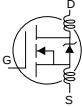
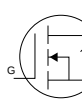


Electrical Characteristics @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	20	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	0.044	—	$V/^\circ\text{C}$	Reference to $25^\circ\text{C}, I_D = 1\text{mA}$
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	—	—	0.050	Ω	$V_{GS} = 4.5V, I_D = 2.6A$ ③
		—	—	0.070		$V_{GS} = 2.7V, I_D = 2.2A$ ③
$V_{GS(th)}$	Gate Threshold Voltage	0.70	—	—	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
g_{fs}	Forward Transconductance	8.3	—	—	S	$V_{DS} = 15V, I_D = 2.6A$
I_{DSS}	Drain-to-Source Leakage Current	—	—	1.0	μA	$V_{DS} = 16V, V_{GS} = 0V$
		—	—	25		$V_{DS} = 16V, V_{GS} = 0V, T_J = 125^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	—	—	100	nA	$V_{GS} = 12V$
	Gate-to-Source Reverse Leakage	—	—	-100		$V_{GS} = -12V$
Q_g	Total Gate Charge	—	—	20	nC	$I_D = 2.6A$
Q_{gs}	Gate-to-Source Charge	—	—	2.2		$V_{DS} = 16V$
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	—	8.0		$V_{GS} = 4.5V$, See Fig. 6 and 12 ③
$t_{d(on)}$	Turn-On Delay Time	—	9.0	—	ns	$V_{DD} = 10V$
t_r	Rise Time	—	42	—		$I_D = 2.6A$
$t_{d(off)}$	Turn-Off Delay Time	—	32	—		$R_G = 6.0\Omega$
t_f	Fall Time	—	51	—		$R_D = 3.8\Omega$, See Fig. 10 ③
L_D	Internal Drain Inductance	—	4.0	—	nH	Between lead tip and center of die contact 
L_S	Internal Source Inductance	—	6.0	—		
C_{iss}	Input Capacitance	—	660	—	pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance	—	280	—		$V_{DS} = 15V$
C_{rss}	Reverse Transfer Capacitance	—	140	—		$f = 1.0\text{MHz}$, See Fig. 5

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	2.5	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	21		
V_{SD}	Diode Forward Voltage	—	—	1.0	V	$T_J = 25^\circ\text{C}, I_S = 1.8A, V_{GS} = 0V$ ③
t_{rr}	Reverse Recovery Time	—	29	44	ns	$T_J = 25^\circ\text{C}, I_F = 2.6A$
Q_{rr}	Reverse Recovery Charge	—	22	33	nC	$di/dt = 100A/\mu s$ ③
t_{on}	Forward Turn-On Time	Intrinsic turn-on time is negligible (turn-on is dominated by $L_S + L_D$)				

Notes:

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

③ Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.

② $I_{SD} \leq 2.6A, di/dt \leq 100A/\mu s, V_{DD} \leq V_{(BR)DSS}, T_J \leq 150^\circ\text{C}$

④ Surface mounted on FR-4 board, $t \leq 10\text{sec}$.

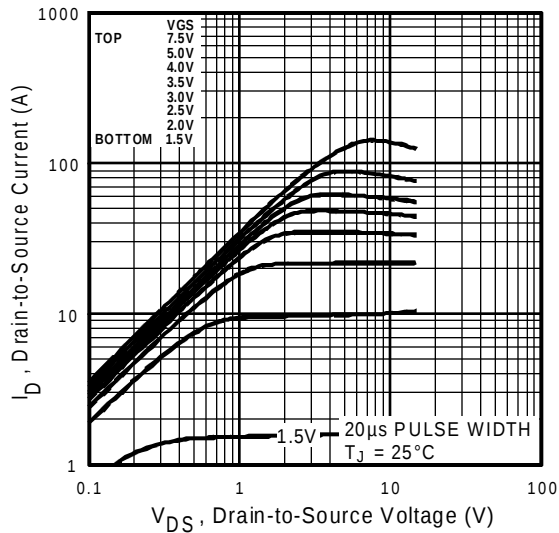


Fig 1. Typical Output Characteristics

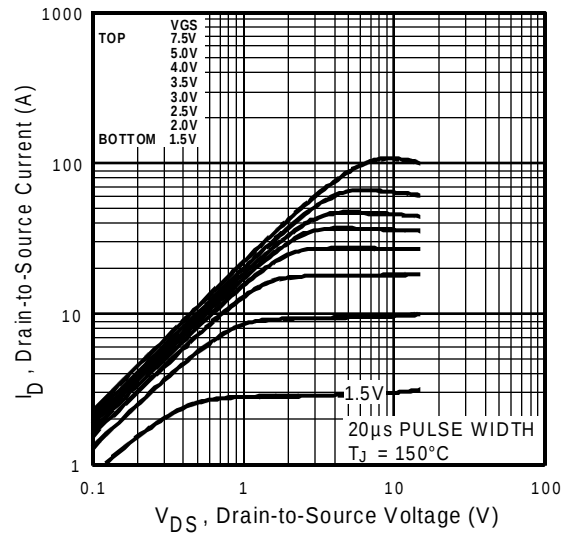


Fig 2. Typical Output Characteristics

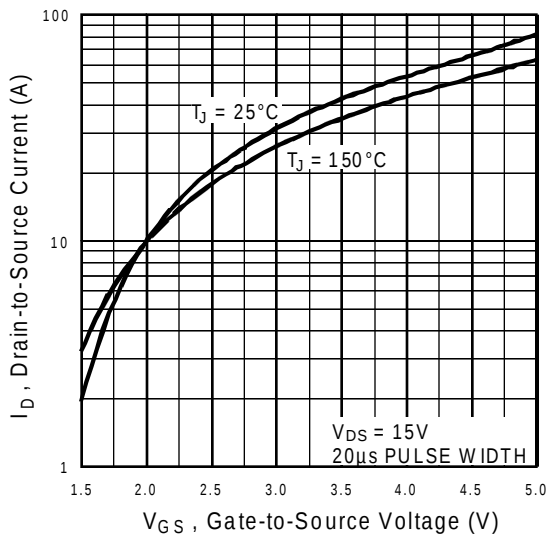


Fig 3. Typical Transfer Characteristics

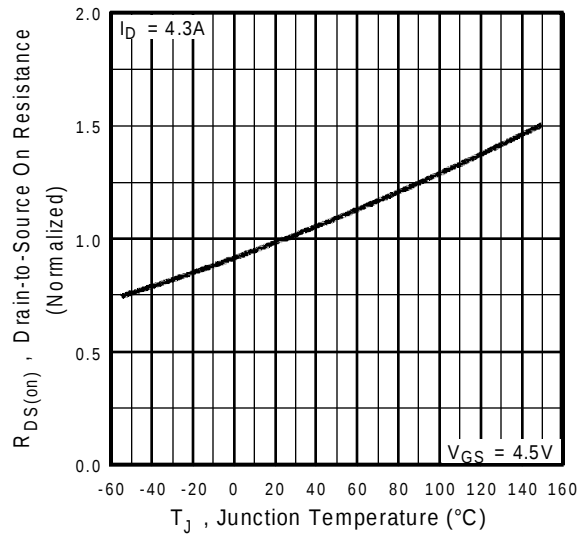


Fig 4. Normalized On-Resistance
Vs. Temperature

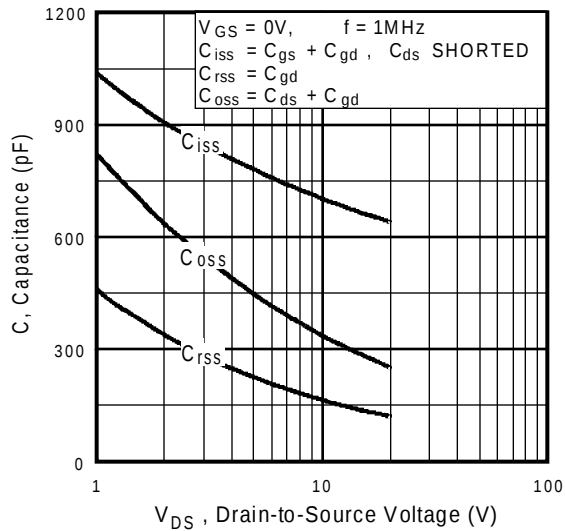


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

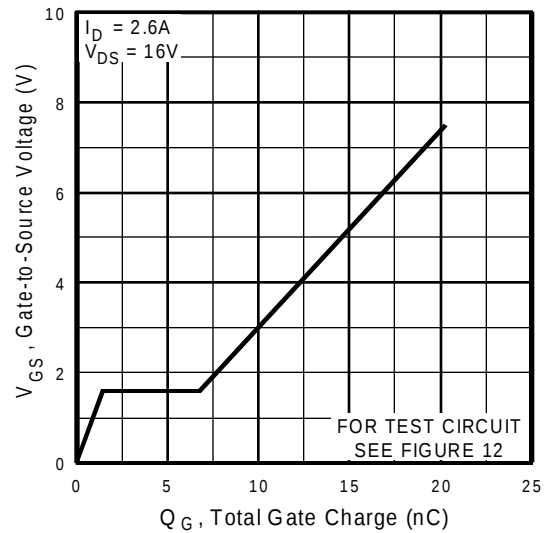


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

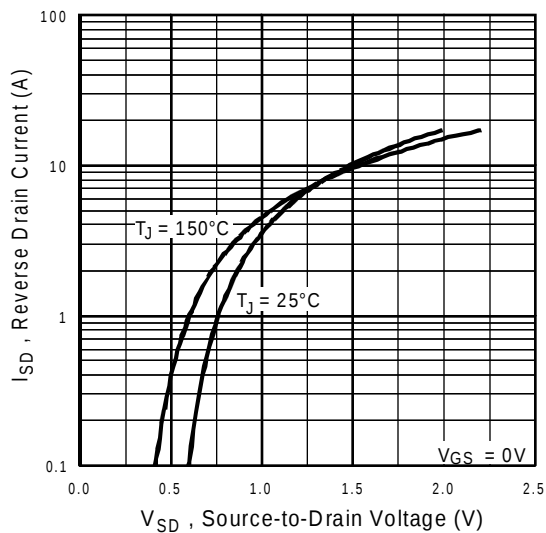


Fig 7. Typical Source-Drain Diode Forward Voltage

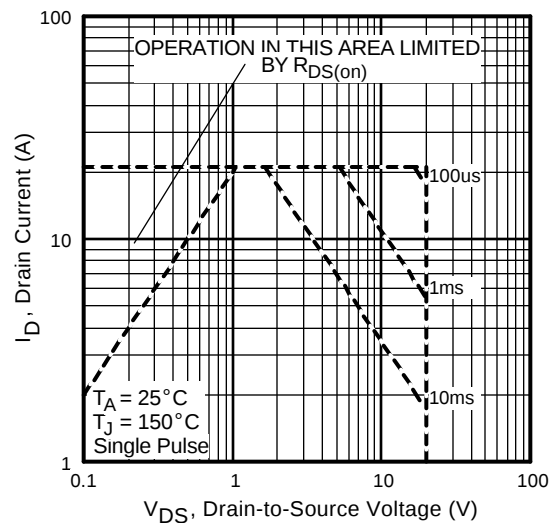


Fig 8. Maximum Safe Operating Area

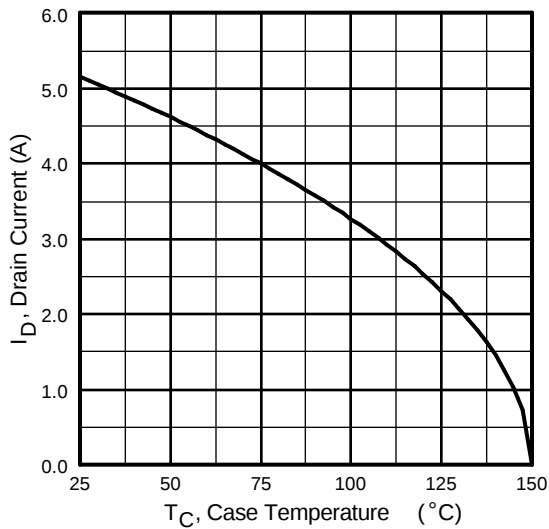


Fig 9. Maximum Drain Current Vs. Ambient Temperature

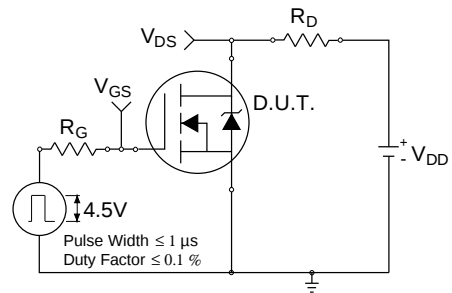


Fig 10a. Switching Time Test Circuit

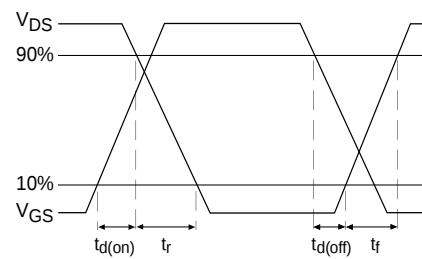


Fig 10b. Switching Time Waveforms

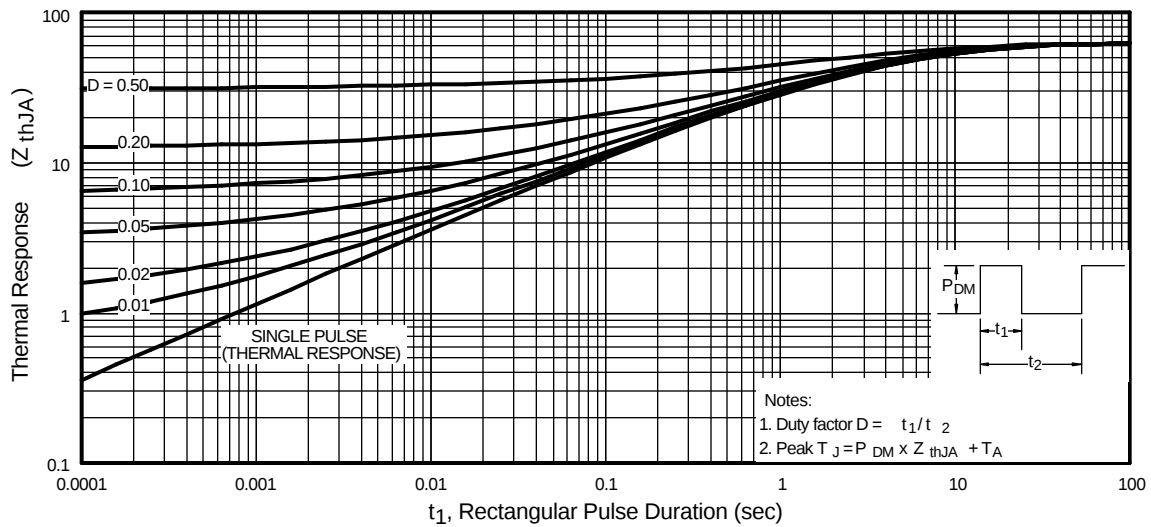


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

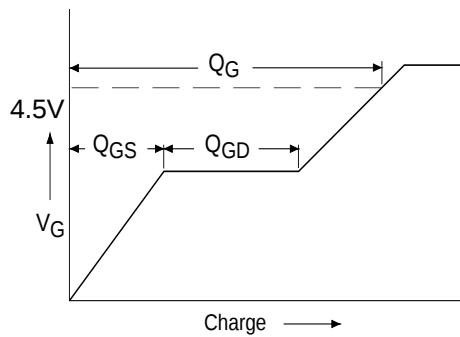


Fig 12a. Basic Gate Charge Waveform

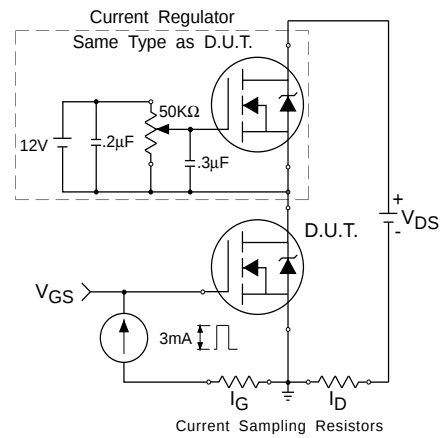
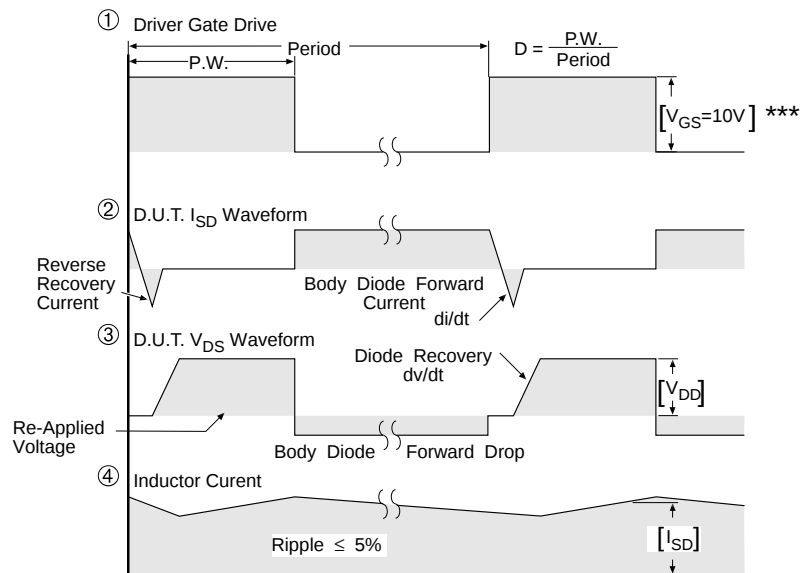
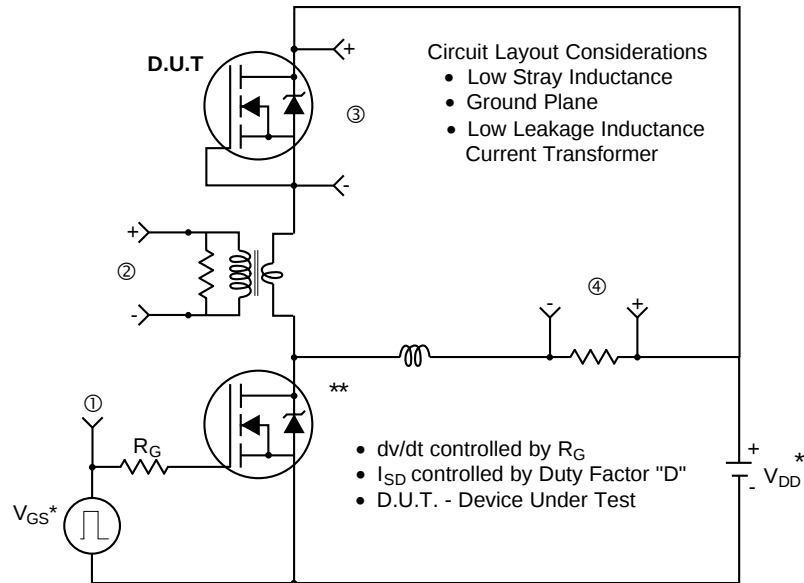


Fig 12b. Gate Charge Test Circuit

Peak Diode Recovery dv/dt Test Circuit



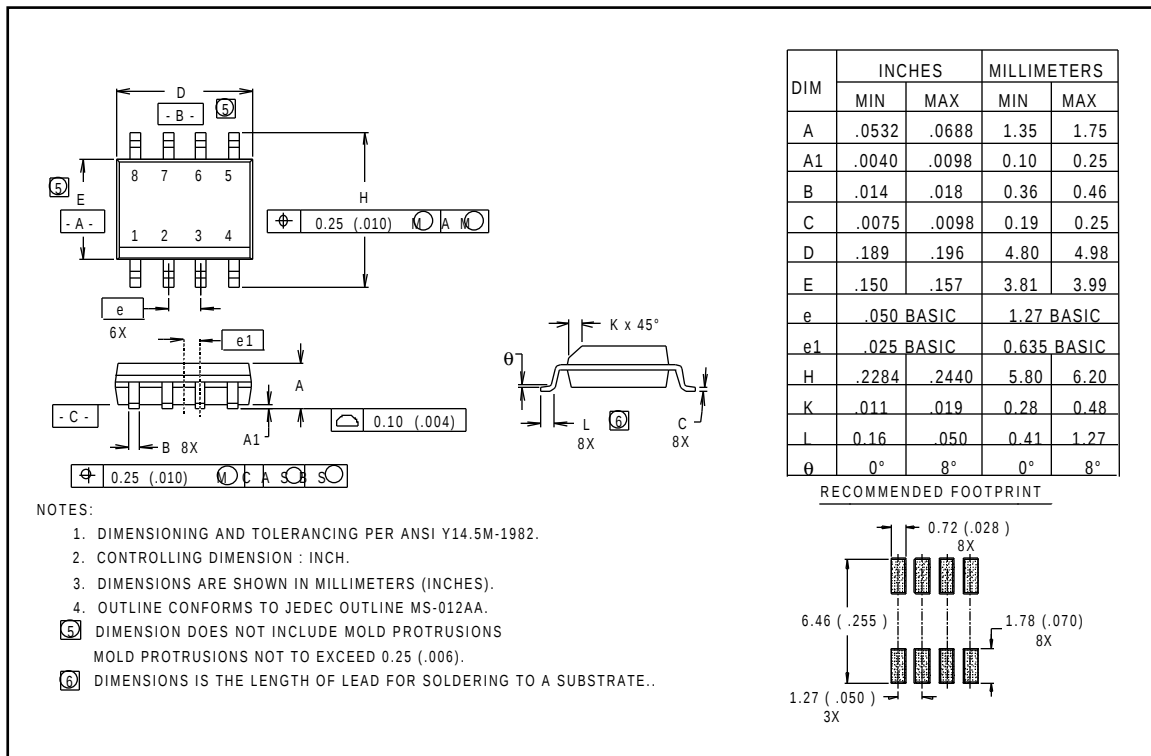
*** $V_{GS} = 5.0V$ for Logic Level and 3V Drive Devices

Fig 13. For N-Channel HEXFETS

IRF7301

International
IOR Rectifier

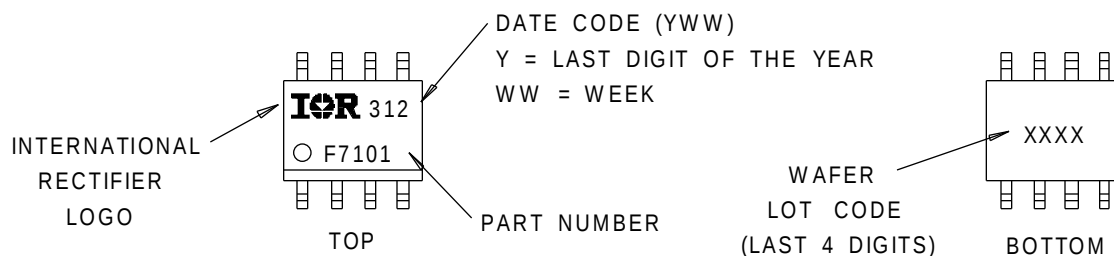
Package Outline SO8 Outline



Part Marking Information

SO8

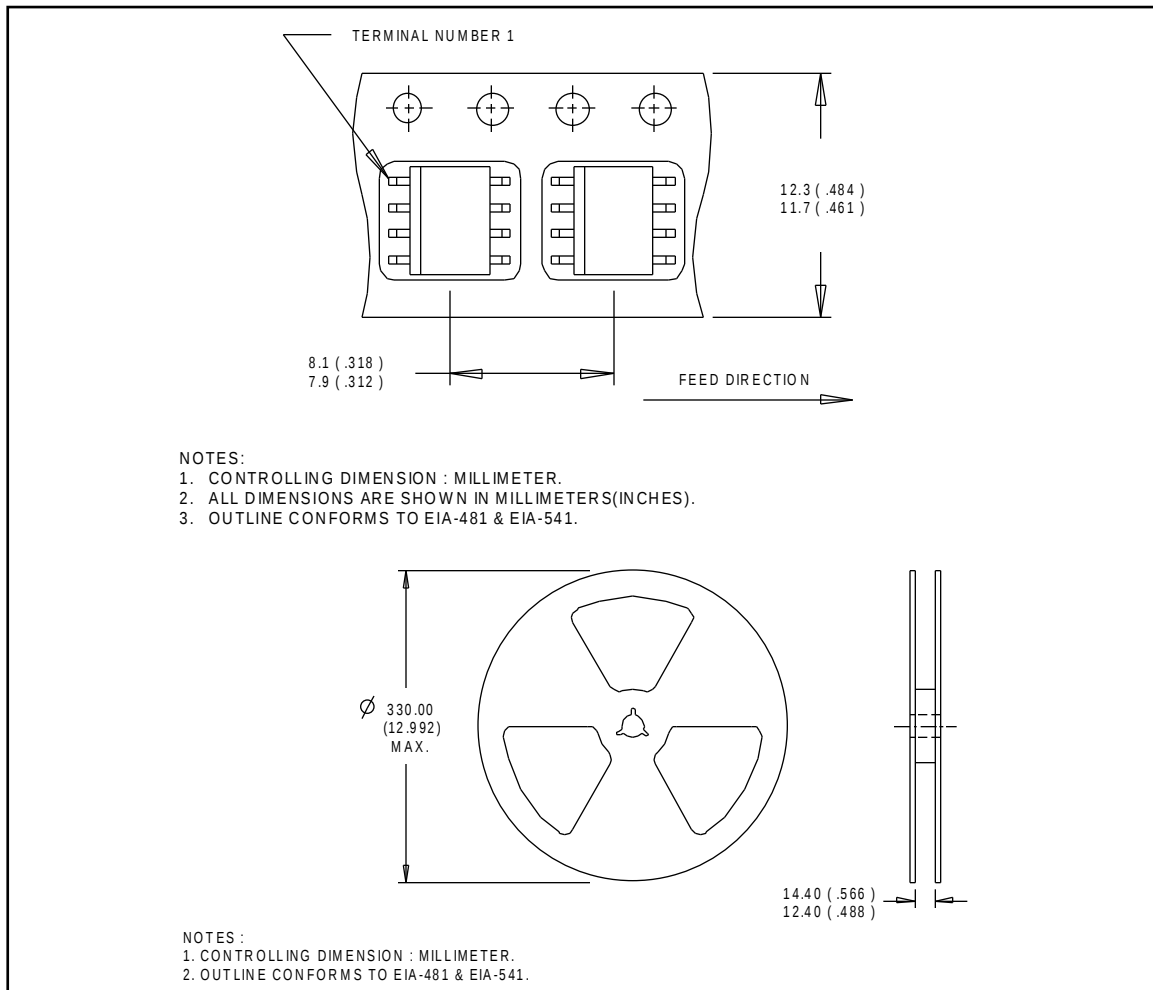
EXAMPLE : THIS IS AN IRF7101



Tape & Reel Information

SO8

Dimensions are shown in millimeters (inches)



International
IOR Rectifier

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IR CANADA: 7321 Victoria Park Ave., Suite 201, Markham, Ontario L3R 2Z8, Tel: (905) 475 1897

IR GERMANY: Saalburgstrasse 157, 61350 Bad Homburg Tel: ++ 49 6172 96590

IR ITALY: Via Liguria 49, 10071 Borgaro, Torino Tel: ++ 39 11 451 0111

IR FAR EAST: K&H Bldg., 2F, 30-4 Nishi-Ikebukuro 3-Chome, Toshima-Ku, Tokyo Japan 171 Tel: 81 3 3983 0086

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Data and specifications subject to change without notice.

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