

**Applications**

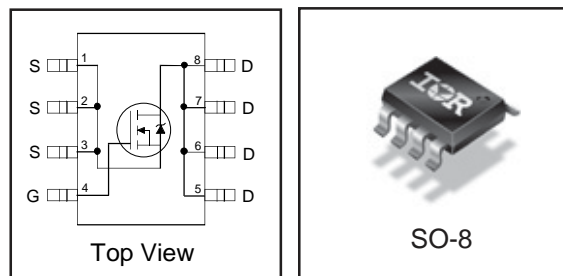
- High Frequency Isolated DC-DC Converters with Synchronous Rectification for Telecom and Industrial Use
- High Frequency Buck Converters for Computer Processor Power
- Lead-Free

HEXFET® Power MOSFET

<b>V<sub>DSS</sub></b>	<b>R<sub>DS(on)</sub> max(mΩ)</b>	<b>I<sub>D</sub></b>
<b>30V</b>	<b>12.5@ V<sub>GS</sub> = 10V</b>	<b>11A</b>

**Benefits**

- Ultra-Low Gate Impedance
- Very Low R<sub>DS(on)</sub>
- Fully Characterized Avalanche Voltage and Current



**Absolute Maximum Ratings**

Symbol	Parameter	Max.	Units
V <sub>DS</sub>	Drain-Source Voltage	30	V
V <sub>GS</sub>	Gate-to-Source Voltage	± 20	V
I <sub>D</sub> @ T <sub>A</sub> = 25°C	Continuous Drain Current, V <sub>GS</sub> @ 10V	11	A
I <sub>D</sub> @ T <sub>A</sub> = 70°C	Continuous Drain Current, V <sub>GS</sub> @ 10V	9.0	
I <sub>DM</sub>	Pulsed Drain Current <sup>①</sup>	90	
P <sub>D</sub> @ T <sub>A</sub> = 25°C	Maximum Power Dissipation <sup>③</sup>	2.5	W
P <sub>D</sub> @ T <sub>A</sub> = 70°C	Maximum Power Dissipation <sup>③</sup>	1.6	W
	Linear Derating Factor	0.02	mW/°C
T <sub>J</sub> , T <sub>STG</sub>	Junction and Storage Temperature Range	-55 to + 150	°C

**Thermal Resistance**

Symbol	Parameter	Typ.	Max.	Units
R <sub>θJL</sub>	Junction-to-Drain Lead	—	20	°C/W
R <sub>θJA</sub>	Junction-to-Ambient <sup>④</sup>	—	50	

Notes <sup>①</sup> through <sup>④</sup> are on page 8  
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# IRF7466PbF

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

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	30	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	0.028	—	V/ $^\circ\text{C}$	Reference to $25^\circ\text{C}, I_D = 1\text{mA}$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	9.8	12.5	$\text{m}\Omega$	$V_{GS} = 10V, I_D = 11A$ ③ $V_{GS} = 4.5V, I_D = 8.8A$ ③
$V_{GS(th)}$	Gate Threshold Voltage	1.0	—	3.0	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
$I_{DSS}$	Drain-to-Source Leakage Current	—	—	20	$\mu A$	$V_{DS} = 24V, V_{GS} = 0V$ $V_{DS} = 24V, V_{GS} = 0V, T_J = 125^\circ\text{C}$
$I_{GSS}$	Gate-to-Source Forward Leakage	—	—	200	nA	$V_{GS} = 16V$
	Gate-to-Source Reverse Leakage	—	—	-200	nA	$V_{GS} = -16V$

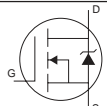
## Dynamic @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

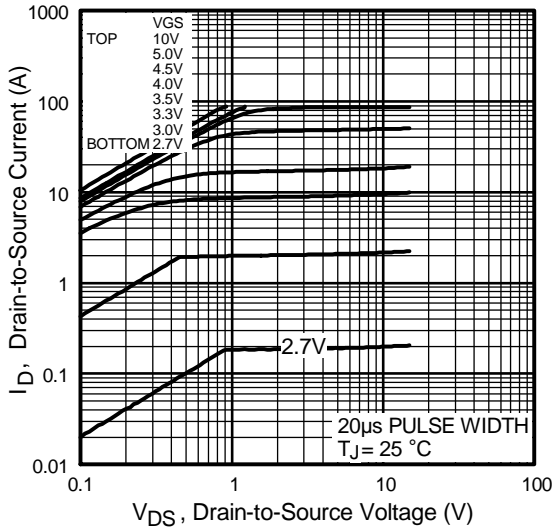
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$g_{fs}$	Forward Transconductance	22	—	—	S	$V_{DS} = 15V, I_D = 8.8A$
$Q_g$	Total Gate Charge	—	16	23	nC	$I_D = 8.8A$ $V_{DS} = 15V$ $V_{GS} = 4.5V$ ③
$Q_{gs}$	Gate-to-Source Charge	—	7.4	11		
$Q_{gd}$	Gate-to-Drain ("Miller") Charge	—	5.3	8.0		
$Q_{oss}$	Output Gate Charge	—	19	29		
$t_{d(on)}$	Turn-On Delay Time	—	10	—	ns	$V_{DD} = 15V$ $I_D = 8.8A$ $R_G = 1.8\Omega$ $V_{GS} = 4.5V$ ③
$t_r$	Rise Time	—	2.8	—		
$t_{d(off)}$	Turn-Off Delay Time	—	13	—		
$t_f$	Fall Time	—	3.6	—		
$C_{iss}$	Input Capacitance	—	2100	—	pF	$V_{GS} = 0V$ $V_{DS} = 15V$ $f = 1.0\text{MHz}$
$C_{oss}$	Output Capacitance	—	710	—		
$C_{riss}$	Reverse Transfer Capacitance	—	52	—		

## Avalanche Characteristics

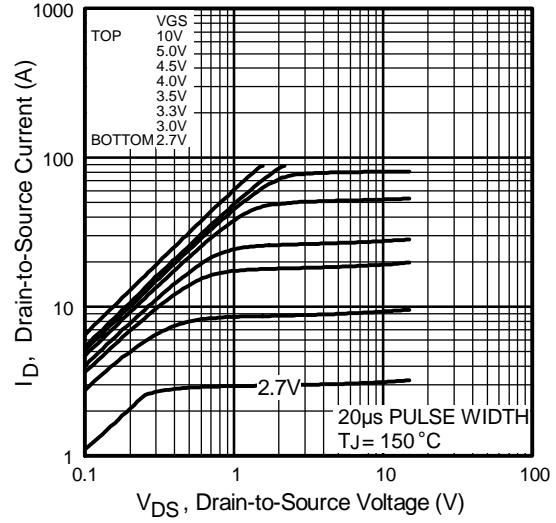
Symbol	Parameter	Typ.	Max.	Units
$E_{AS}$	Single Pulse Avalanche Energy②	—	230	mJ
$I_{AR}$	Avalanche Current①	—	8.8	A

## Diode Characteristics

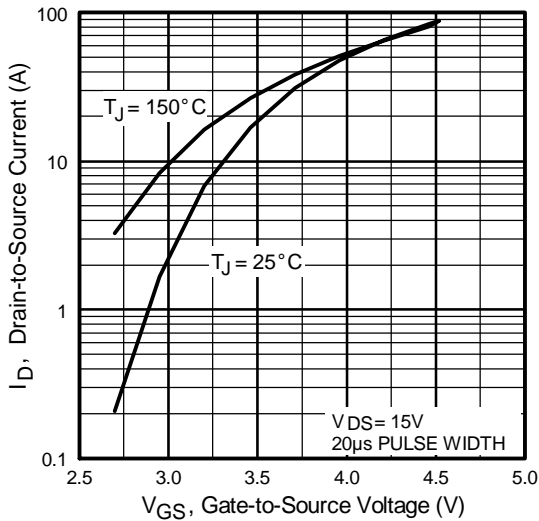
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$I_S$	Continuous Source Current (Body Diode)	—	—	2.3	A	MOSFET symbol showing the integral reverse p-n junction diode. 
$I_{SM}$	Pulsed Source Current (Body Diode) ①	—	—	90		
$V_{SD}$	Diode Forward Voltage	—	0.8	1.3	V	$T_J = 25^\circ\text{C}, I_S = 8.8A, V_{GS} = 0V$ ③ $T_J = 125^\circ\text{C}, I_S = 8.8A, V_{GS} = 0V$ ③
$t_{rr}$	Reverse Recovery Time	—	42	63	ns	$T_J = 25^\circ\text{C}, I_F = 8.8A, V_R = 15V$
$Q_{rr}$	Reverse Recovery Charge	—	59	89	nC	$di/dt = 100A/\mu s$ ③
$t_{rr}$	Reverse Recovery Time	—	42	63	ns	$T_J = 125^\circ\text{C}, I_F = 8.8A, V_R = 15V$
$Q_{rr}$	Reverse Recovery Charge	—	61	92	nC	$di/dt = 100A/\mu s$ ③



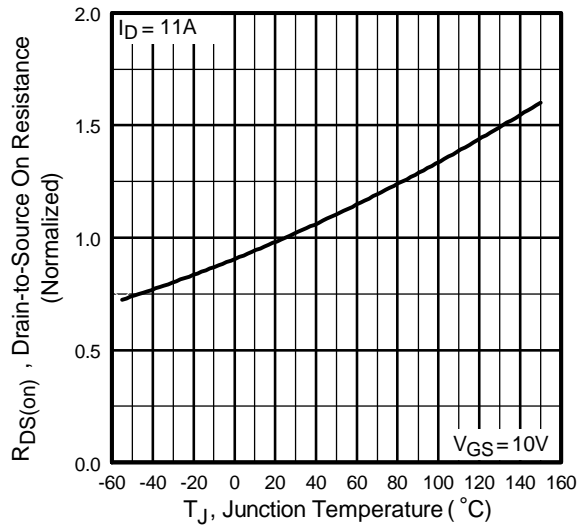
**Fig 1.** Typical Output Characteristics



**Fig 2.** Typical Output Characteristics

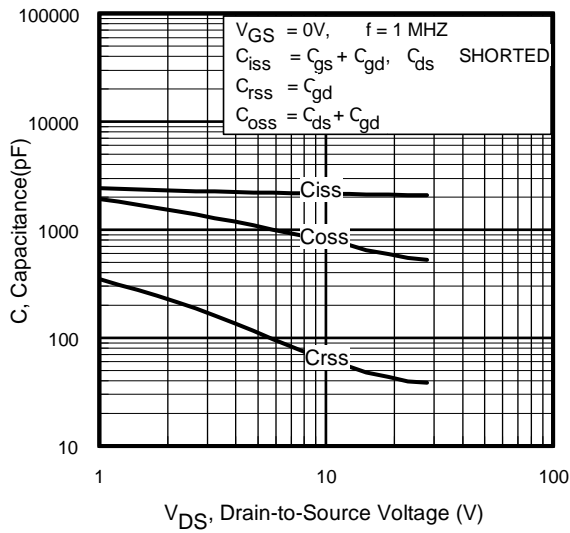


**Fig 3.** Typical Transfer Characteristics

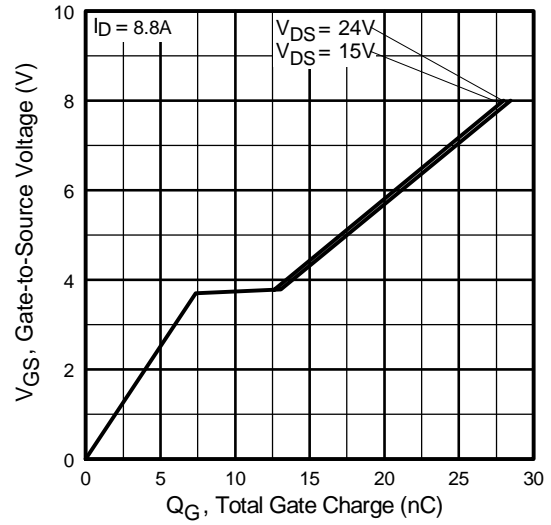


**Fig 4.** Normalized On-Resistance Vs. Temperature

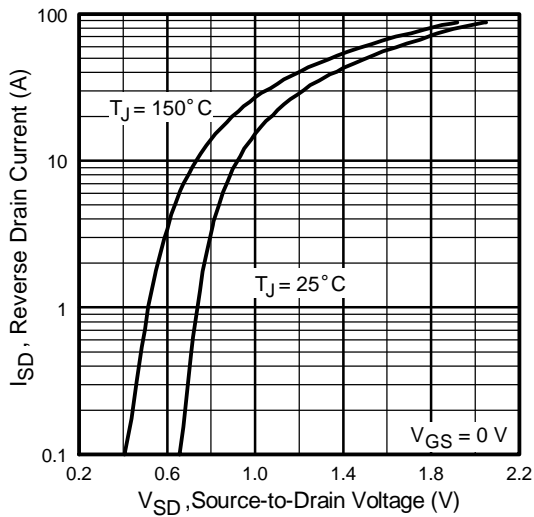
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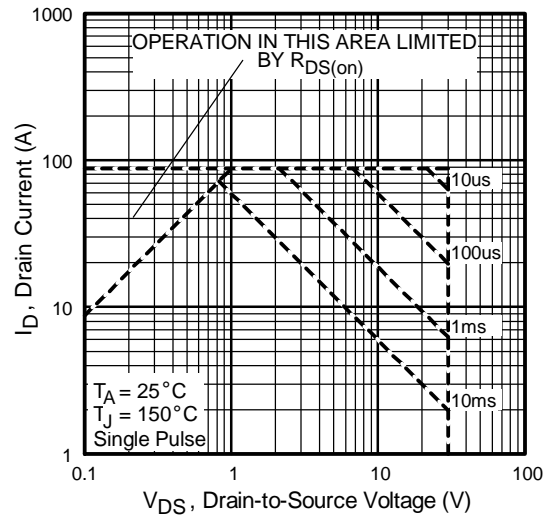
**Fig 5.** Typical Capacitance Vs. Drain-to-Source Voltage



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



**Fig 7.** Typical Source-Drain Diode Forward Voltage

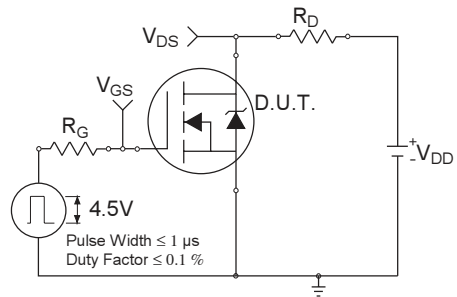
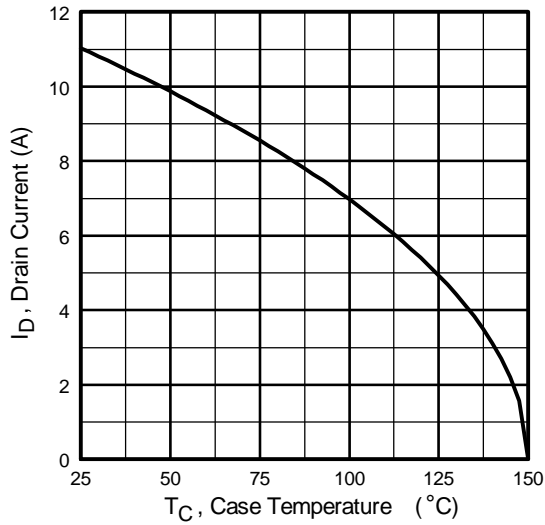


**Fig 8.** Maximum Safe Operating Area

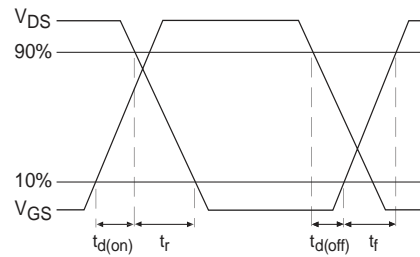
**Fig 6.** On-Resistance Vs. Drain Current

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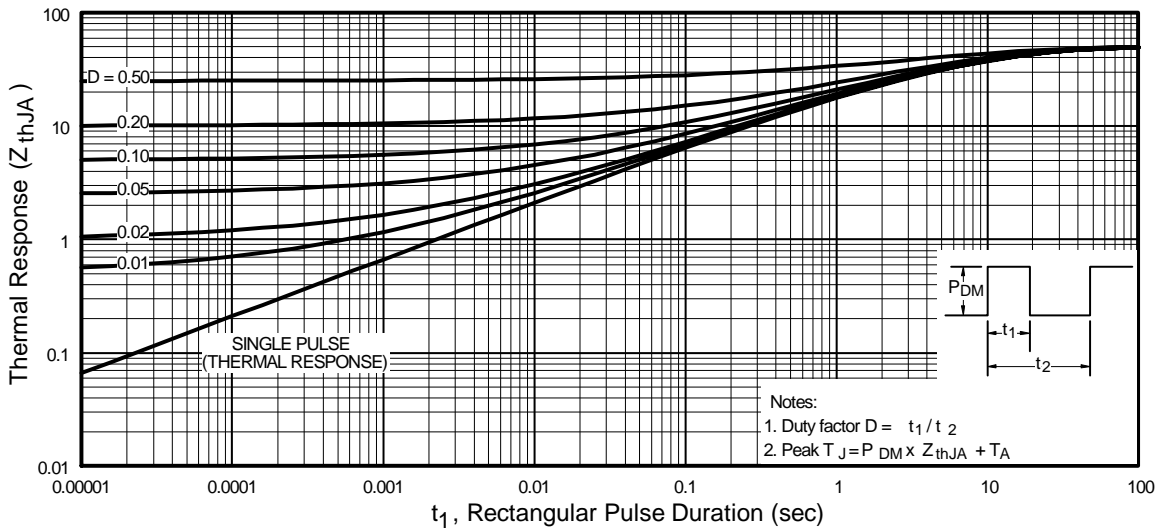
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**Fig 10a.** Switching Time Test Circuit



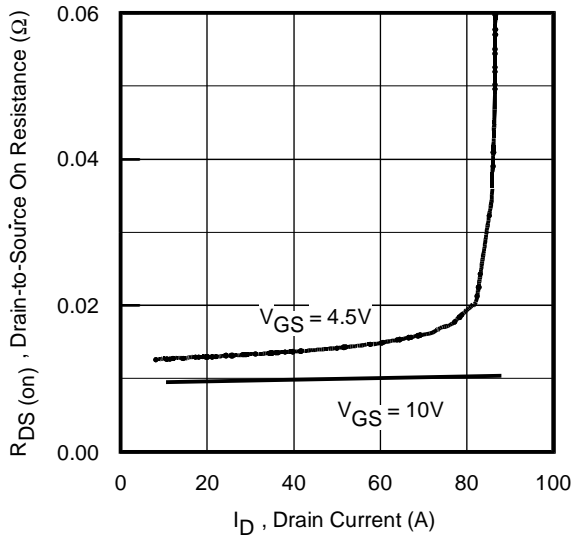
**Fig 10b.** Switching Time Waveforms



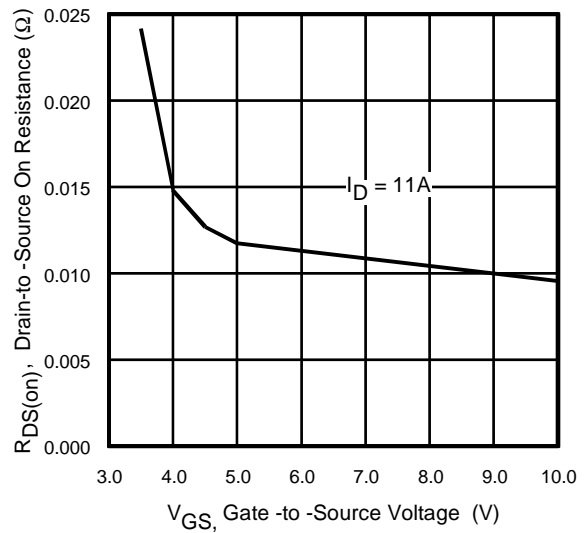
**Fig 10.** Maximum Effective Transient Thermal Impedance, Junction-to-Case

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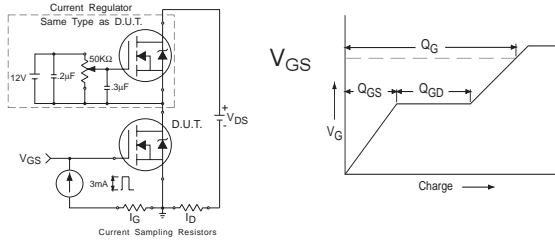
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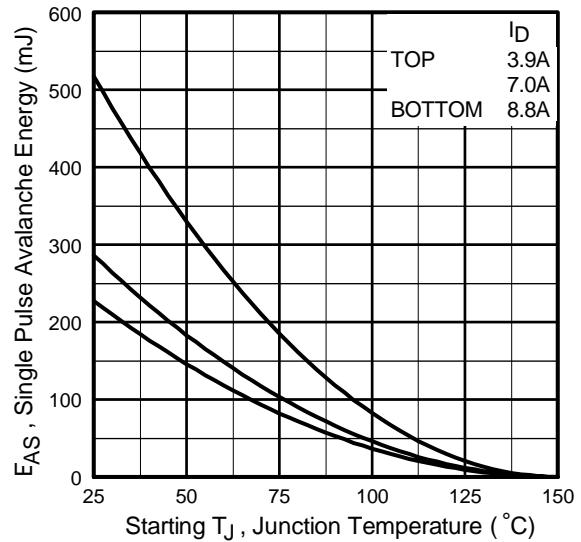
**Fig 12.** On-Resistance Vs. Drain Current



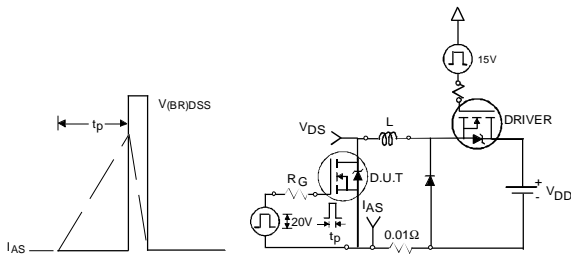
**Fig 13.** On-Resistance Vs. Gate Voltage



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



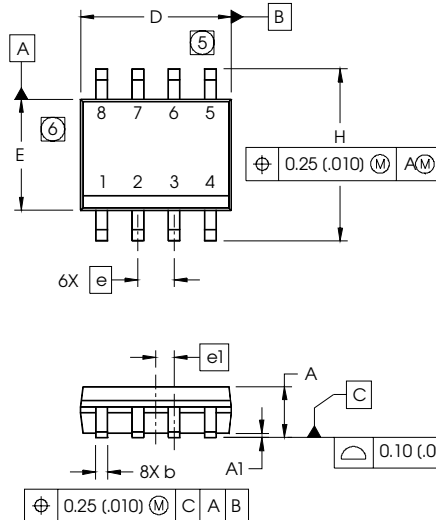
**Fig 14c.** Maximum Avalanche Energy Vs. Drain Current



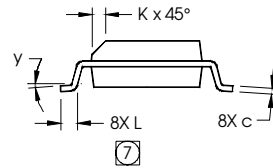
**Fig 14a&b.** Unclamped Inductive Test circuit and Waveforms

## SO-8 Package Outline

Dimensions are shown in millimeters (inches)

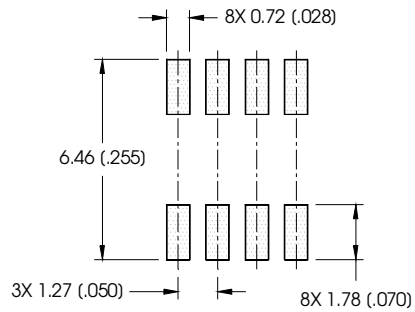


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40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



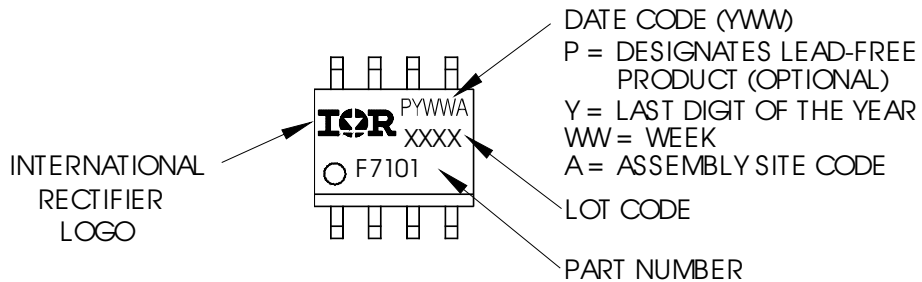
- NOTES:
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
  2. CONTROLLING DIMENSION: MILLIMETER
  3. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).
  4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA
  - ⑤ DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 (.006).
  - ⑥ DIMENSION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

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

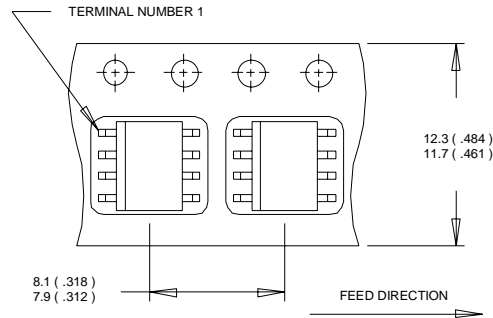


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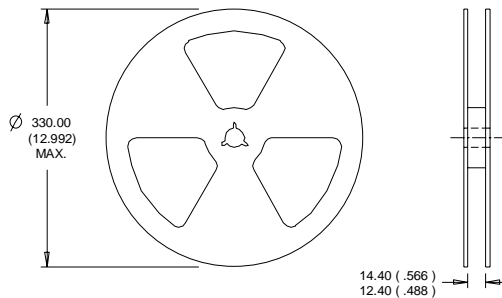
## SO-8 Tape and Reel

Dimensions are shown in millimeters (inches)

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- 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.

### Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Starting  $T_J = 25^\circ\text{C}$ ,  $L = 5.9\text{mH}$   
 $R_G = 25\Omega$ ,  $I_{AS} = 8.8\text{A}$ .
- ③ Pulse width  $\leq 400\mu\text{s}$ ; duty cycle  $\leq 2\%$ .
- ④ When mounted on 1 inch square copper board,  $t < 10$  sec

Data and specifications subject to change without notice.  
This product has been designed and qualified for the Consumer market.  
Qualifications Standards can be found on IR's Web site.

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