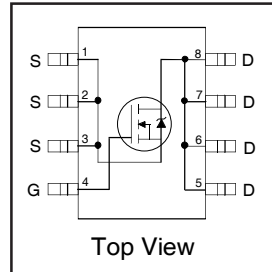


$V_{DS}$	40	V
$R_{DS(on) \max}$ (@ $V_{GS} = 10V$ )	17	m $\Omega$
$R_{DS(on) \max}$ (@ $V_{GS} = 4.5V$ )	21	
$Q_g$ (typical)	15	nC
$I_D$ (@ $T_A = 25^\circ C$ )	9.0	A

### HEXFET<sup>®</sup> Power MOSFET



#### Features

Industry-standard pinout SO-8 Package
Compatible with Existing Surface Mount Techniques
RoHS Compliant, Halogen-Free
MSL1, Industrial qualification



#### Benefits

Multi-Vendor Compatibility
Easier Manufacturing
Environmentally Friendlier
Increased Reliability

Base Part Number	Package Type	Standard Pack		Orderable Part Number
		Form	Quantity	
IRF7469PbF-1	SO-8	Tube/Bulk	95	IRF7469PbF-1
		Tape and Reel	4000	IRF7469TRPbF-1

### Absolute Maximum Ratings

Symbol	Parameter	Max.	Units
$V_{DS}$	Drain-Source Voltage	40	V
$V_{GS}$	Gate-to-Source Voltage	$\pm 20$	V
$I_D @ T_A = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	9.0	A
$I_D @ T_A = 70^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	7.3	
$I_{DM}$	Pulsed Drain Current <sup>①</sup>	73	
$P_D @ T_A = 25^\circ C$	Maximum Power Dissipation <sup>③</sup>	2.5	W
$P_D @ T_A = 70^\circ C$	Maximum Power Dissipation <sup>③</sup>	1.6	W
	Linear Derating Factor	0.02	mW/ $^\circ C$
$T_J, T_{STG}$	Junction and Storage Temperature Range	-55 to +150	$^\circ C$

### Thermal Resistance

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JL}$	Junction-to-Drain Lead	—	20	$^\circ C/W$
$R_{\theta JA}$	Junction-to-Ambient <sup>④</sup>	—	50	

Notes <sup>①</sup> through <sup>④</sup> are on page 8

**Static @ T<sub>J</sub> = 25°C (unless otherwise specified)**

	Parameter	Min.	Typ.	Max.	Units	Conditions
V <sub>(BR)DSS</sub>	Drain-to-Source Breakdown Voltage	40	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA
ΔV <sub>(BR)DSS</sub> /ΔT <sub>J</sub>	Breakdown Voltage Temp. Coefficient	—	0.04	—	V/°C	Reference to 25°C, I <sub>D</sub> = 1mA
R <sub>DS(on)</sub>	Static Drain-to-Source On-Resistance	—	12	17	mΩ	V <sub>GS</sub> = 10V, I <sub>D</sub> = 9.0A ③
		—	15.5	21		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 7.2A ③
V <sub>GS(th)</sub>	Gate Threshold Voltage	1.0	—	3.0	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA
I <sub>DSS</sub>	Drain-to-Source Leakage Current	—	—	20	μA	V <sub>DS</sub> = 32V, V <sub>GS</sub> = 0V
		—	—	100		V <sub>DS</sub> = 32V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 125°C
I <sub>GSS</sub>	Gate-to-Source Forward Leakage	—	—	200	nA	V <sub>GS</sub> = 16V
	Gate-to-Source Reverse Leakage	—	—	-200		V <sub>GS</sub> = -16V

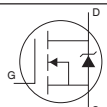
**Dynamic @ T<sub>J</sub> = 25°C (unless otherwise specified)**

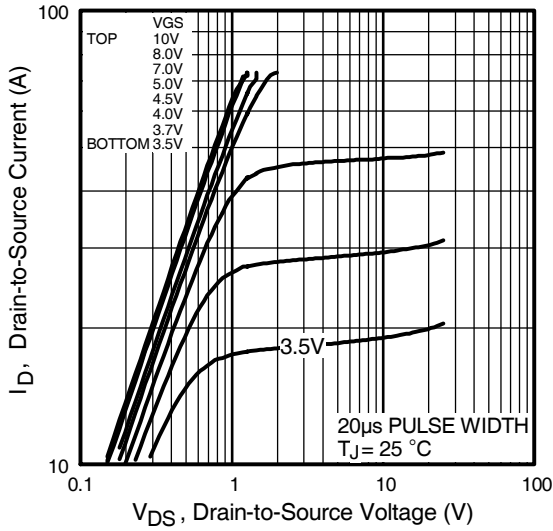
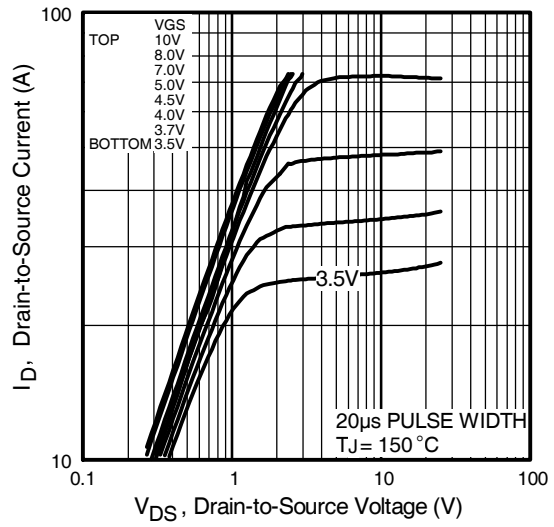
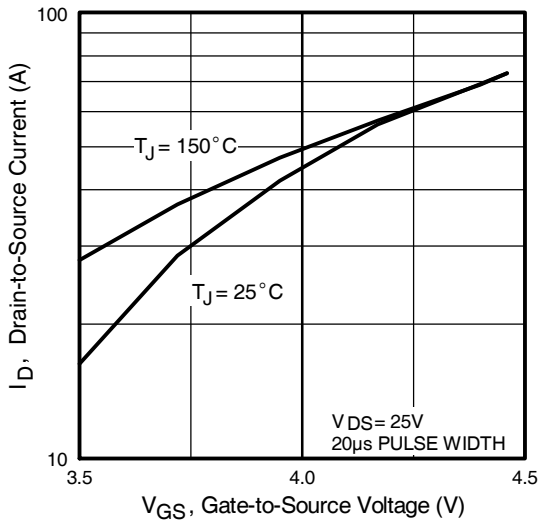
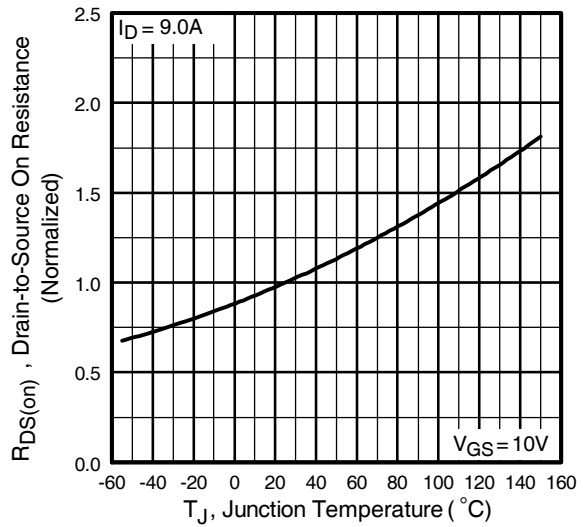
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
g <sub>fs</sub>	Forward Transconductance	17	—	—	S	V <sub>DS</sub> = 20V, I <sub>D</sub> = 7.2A
Q <sub>g</sub>	Total Gate Charge	—	15	23	nC	I <sub>D</sub> = 7.2A
Q <sub>gs</sub>	Gate-to-Source Charge	—	7.0	11		V <sub>DS</sub> = 20V
Q <sub>gd</sub>	Gate-to-Drain ("Miller") Charge	—	5.0	8.0		V <sub>GS</sub> = 4.5V ③
Q <sub>oss</sub>	Output Gate Charge	—	16	24		V <sub>GS</sub> = 0V, V <sub>DS</sub> = 16V
t <sub>d(on)</sub>	Turn-On Delay Time	—	11	—	ns	V <sub>DD</sub> = 20V
t <sub>r</sub>	Rise Time	—	2.2	—		I <sub>D</sub> = 7.2A
t <sub>d(off)</sub>	Turn-Off Delay Time	—	14	—		R <sub>G</sub> = 1.8Ω
t <sub>f</sub>	Fall Time	—	3.5	—		V <sub>GS</sub> = 4.5V ③
C <sub>iss</sub>	Input Capacitance	—	2000	—	pF	V <sub>GS</sub> = 0V
C <sub>oss</sub>	Output Capacitance	—	480	—		V <sub>DS</sub> = 20V
C <sub>rss</sub>	Reverse Transfer Capacitance	—	28	—		f = 1.0MHz

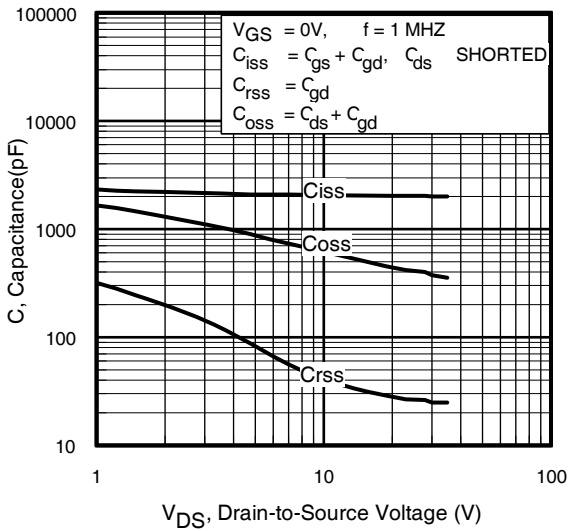
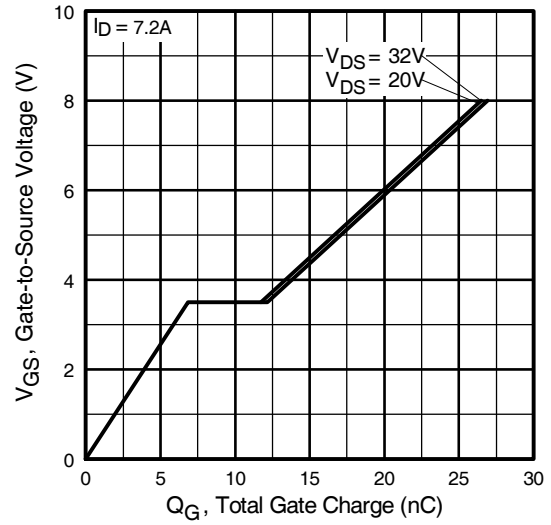
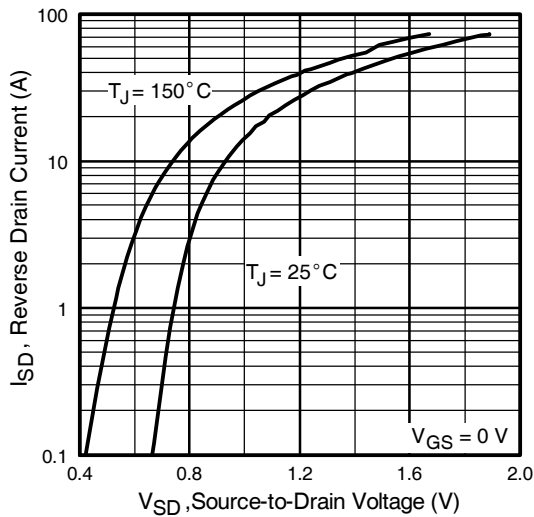
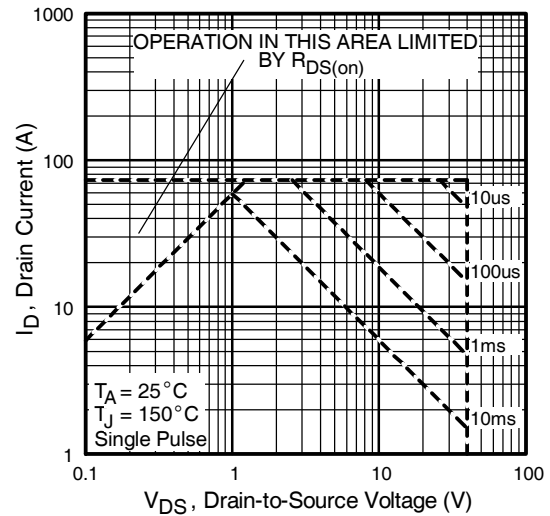
**Avalanche Characteristics**

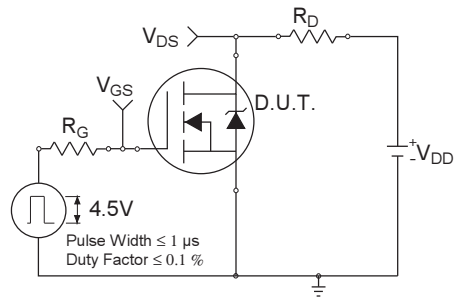
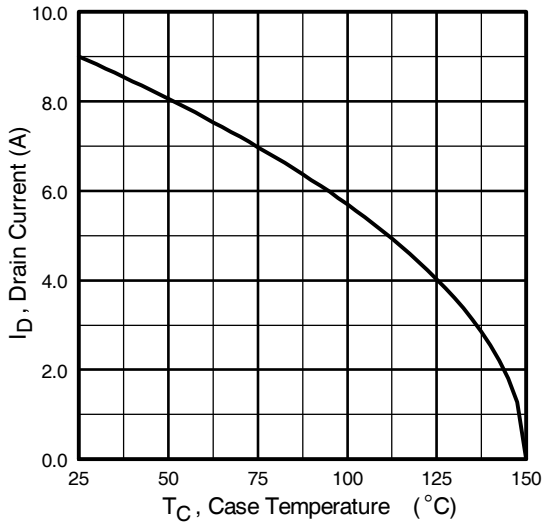
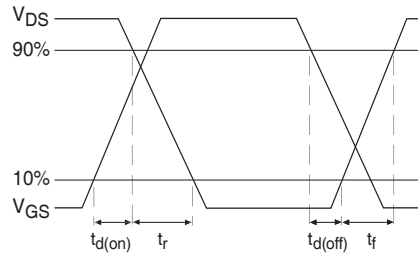
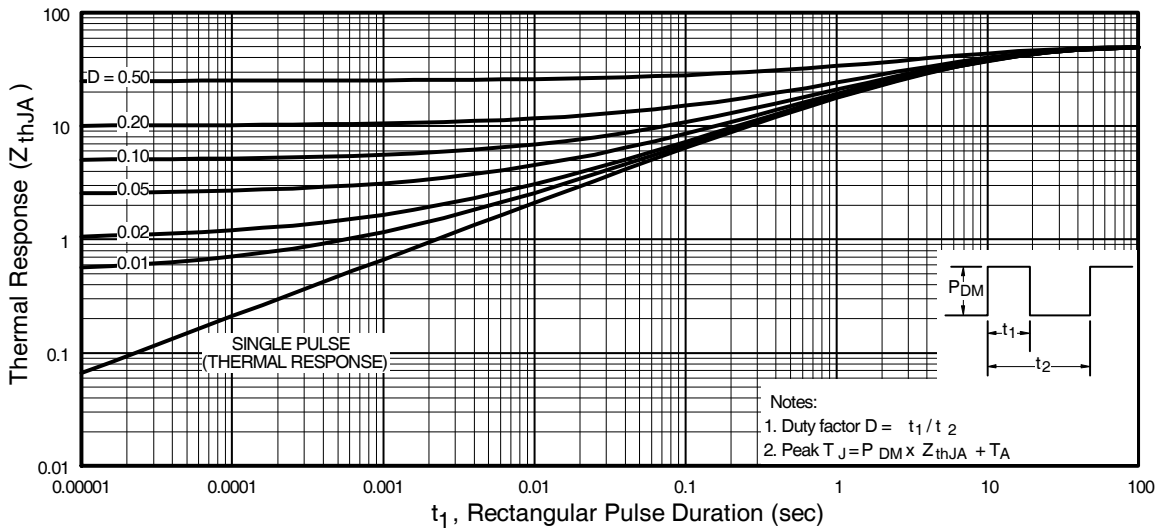
Symbol	Parameter	Typ.	Max.	Units
E <sub>AS</sub>	Single Pulse Avalanche Energy②	—	210	mJ
I <sub>AR</sub>	Avalanche Current①	—	7.2	A

**Diode Characteristics**

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I <sub>S</sub>	Continuous Source Current (Body Diode)	—	—	2.3	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I <sub>SM</sub>	Pulsed Source Current (Body Diode) ①	—	—	73		
V <sub>SD</sub>	Diode Forward Voltage	—	0.80	1.3	V	T <sub>J</sub> = 25°C, I <sub>S</sub> = 7.2A, V <sub>GS</sub> = 0V ③
		—	0.65	—		T <sub>J</sub> = 125°C, I <sub>S</sub> = 7.2A, V <sub>GS</sub> = 0V ③
t <sub>rr</sub>	Reverse Recovery Time	—	47	71	ns	T <sub>J</sub> = 25°C, I <sub>F</sub> = 7.2A, V <sub>R</sub> = 15V
Q <sub>rr</sub>	Reverse Recovery Charge	—	91	140	nC	di/dt = 100A/μs ③
t <sub>rr</sub>	Reverse Recovery Time	—	77	120	ns	T <sub>J</sub> = 125°C, I <sub>F</sub> = 7.2A, V <sub>R</sub> = 20V
Q <sub>rr</sub>	Reverse Recovery Charge	—	150	230	nC	di/dt = 100A/μs ③


**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 10a. Switching Time Test Circuit**

**Fig 10b. Switching Time Waveforms**

**Fig 10. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient**

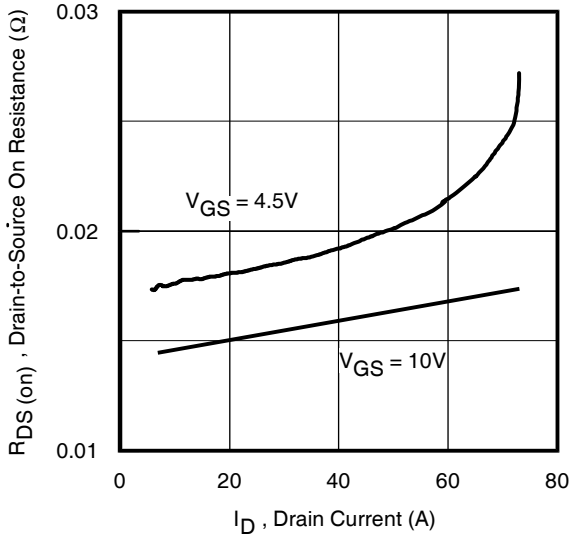


Fig 12. On-Resistance Vs. Drain Current

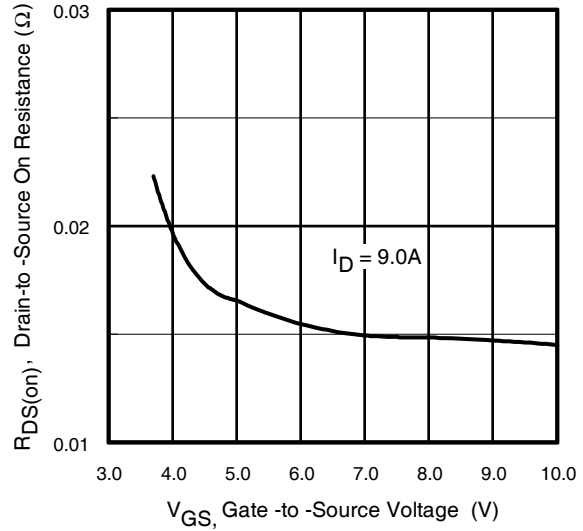


Fig 13. On-Resistance Vs. Gate Voltage

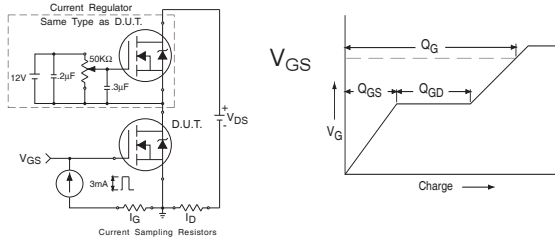


Fig 13a&b. Basic Gate Charge Test Circuit and Waveform

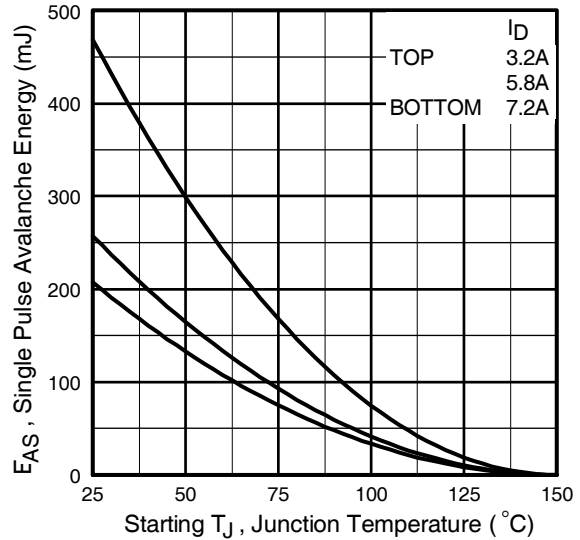


Fig 14c. Maximum Avalanche Energy Vs. Drain Current

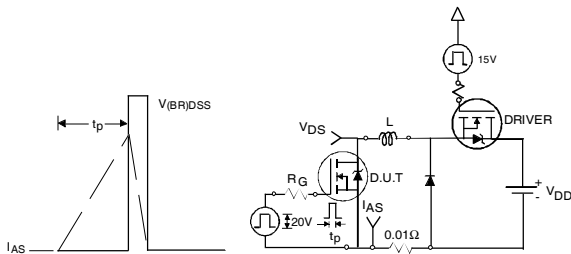
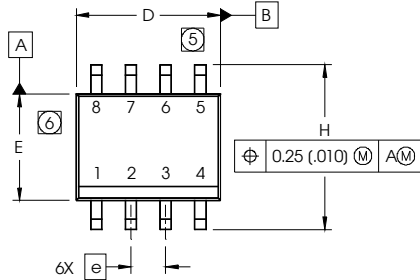


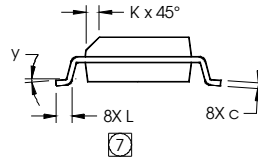
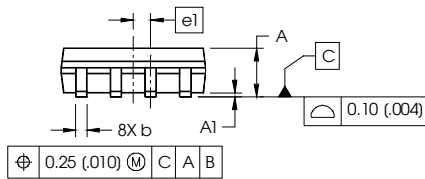
Fig 14a&b. Unclamped Inductive Test circuit and Waveforms

## SO-8 Package Outline (MOSFET & Fetky)

Dimensions are shown in millimeters (inches)

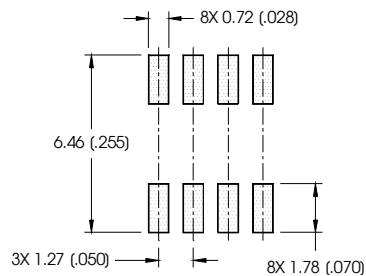


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40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



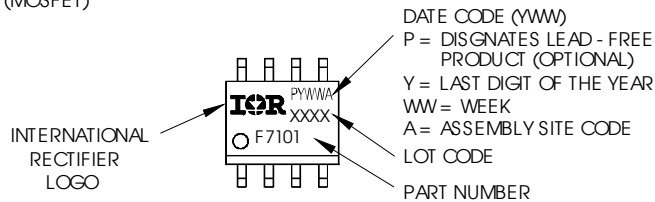
- NOTES:
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
  2. CONTROLLING DIMENSION: MILLIMETER
  3. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).
  4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA
  - ⑤ DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 (.006).
  - ⑥ DIMENSION 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.

### FOOTPRINT



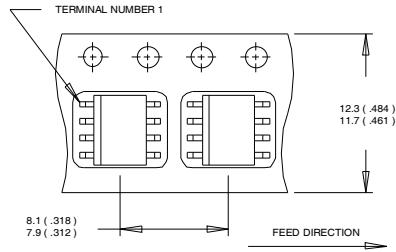
## SO-8 Part Marking Information

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

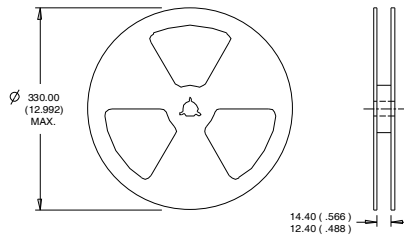


Note: For the most current drawing please refer to IR website at: <http://www.irf.com/package/>

**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/>

**Notes:**

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Starting  $T_J = 25^\circ\text{C}$ ,  $L = 8.1\text{mH}$ ,  $R_G = 25\Omega$ ,  $I_{AS} = 7.2\text{A}$ .
- ③ Pulse width  $\leq 400\mu\text{s}$ ; duty cycle  $\leq 2\%$ .
- ④ When mounted on 1 inch square copper board.

**Qualification information<sup>†</sup>**

Qualification level	Industriid (per JEDEC JESD47F <sup>††</sup> guidelines)	
Moisture Sensitivity Level	SO-8	MSL1 (per JEDEC J-STD-020D <sup>††</sup> )
RoHS compliant	Yes	

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

<sup>††</sup> Applicable version of JEDEC standard at the time of product release