International
IOR Rectifier

PD - 95289

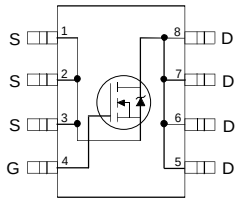
IRF7493PbF

HEXFET® Power MOSFET

Applications
- High frequency DC-DC converters
- Lead-Free

V_{DSS}	$R_{DS(on)}$ max	Qg (typ.)
80V	15mΩ@V_{GS}=10V	35nC

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

	Parameter	Max.	Units
V_{DS}	Drain-to-Source Voltage	80	V
V_{GS}	Gate-to-Source Voltage	± 20	
I_D @ T_C = 25°C	Continuous Drain Current, V_{GS} @ 10V	9.3	A
I_D @ T_C = 70°C	Continuous Drain Current, V_{GS} @ 10V	7.4	
I_{DM}	Pulsed Drain Current ①	74	
P_D @T_C = 25°C	Maximum Power Dissipation ④	2.5	W
P_D @T_C = 70°C	Maximum Power Dissipation ④	1.6	
	Linear Derating Factor	0.02	W/°C
T_J	Operating Junction and	-55 to + 150	°C
T_{STG}	Storage Temperature Range		

Thermal Resistance

	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Lead	—	20	
$R_{\theta JA}$	Junction-to-Ambient ④	—	50	

Notes ① through ⑤ are on page 9

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

	Parameter	Min.	Typ.	Max.	Units	Conditions
BV_{DSS}	Drain-to-Source Breakdown Voltage	80	—	—	V	V_{GS} = 0V, I_D = 250µA
$\Delta BV_{DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	0.074	—	mV/°C	Reference to 25°C, I_D = 1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	11.5	15	mΩ	V_{GS} = 10V, I_D = 5.6A 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)

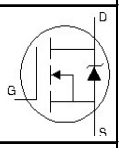
gfs	Forward Transconductance	13	—	—	S	V_{DS} = 15V, I_D = 5.6A
Q_g	Total Gate Charge	—	35	53		I_D = 5.6A
Q_{gs}	Gate-to-Source Charge	—	5.7	—		V_{DS} = 40V
Q_{gd}	Gate-to-Drain Charge	—	12	—		V_{GS} = 10V
$t_{d(on)}$	Turn-On Delay Time	—	8.3	—		V_{DD} = 40V, ③
t_r	Rise Time	—	7.5	—		I_D = 5.6A
$t_{d(off)}$	Turn-Off Delay Time	—	30	—	ns	R_G = 6.2Ω
t_f	Fall Time	—	12	—		V_{GS} = 10V
C_{iss}	Input Capacitance	—	1510	—		V_{GS} = 0V
C_{oss}	Output Capacitance	—	320	—	pF	V_{DS} = 25V
C_{rss}	Reverse Transfer Capacitance	—	130	—		f = 1.0MHz
C_{oss}	Output Capacitance	—	1130	—		V_{GS} = 0V, V_{DS} = 1.0V, f = 1.0MHz
C_{oss}	Output Capacitance	—	210	—		V_{GS} = 0V, V_{DS} = 64V, f = 1.0MHz
C_{rss} eff.	Effective Output Capacitance	—	320	—		V_{GS} = 0V, V_{DS} = 0V to 64V ⑤

Avalanche Characteristics

	Parameter	Typ.	Max.	Units
E_{AS}	Single Pulse Avalanche Energy②	—	180	mJ
I_{AR}	Avalanche Current ①	—	5.6	A

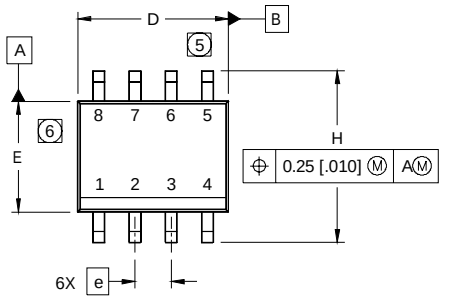
Diode Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	9.3	A	MOSFET symbol showing the integral reverse p-n junction diode.
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	74		
V_{SD}	Diode Forward Voltage	—	—	1.3	V	T_J = 25°C, I_S = 5.6A, V_{GS} = 0V ③
t_{rr}	Reverse Recovery Time	—	37	56	ns	T_J = 25°C, I_F = 5.6A, V_{DD} = 15V
Q_{rr}	Reverse Recovery Charge	—	52	78	nC	di/dt = 100A/µs ③

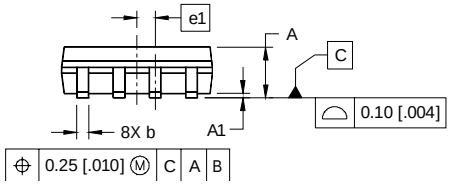


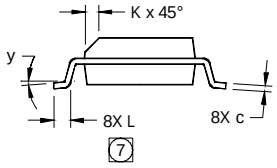
SO-8 Package Outline

Dimensions are shown in millimeters (inches)



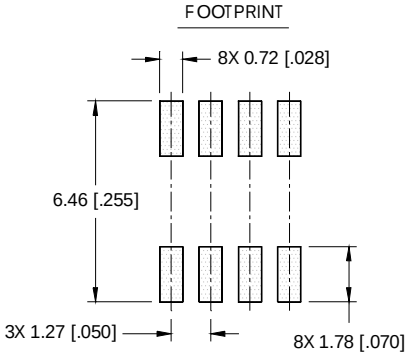
DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e 1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40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





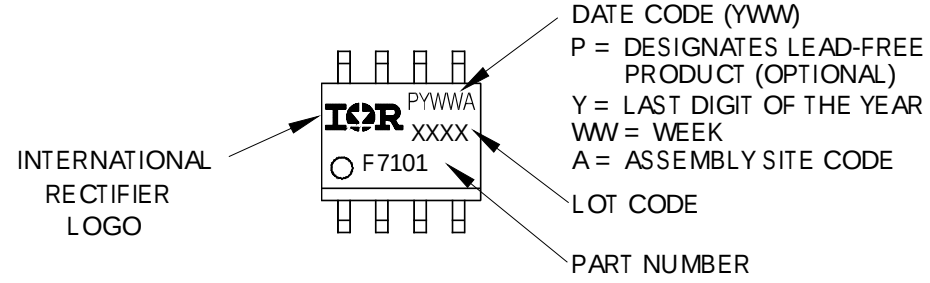
NOTES:

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.



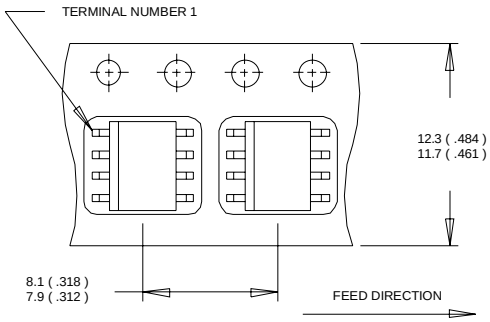
SO-8 Part Marking

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

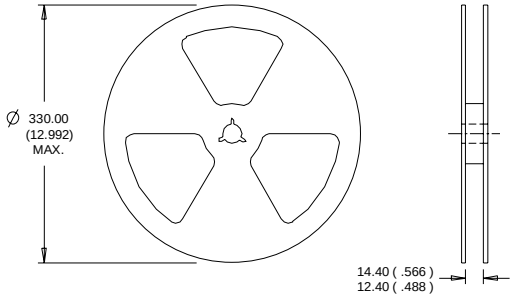


SO-8 Tape and Reel

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.

Notes:

① Repetitive rating; pulse width limited by max. junction temperature.

② Starting T_J = 25°C, L = 12mH R_G = 25Ω, I_{AS} = 5.6A.

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.

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