PD - 95283

International
IOR Rectifier

IRF7488PbF

HEXFET® Power MOSFET

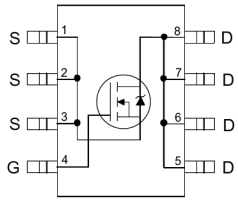
Applications

- High frequency DC-DC converters
- Lead-Free

V_{DSS}	$R_{DS(on)}$ max	Q_g
80V	29mΩ@V_{GS}=10V	38nC

Benefits

- Low Gate-to-Drain Charge to Reduce Switching Losses
- Fully Characterized Capacitance Including Effective C_{OSS} to Simplify Design, (See App. Note AN1001)
- Fully Characterized Avalanche Voltage and Current



Top View


SO-8

Absolute Maximum Ratings

Symbol	Parameter	Max.	Units
V_{DS}	Drain-Source Voltage	80	V
V_{GS}	Gate-to-Source Voltage	± 20	
I_D @ T_A = 25°C	Continuous Drain Current, V_{GS} @ 10V	6.3	A
I_D @ T_A = 70°C	Continuous Drain Current, V_{GS} @ 10V	5.0	
I_{DM}	Pulsed Drain Current①	50	
P_D @T_A = 25°C	Maximum Power Dissipation	2.5	W
P_D @T_A = 70°C	Maximum Power Dissipation	1.6	
	Linear Derating Factor	20	mW/°C
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150	°C
	Soldering Temperature, for 10 seconds	300 (1.6mm from case)	

Thermal Resistance

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

Notes ① through ④ are on page 9

Static @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	80	—	—	V	V_{GS} = 0V, I_D = 250µA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	0.089	—	V/°C	Reference to 25°C, I_D = 1mA ③
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	24	29	mΩ	V_{GS} = 10V, I_D = 3.8A ③
$V_{GS(th)}$	Gate Threshold Voltage	2.0	—	4.0	V	V_{DS} = V_{GS}, I_D = 250µA
I_{DSS}	Drain-to-Source Leakage Current	—	—	20	µA	V_{DS} = 80V, V_{GS} = 0V
		—	—	250		V_{DS} = 64V, V_{GS} = 0V, T_J = 125°C
I_{GSS}	Gate-to-Source Forward Leakage	—	—	200	nA	V_{GS} = 20V
	Gate-to-Source Reverse Leakage	—	—	-200		V_{GS} = -20V

Dynamic @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
g_{fs}	Forward Transconductance	9.3	—	—	S	V_{DS} = 15V, I_D = 3.8A
Q_g	Total Gate Charge	—	38	57	nC	I_D = 3.8A
Q_{gs}	Gate-to-Source Charge	—	9.1			V_{DS} = 40V
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	12			V_{GS} = 10V,
$t_{d(on)}$	Turn-On Delay Time	—	13	—	ns	V_{DD} = 40V
t_r	Rise Time	—	12	—		I_D = 3.8A
$t_{d(off)}$	Turn-Off Delay Time	—	44	—		R_G = 9.1Ω
t_f	Fall Time	—	16	—		V_{GS} = 10V ③
C_{iss}	Input Capacitance	—	1680	—	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	—	270	—		V_{DS} = 25V
C_{rss}	Reverse Transfer Capacitance	—	32	—		f = 1.0MHz
C_{oss}	Output Capacitance	—	1760	—		V_{GS} = 0V, V_{DS} = 1.0V, f = 1.0MHz
C_{oss}	Output Capacitance	—	170	—		V_{GS} = 0V, V_{DS} = 64V, f = 1.0MHz
C_{oss} eff.	Effective Output Capacitance	—	340	—		V_{GS} = 0V, V_{DS} = 0V to 64V ⑤

Avalanche Characteristics

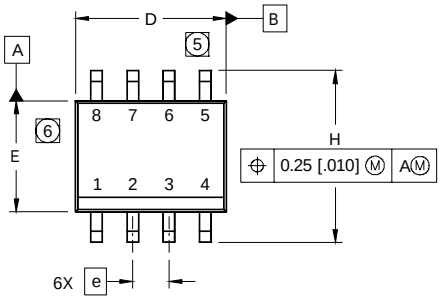
	Parameter	Typ.	Max.	Units
E_{AS}	Single Pulse Avalanche Energy②	—	96	mJ
I_{AR}	Avalanche Current①	—	3.8	A

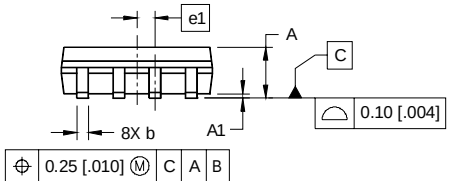
Diode Characteristics

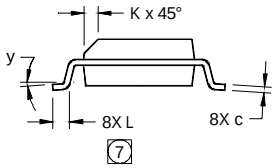
	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	2.3	A	MOSFET symbol showing the integral reverse p-n junction diode.
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	50		
V_{SD}	Diode Forward Voltage	—	—	1.3	V	T_J = 25°C, I_S = 3.8A, V_{GS} = 0V ③
t_{rr}	Reverse Recovery Time	—	65	98	ns	T_J = 25°C, I_F = 3.8A
Q_{rr}	Reverse RecoveryCharge	—	190	290	nC	di/dt = 100A/µs ③

SO-8 Package Outline

Dimensions are shown in millimeters (inches)





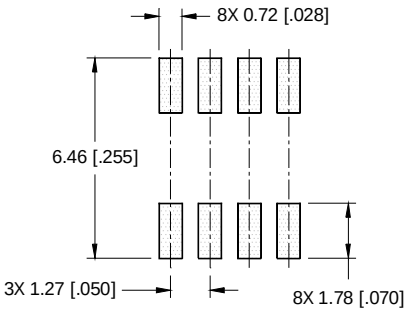


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40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

NOTES:

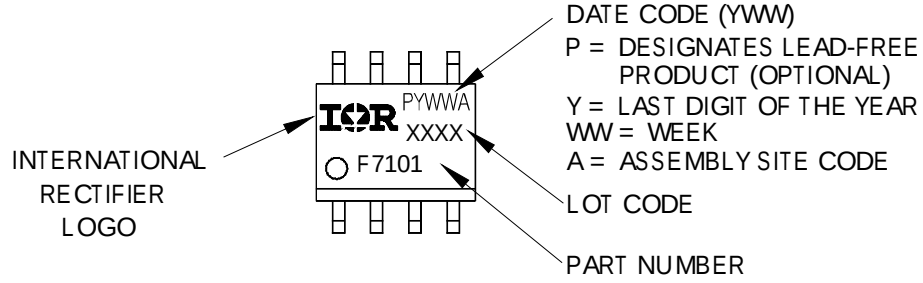
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: MILLIMETER
3. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA.
5. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 [.006].
6. DIMENSION DOES NOT INCLUDE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

FOOTPRINT

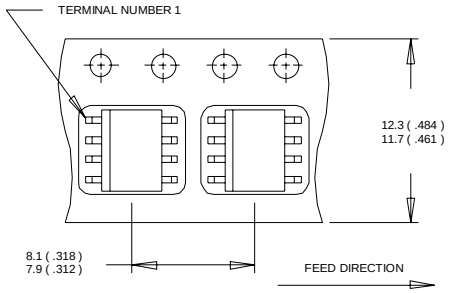


SO-8 Part Marking

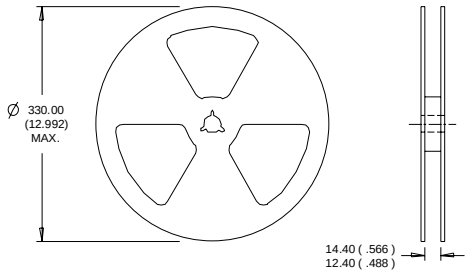
EXAMPLE: THIS IS AN IRF7101 (MOSFET)



SO-8 Tape and Reel



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°C, L = 13mH R_G = 25Ω, I_{AS} = 3.8A.

③ Pulse width ≤ 300µs; duty cycle ≤ 2%.

④ When mounted on 1 inch square copper board

⑤ C_{oss} eff. is a fixed capacitance that gives the same charging time as C_{oss} while V_{DS} is rising from 0 to 80% V_{DSS}

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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