

SMPS MOSFET

PD - 95293

International
IR Rectifier

IRF6216PbF

HEXFET® Power MOSFET

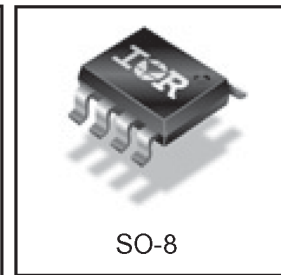
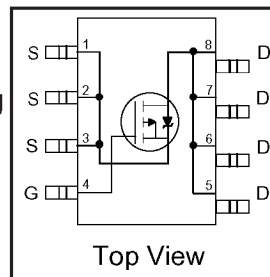
Applications

- Reset Switch for Active Clamp Reset DC-DC converters
- Lead-Free

V_{DSS}	$R_{DS(on) \text{ max}}$	I_D
-150V	0.240Ω@ $V_{GS} = -10V$	-2.2A

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



Absolute Maximum Ratings

	Parameter	Max.	Units
$I_D @ T_A = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V$	-2.2	A
$I_D @ T_A = 70^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V$	-1.9	
I_{DM}	Pulsed Drain Current ①	-19	
$P_D @ T_A = 25^\circ\text{C}$	Power Dissipation②	2.5	W
	Linear Derating Factor	0.02	W/°C
V_{GS}	Gate-to-Source Voltage	± 20	V
dv/dt	Peak Diode Recovery dv/dt	7.8	V/ns
T_J	Operating Junction and	-55 to + 150	°C
T_{STG}	Storage Temperature Range		
	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 8

IRF6216PbF

International
IR Rectifier

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

	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source Breakdown Voltage	-150	—	—	V	V _{GS} = 0V, I _D = -250μA
ΔV _{(BR)DSS/ΔT_J}	Breakdown Voltage Temp. Coefficient	—	-0.17	—	V/°C	Reference to 25°C, I _D = -1mA ③
R _{DS(on)}	Static Drain-to-Source On-Resistance	—	—	0.240	Ω	V _{GS} = -10V, I _D = -1.3A ③
V _{GS(th)}	Gate Threshold Voltage	-3.0	—	-5.0	V	V _{DS} = V _{GS} , I _D = -250μA
I _{DSS}	Drain-to-Source Leakage Current	—	—	-25	μA	V _{DS} = -150V, V _{GS} = 0V
		—	—	-250		V _{DS} = -120V, V _{GS} = 0V, T _J = 125°C
I _{GSS}	Gate-to-Source Forward Leakage	—	—	-100	nA	V _{GS} = -20V
	Gate-to-Source Reverse Leakage	—	—	100		V _{GS} = 20V

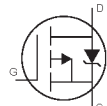
Dynamic @ T_J = 25°C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
g _{fs}	Forward Transconductance	2.7	—	—	S	V _{DS} = -50V, I _D = -1.3A
Q _g	Total Gate Charge	—	33	49	nC	I _D = -1.3A
Q _{gs}	Gate-to-Source Charge	—	7.2	11		V _{DS} = -120V
Q _{gd}	Gate-to-Drain ("Miller") Charge	—	15	23		V _{GS} = -10V,
t _{d(on)}	Turn-On Delay Time	—	18	—	ns	V _{DD} = -75V
t _r	Rise Time	—	15	—		I _D = -1.3A
t _{d(off)}	Turn-Off Delay Time	—	33	—		R _G = 6.5Ω
t _f	Fall Time	—	26	—		V _{GS} = -10V ③
C _{iss}	Input Capacitance	—	1280	—	pF	V _{GS} = 0V
C _{oss}	Output Capacitance	—	220	—		V _{DS} = -25V
C _{riss}	Reverse Transfer Capacitance	—	53	—		f = 1.0MHz
C _{oss}	Output Capacitance	—	1290	—		V _{GS} = 0V, V _{DS} = -1.0V, f = 1.0MHz
C _{oss}	Output Capacitance	—	99	—		V _{GS} = 0V, V _{DS} = -120V, f = 1.0MHz
C _{oss eff.}	Effective Output Capacitance	—	220	—		V _{GS} = 0V, V _{DS} = 0V to -120V

Avalanche Characteristics

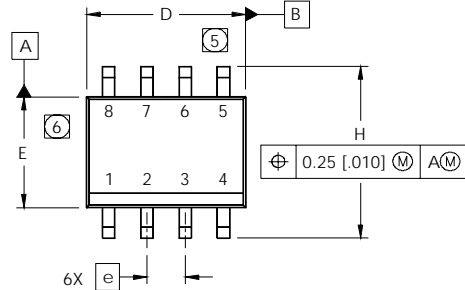
	Parameter	Typ.	Max.	Units
E _{AS}	Single Pulse Avalanche Energy②	—	200	mJ
I _{AR}	Avalanche Current①	—	-4.0	A

Diode Characteristics

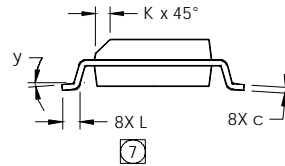
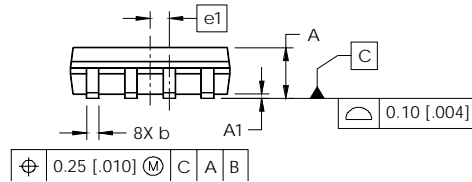
	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode)	—	—	-2.2	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode) ①	—	—	-19		
V _{SD}	Diode Forward Voltage	—	—	-1.6	V	T _J = 25°C, I _S = -1.3A, V _{GS} = 0V ③
t _{rr}	Reverse Recovery Time	—	80	120	nS	T _J = 25°C, I _F = -1.3A
Q _{rr}	Reverse Recovery Charge	—	310	460	nC	di/dt = -100A/μs ③

SO-8 Package Outline

Dimensions are shown in millimeters (inches)



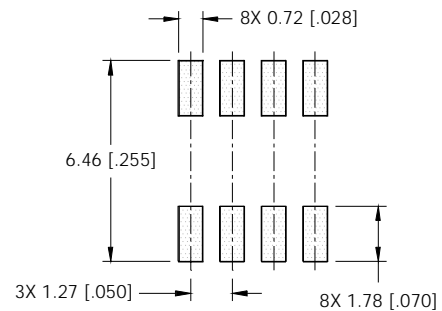
DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40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



NOTES:

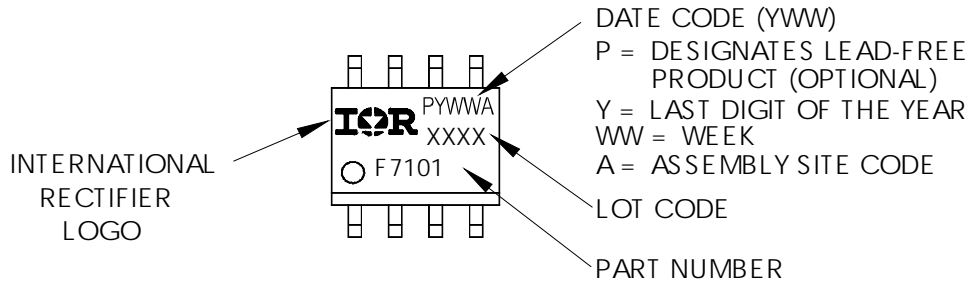
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: MILLIMETER
3. DIMENSIONS ARE SHOWN IN MILLIMETERS [INCHES].
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA.
- ⑤ DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 [0.006].
- ⑥ DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.25 [0.010].
- ⑦ DIMENSION IS THE LENGTH OF LEAD FOR SOLDERING TO A SUBSTRATE.

FOOTPRINT



SO-8 Part Marking

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

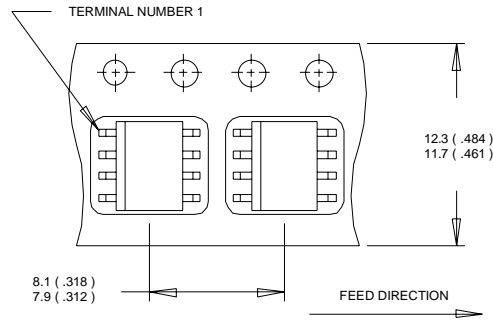


IRF6216PbF

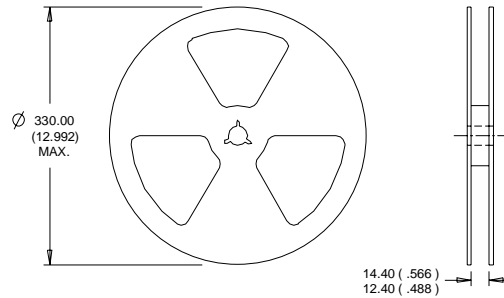
International
IOR Rectifier

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 $T_J = 25^\circ\text{C}$, $L = 25\text{mH}$
 $R_G = 25\Omega$, $I_{AS} = -4.0\text{A}$.
- ③ Pulse width $\leq 400\mu\text{s}$; duty cycle $\leq 2\%$.
- ④ When mounted on 1 inch square copper board.

Data and specifications subject to change without notice.
This product has been designed and qualified for the Consumer market.

International
IOR Rectifier