

IRF7410PbF

International
IR Rectifier

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

Symbol	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	—	0.006	—	V/ $^\circ\text{C}$	Reference to $25^\circ\text{C}, I_D = -1mA$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	—	7	m Ω	$V_{GS} = -4.5V, I_D = -16A$ ②
		—	—	9		$V_{GS} = -2.5V, I_D = -13.6A$ ②
		—	—	13		$V_{GS} = -1.8V, I_D = -11.5A$ ②
$V_{GS(th)}$	Gate Threshold Voltage	-0.4	—	-0.9	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
$\Delta V_{GS(th)}/\Delta T_J$	Gate Threshold Voltage Coefficient	—	-3.09	—	mV/ $^\circ\text{C}$	
g_{fs}	Forward Transconductance	55	—	—	S	$V_{DS} = -10V, I_D = -16A$
I_{DSS}	Drain-to-Source Leakage Current	—	—	-1.0	μA	$V_{DS} = -9.6V, V_{GS} = 0V$
		—	—	-25		$V_{DS} = -9.6V, V_{GS} = 0V, T_J = 70^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	—	—	-100	nA	$V_{GS} = -8V$
	Gate-to-Source Reverse Leakage	—	—	100		$V_{GS} = 8V$
Q_g	Total Gate Charge	—	91	—	nC	$I_D = -16A$
Q_{gs}	Gate-to-Source Charge	—	18	—		$V_{DS} = -9.6V$
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	25	—		$V_{GS} = -4.5V$ ②
$t_{d(on)}$	Turn-On Delay Time	—	13	20	ns	$V_{DD} = -6V, V_{GS} = -4.5V$
t_r	Rise Time	—	12	18		$I_D = -1.0A$
$t_{d(off)}$	Turn-Off Delay Time	—	271	407		$R_D = 6\Omega$
t_f	Fall Time	—	200	300		$R_G = 6\Omega$ ②
C_{iss}	Input Capacitance	—	8676	—	pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance	—	2344	—		$V_{DS} = -10V$
C_{rss}	Reverse Transfer Capacitance	—	1604	—		$f = 1.0\text{ MHz}$

Source-Drain Ratings and Characteristics

Symbol	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	—	—	-65		
V_{SD}	Diode Forward Voltage	—	—	-1.2	V	$T_J = 25^\circ\text{C}, I_S = -2.5A, V_{GS} = 0V$ ②
t_{rr}	Reverse Recovery Time	—	97	145	ns	$T_J = 25^\circ\text{C}, I_F = -2.5A$
Q_{rr}	Reverse Recovery Charge	—	134	201	μC	$di/dt = -100A/\mu s$ ②

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
 ② Pulse width $\leq 400\mu s$; duty cycle $\leq 2\%$.
 ③ Surface mounted on 1 in square Cu board, $t \leq 10\text{sec}$.

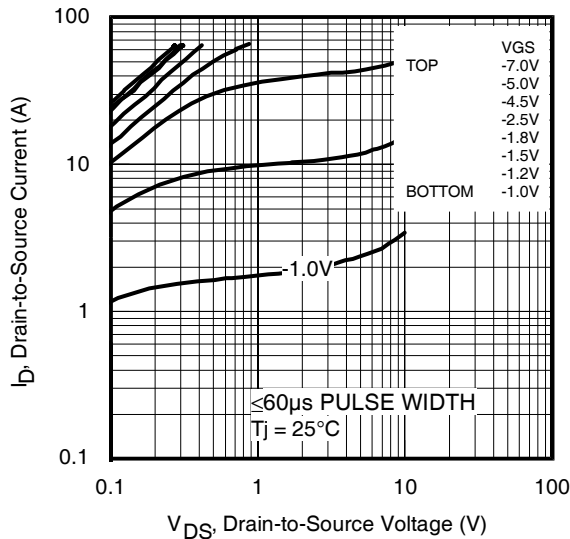


Fig 1. Typical Output Characteristics

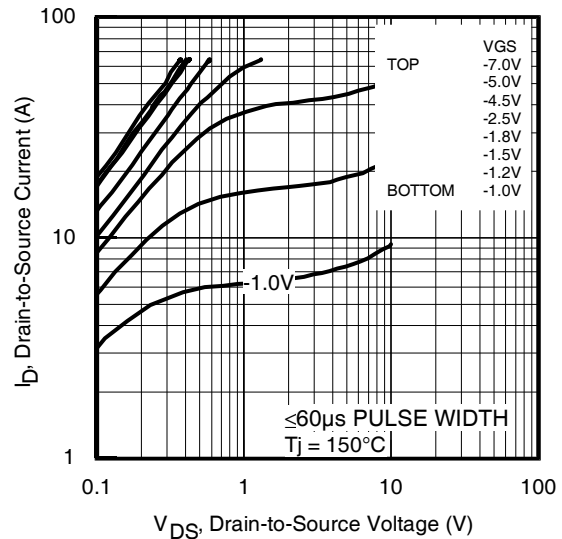


Fig 2. Typical Output Characteristics

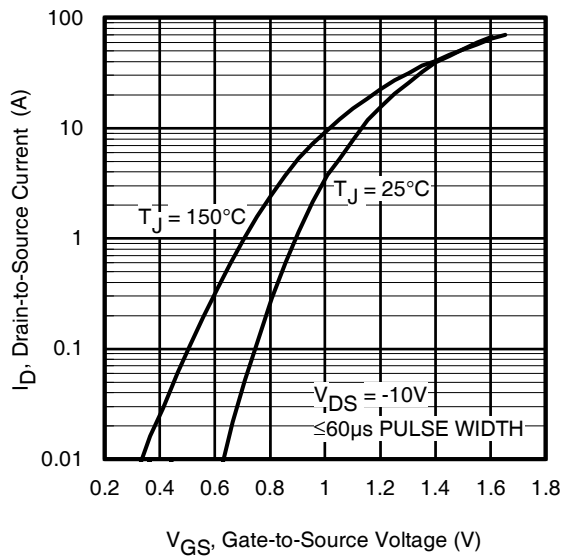


Fig 3. Typical Transfer Characteristics

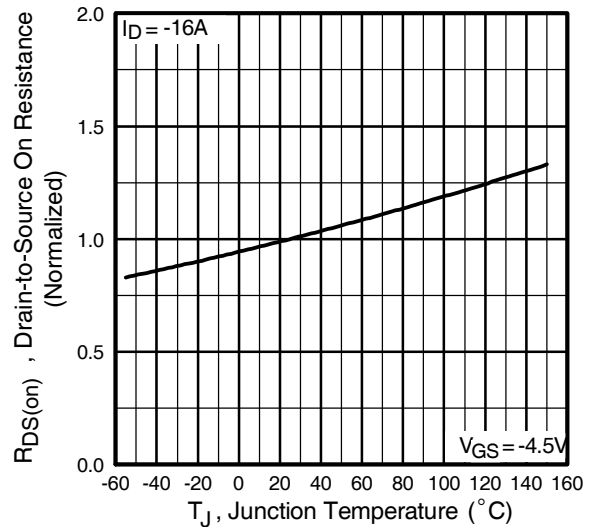
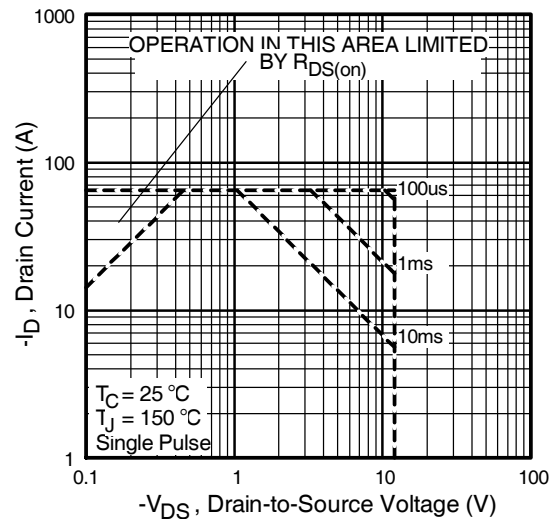
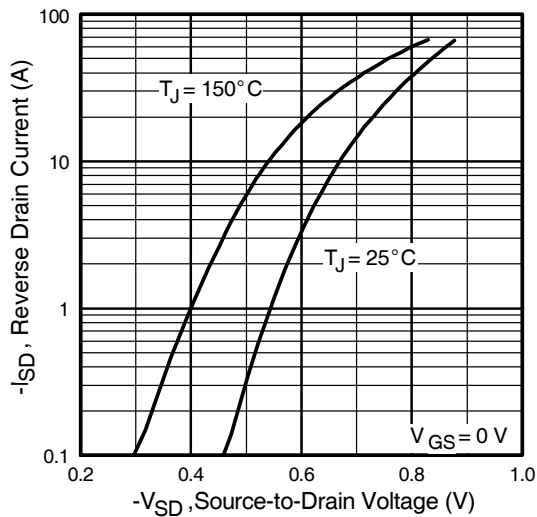
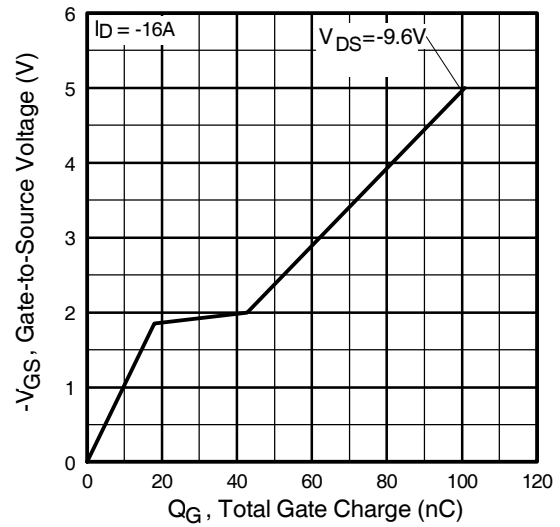
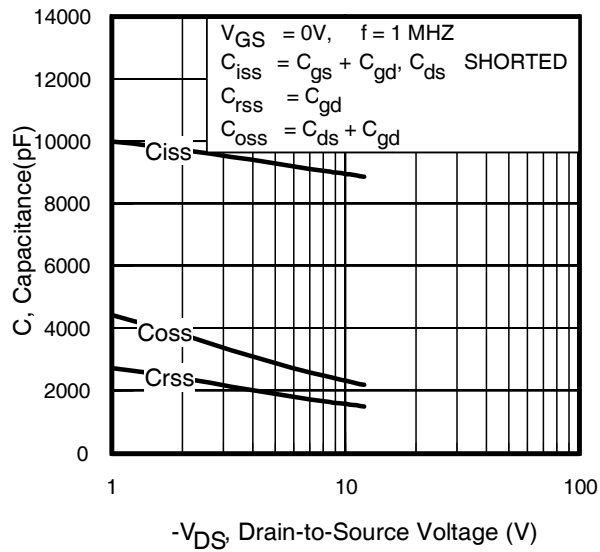


Fig 4. Normalized On-Resistance Vs. Temperature

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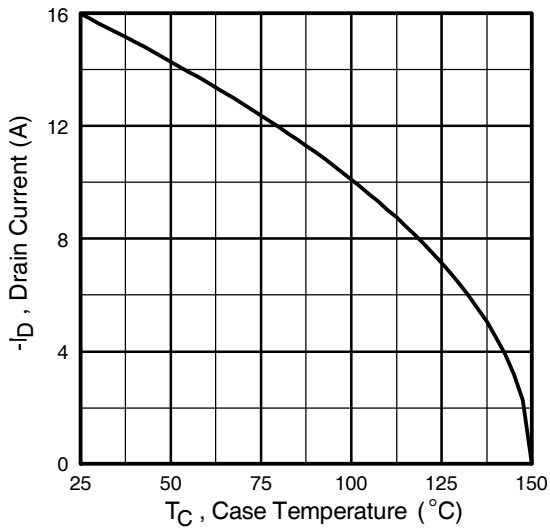


Fig 9. Maximum Drain Current Vs. Case Temperature

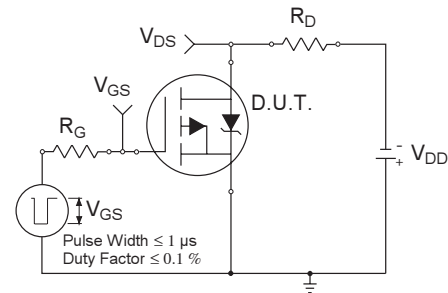


Fig 10a. Switching Time Test Circuit

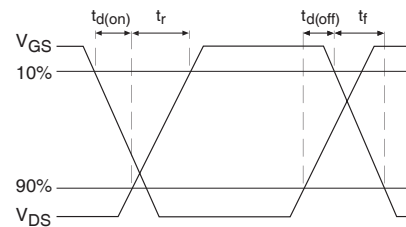


Fig 10b. Switching Time Waveforms

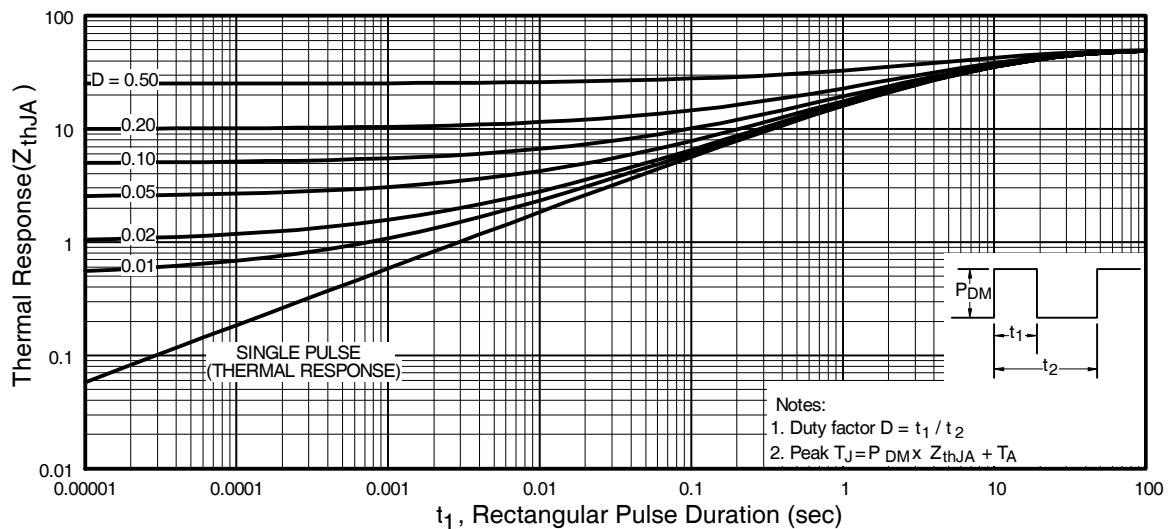


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

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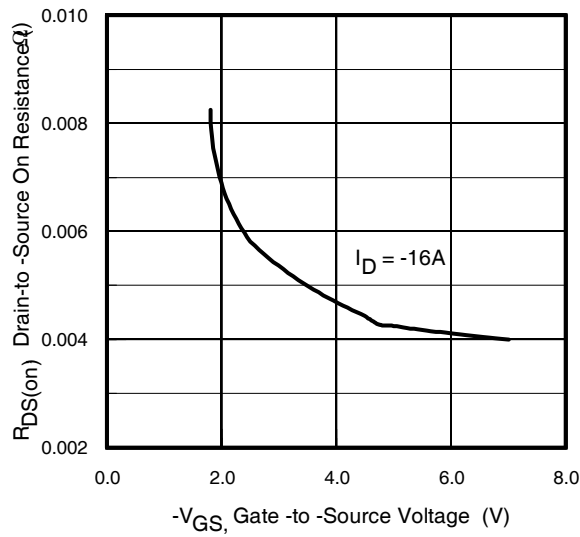


Fig 12. Typical On-Resistance Vs. Gate Voltage

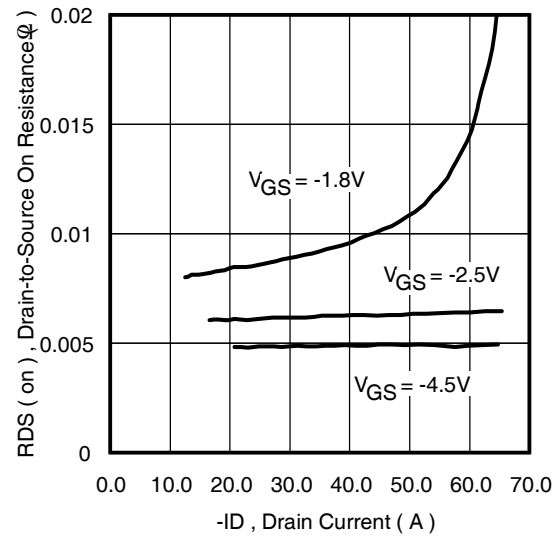


Fig 13. Typical On-Resistance Vs. Drain Current

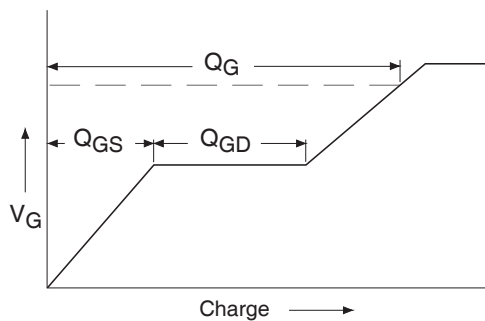


Fig 14a. Basic Gate Charge Waveform

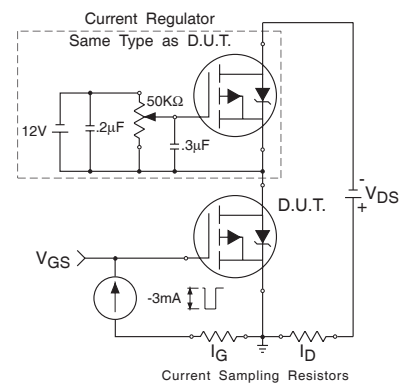


Fig 14b. Gate Charge Test Circuit

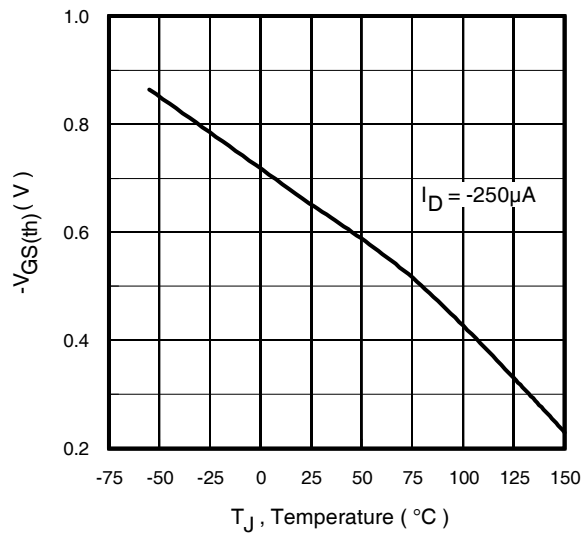


Fig 15. Typical $V_{GS(th)}$ Vs. Junction Temperature

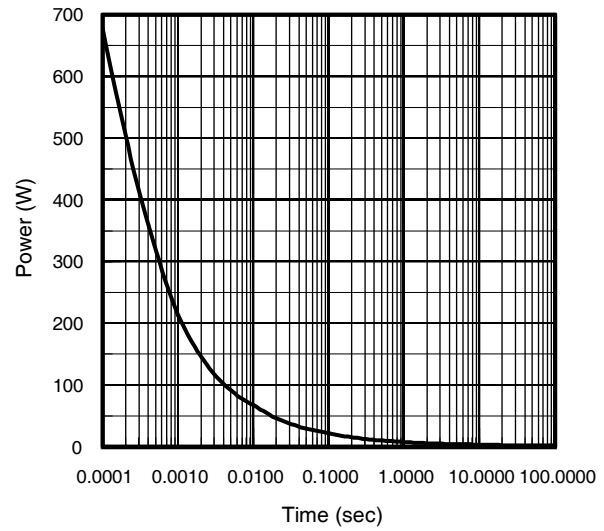


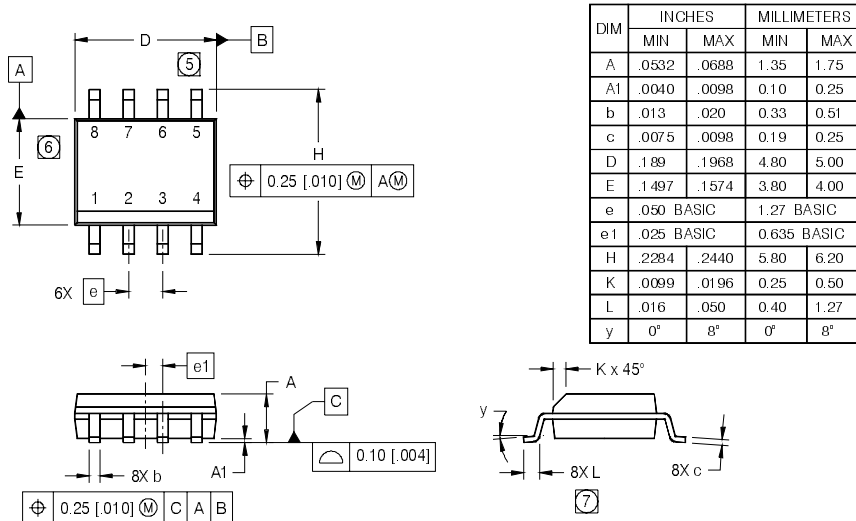
Fig 16. Typical Power Vs. Time

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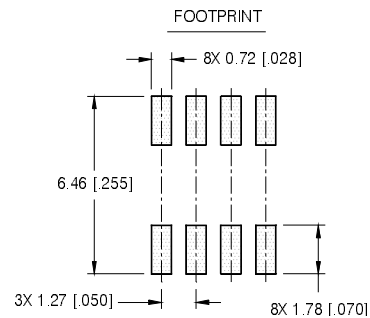
SO-8 Package Outline (Mosfet & Fetky)

Dimensions are shown in millimeters (inches)



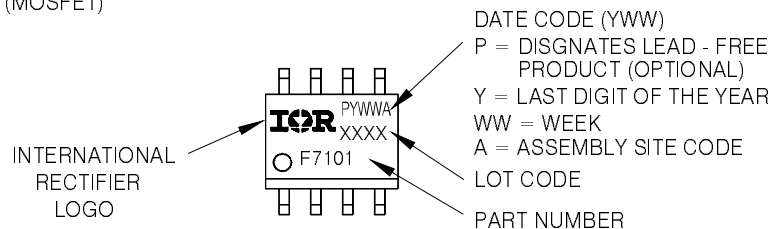
NOTES:

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 [0.006].
6. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.25 [0.010].
7. DIMENSION IS THE LENGTH OF LEAD FOR SOLDERING TO A SUBSTRATE.



SO-8 Part Marking Information

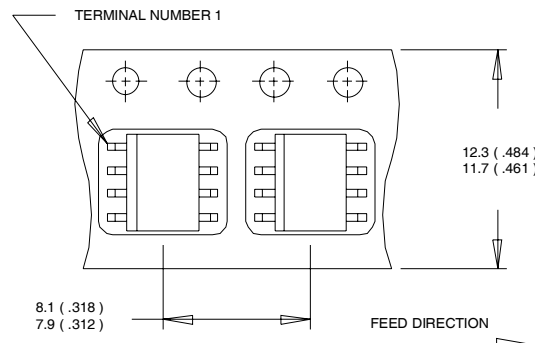
EXAMPLE: THIS IS AN IRF7101 (MOSFET)



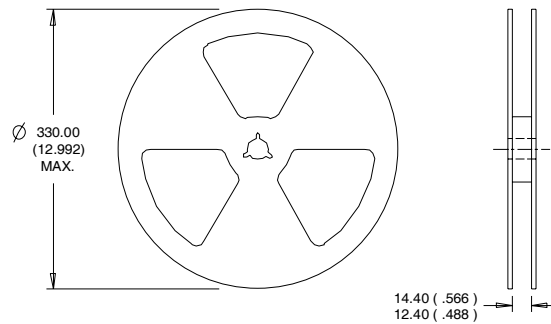
Note: For the most current drawing please refer to IR website at <http://www.irf.com/package/>

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/>

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

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