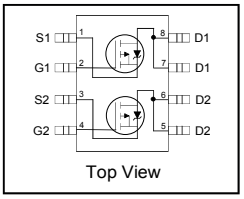
HEXFET® Power MOSFET

- Generation V Technology
- Ultra Low On-Resistance
- Dual P Channel MOSFET
- Surface Mount
- Available in Tape & Reel
- Dynamic dv/dt Rating
- Fast Switching
- Lead-Free



V_{DSS}	**-55V**
$R_{DS(on)}$ max.	**0.105Ω**
I_D	**-3.4A**

SO-8
IRF7342PbF

G	D	S
Gate	Drain	Source

Description

Fifth Generation HEXFETs from International Rectifier utilize advanced processing techniques to achieve extremely low on-resistance per silicon area. This benefit, combined with the fast switching speed and ruggedized device design that HEXFET Power MOSFETs are well known for, provides the designer with an extremely efficient and reliable device for use in a wide variety of applications.

The SO-8 has been modified through a customized lead frame for enhanced thermal characteristics and multiple-die capability making it ideal in a variety of power applications. With these improvements, multiple devices can be used in an application with dramatically reduced board space. The package is designed for vapor phase, infra red, or wave soldering techniques. Power dissipation of greater than 0.8W is possible in a typical PCB mount application.

Base part number	Package Type	Standard Pack		Orderable Part Number
		Form	Quantity	
IRF7342PbF	SO-8	Tape and Reel	4000	IRF7342PbF

Absolute Maximum Ratings

Symbol	Parameter	Max.	Units
V_{DS}	Drain-Source Voltage	-55	V
I_D @ T_A = 25°C	Continuous Drain Current, V_{GS} @ -10V	-3.4	A
I_D @ T_A = 70°C	Continuous Drain Current, V_{GS} @ -10V	-2.7	
I_{DM}	Pulsed Drain Current ①	-27	
P_D @T_A = 25°C	Maximum Power Dissipation	2.0	W
P_D @T_A = 70°C	Maximum Power Dissipation	1.3	
	Linear De rating Factor	0.016	mW°/C
V_{GS}	Gate-to-Source Voltage	± 20	V
V_{GSM}	Gate-to-Source Voltage Single Pulse tp < 10µs	30	
E_{AS}	Single Pulse Avalanche Energy (Thermally Limited) ②	114	mJ
dv/dt	Peak Diode Recovery dv/dt ③	5.0	V/ns
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150	°C

Thermal Resistance

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

Electrical Characteristics @ T_J = 25°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 = -250µA
$\Delta V_{(BR)DSS}/\Delta T_J$	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 = -250µA
gfs	Forward Trans conductance	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°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 = 6.0Ω
t_f	Fall Time	—	22	32		R_D = 16Ω 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

Diode 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°C,I_S = -2.0A,V_{GS} = 0V ④
t_{rr}	Reverse Recovery Time	—	54	80	ns	T_J = 25°C ,I_F = -2.0A,
Q_{rr}	Reverse Recovery Charge	—	85	130	nC	di/dt = 100A/µs ④

Notes:

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

② Starting T_J = 25°C, L = 20mH, R_G = 25Ω, I_{AS} = -3.4A. (See Fig. 8)

③ I_{SD} ≤ -3.4A, di/dt ≤ 150A/µs, V_{DD} ≤ $V_{(BR)DSS}$, T_J ≤ 150°C.

④ Pulse width ≤ 300µs; duty cycle ≤ 2%.

⑤ When mounted on 1" square copper board , t ≤ 10sec.

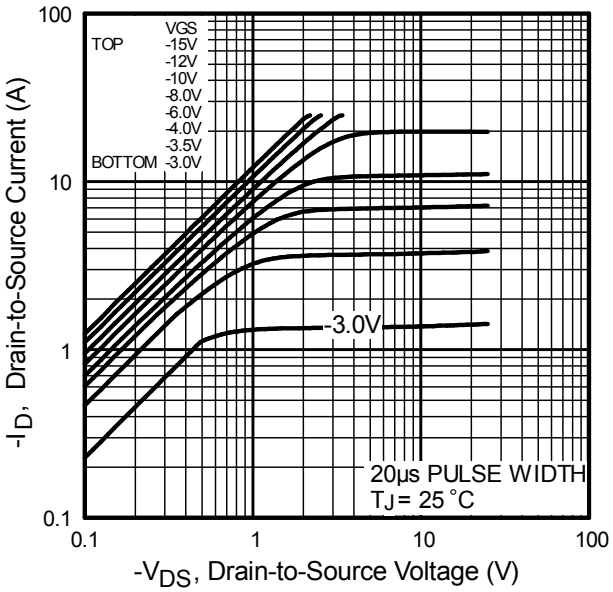


Fig. 1 Typical Output Characteristics

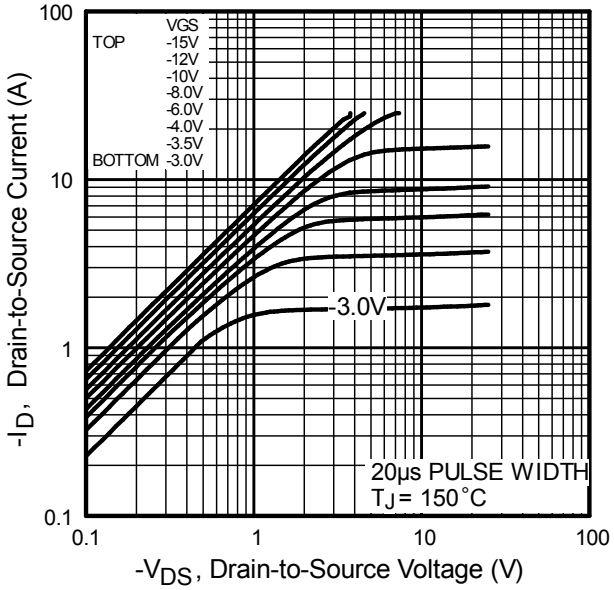


Fig. 2 Typical Output Characteristics

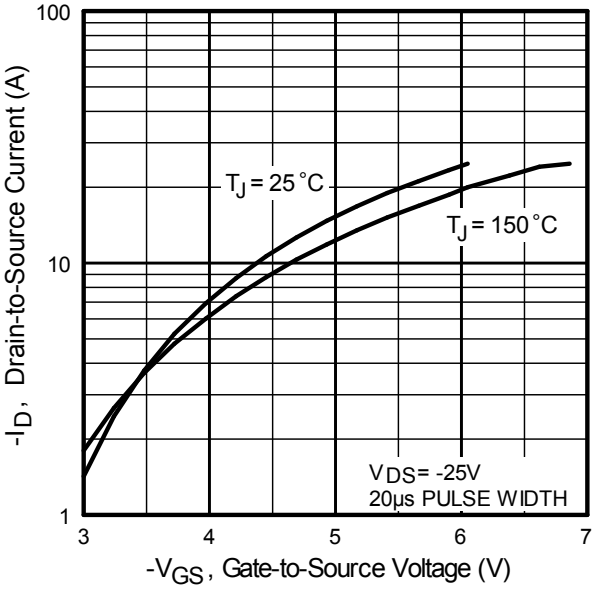


Fig. 3 Typical Transfer Characteristics

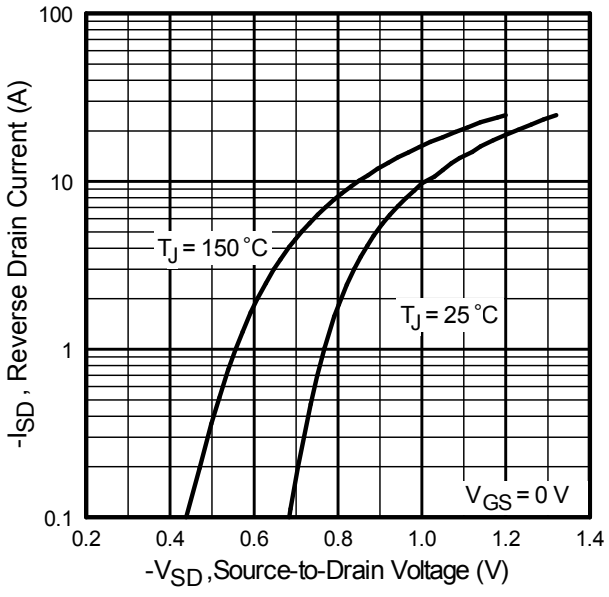


Fig. 4 Typical Source-Drain Diode Forward Voltage

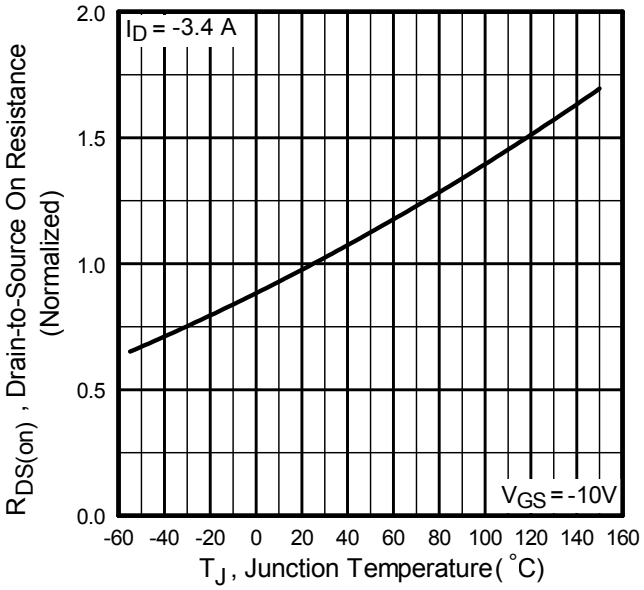


Fig 5. Normalized On-Resistance Vs. Temperature

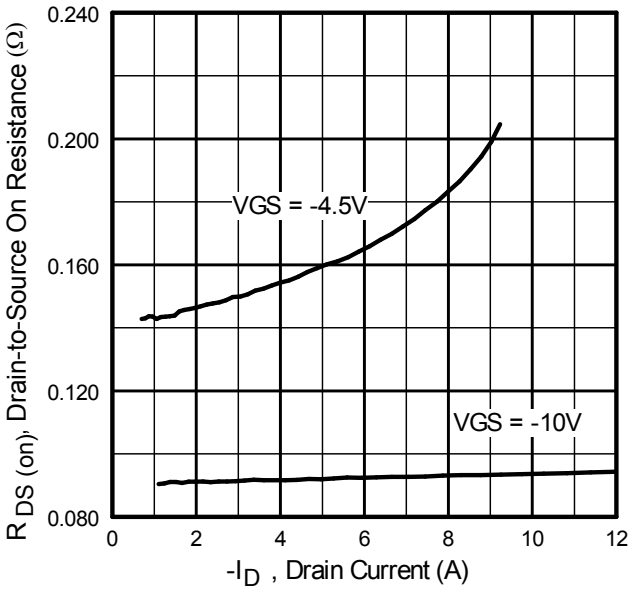


Fig 6. Typical On-Resistance Vs. Drain Current

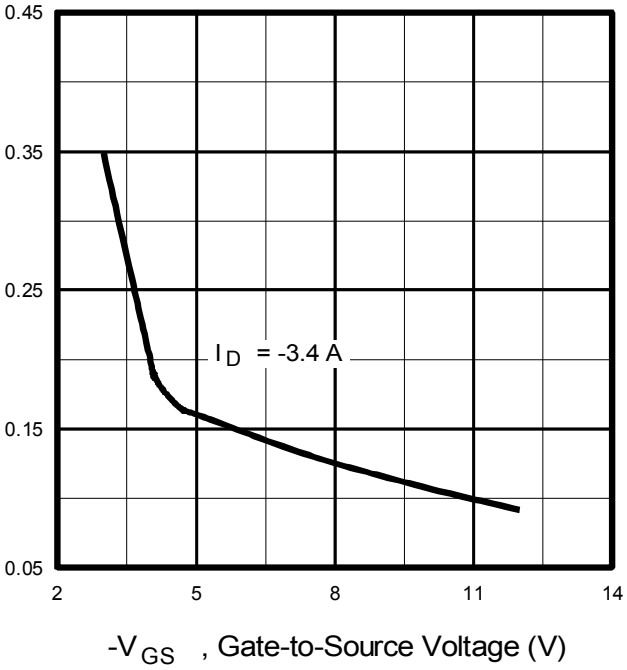


Fig. 7 Typical On-Resistance Vs. Gate Voltage

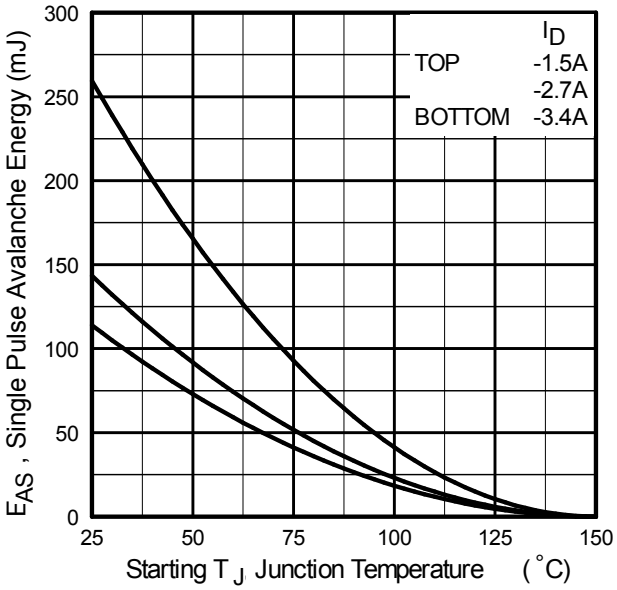


Fig 8. Maximum Avalanche Energy

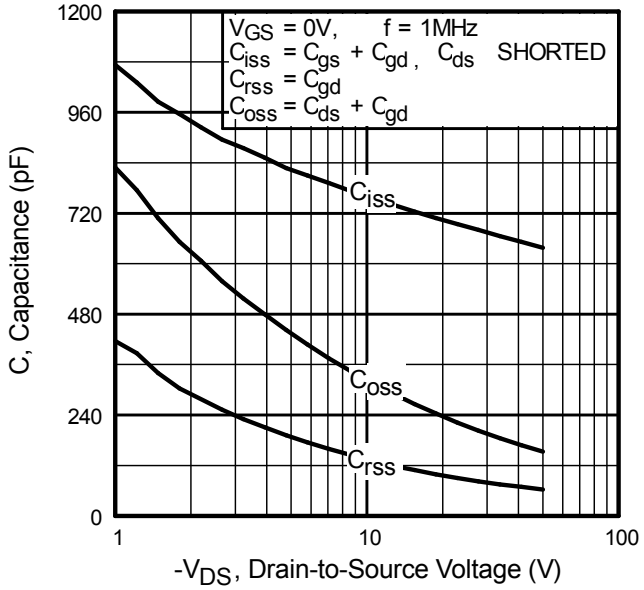


Fig 9. Typical Capacitance Vs. Drain-to-Source Voltage

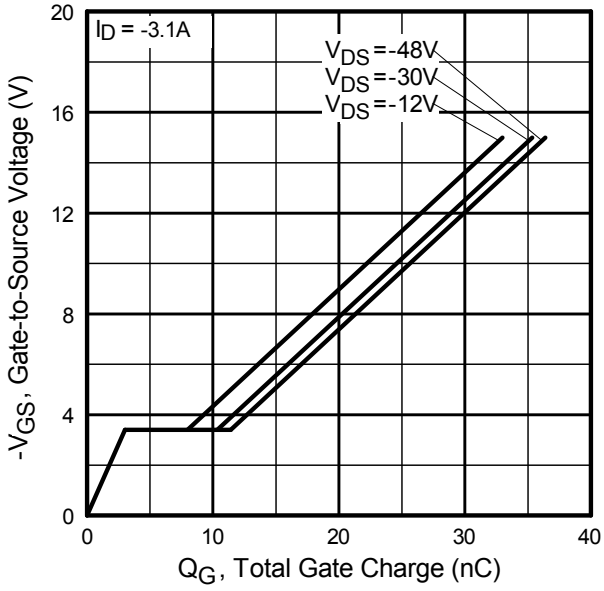


Fig 10. Typical Gate Charge Vs. Gate-to-Source Voltage

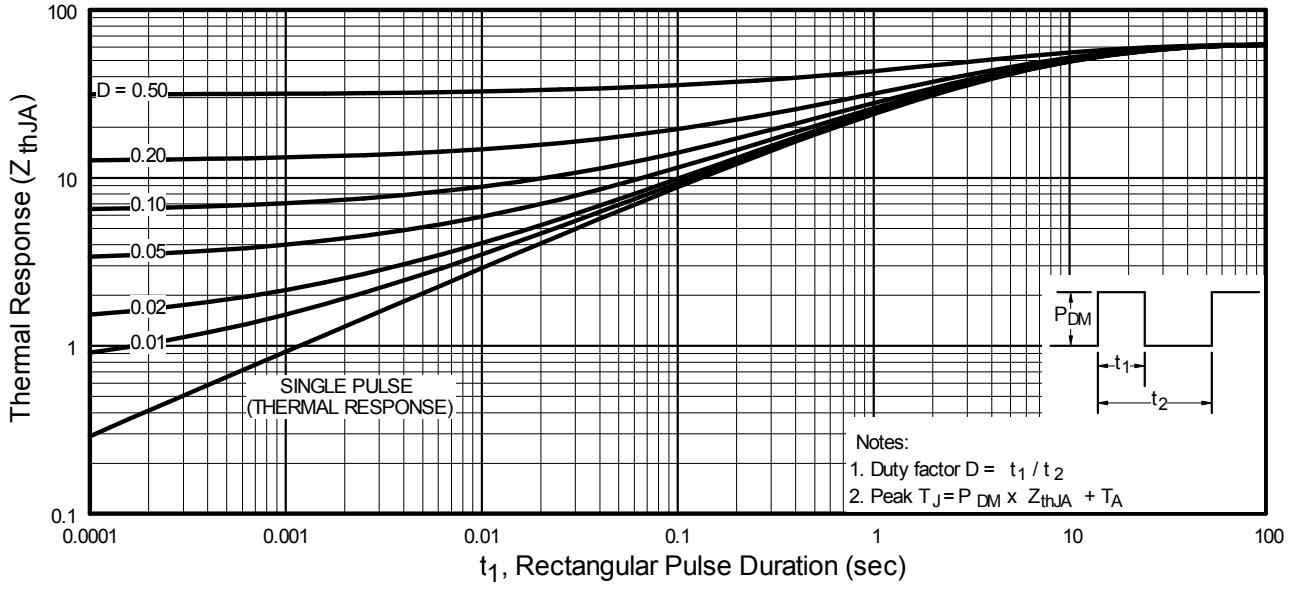
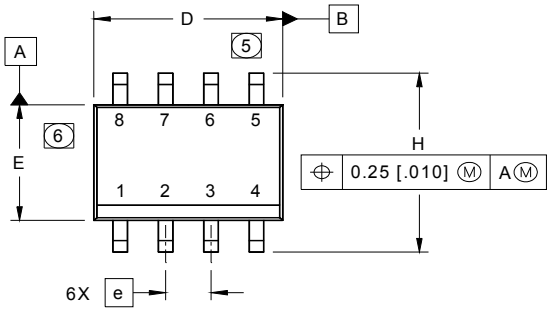
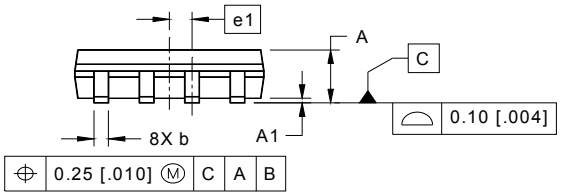


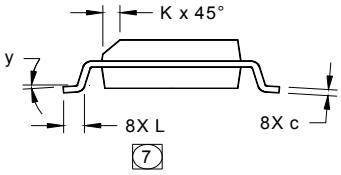
Fig. 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

SO-8 Package Outline (Dimensions are shown in millimeters (inches)

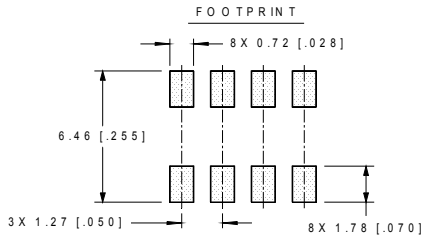


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e 1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40	1.27
y	0°	8°	0°	8°



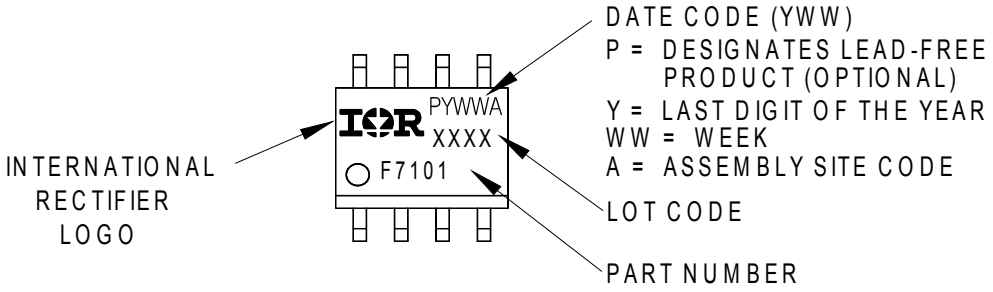


NOTES:
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: MILLIMETER
3. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA.
5. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 [.006].
6. DIMENSION DOES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



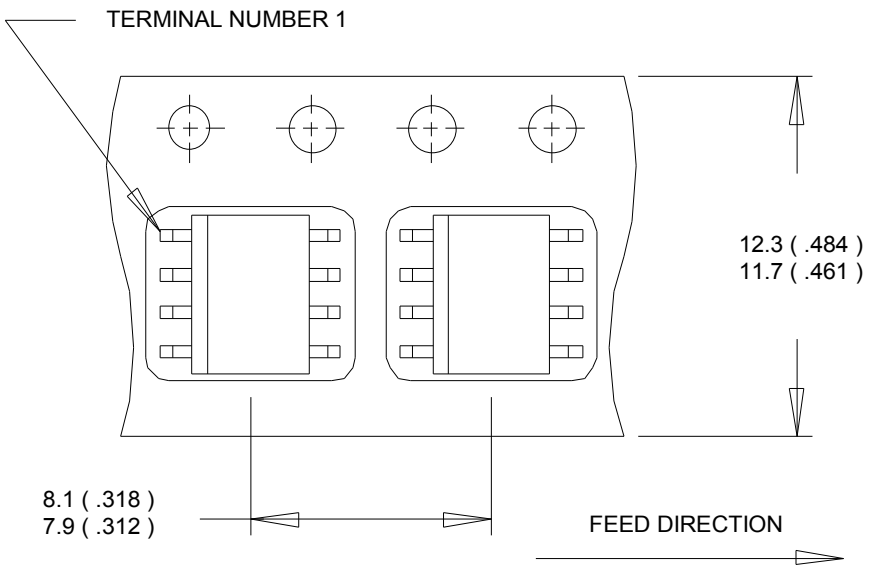
SO-8 Part Marking Information

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

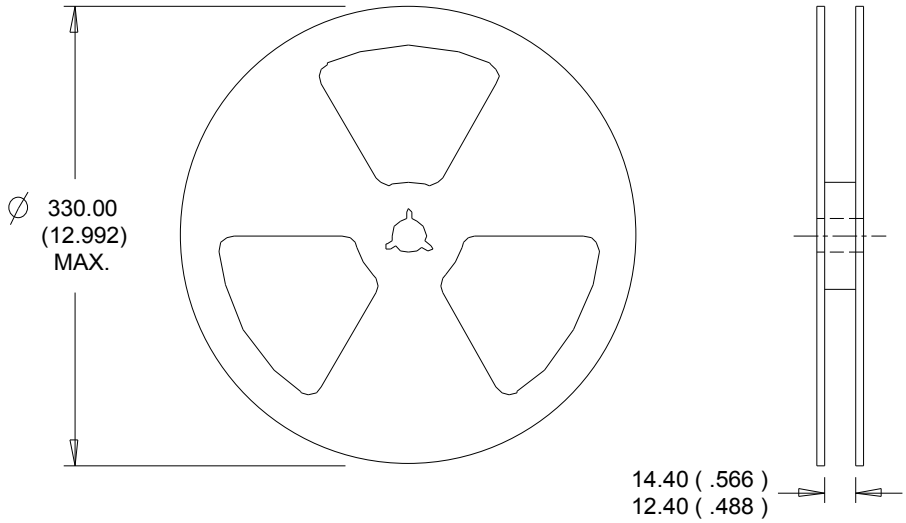


Note: For the most current drawing please refer to Infineon's web site www.infineon.com

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 Infineon's web site www.infineon.com

Qualification Information†

Qualification Level	Consumer	
Moisture Sensitivity Level	SO-8	MSL1 (per JEDEC J-STD-020D)††
RoHS Compliant	Yes	

† Qualification standards can be found at Infineon's web site www.infineon.com

†† Applicable version of JEDEC standard at the time of product release.

Revision History

Date	Comments
05/26/2016	• Updated datasheet with corporate template • Added disclaimer on last page.

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Do you have a question about this document?
Email: erratum@infineon.com

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