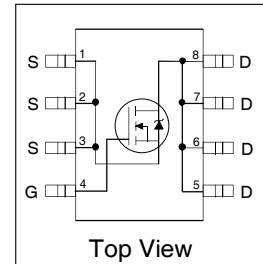


HEXFET® Power MOSFET

V_{DS}	30	V
$R_{DS(on) max}$ (@ $V_{GS} = 4.5V$)	14	mΩ
Q_g (typical)	17	nC
I_D (@ $T_A = 25^\circ C$)	10.8	A



Features

Industry-standard pinout SO-8 Package
Compatible with Existing Surface Mount Techniques
RoHS Compliant, Halogen-Free
MSL1, Industrial qualification



Benefits

Multi-Vendor Compatibility
Easier Manufacturing
Environmentally Friendlier
Increased Reliability

Base Part Number	Package Type	Standard Pack		Orderable Part Number
		Form	Quantity	
IRF7811AVPbF-1	SO-8	Tube/Bulk	95	IRF7811AVPbF-1
		Tape and Reel	4000	IRF7811AVTRPbF-1

Absolute Maximum Ratings

Parameter	Symbol	IRF7811AV	Units
Drain-to-Source Voltage	V_{DS}	30	V
Gate-to-Source Voltage	V_{GS}	±20	
Continuous Output Current ($V_{GS} \geq 4.5V$)	$T_A = 25^\circ C$	10.8	A
	$T_L = 90^\circ C$	11.8	
Pulsed Drain Current ①	I_{DM}	100	
Power Dissipation ③	$T_A = 25^\circ C$	2.5	W
	$T_L = 90^\circ C$	3.0	
Junction & Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C
Continuous Source Current (Body Diode)	I_S	2.5	A
Pulsed Source Current ①	I_{SM}	50	

Thermal Resistance

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ③⑥	$R_{\theta JA}$	---	50	°C/W
Maximum Junction-to-Lead ⑥	$R_{\theta JL}$	---	20	

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	30	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	—	11	14	m Ω	$V_{GS} = 4.5V, I_D = 15A$ ②
Gate Threshold Voltage	$V_{GS(th)}$	1.0	—	3.0	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
Drain-to-Source Leakage Current	I_{DSS}	—	—	50	μA	$V_{DS} = 30V, V_{GS} = 0V$
		—	—	20	μA	$V_{DS} = 24V, V_{GS} = 0V$
		—	—	100	mA	$V_{DS} = 24V, V_{GS} = 0V, T_J = 100^\circ C$
Gate-to-Source Leakage Current	I_{GSS}	—	—	± 100	nA	$V_{GS} = \pm 20V$
Total Gate Charge, Control FET	Q_g	—	17	26	nC	$V_{DS} = 24V, I_D = 15A, V_{GS} = 5.0V$
Total Gate Charge, Synch FET	Q_g	—	14	21	nC	$V_{GS} = 5.0V, V_{DS} < 100mV$
Pre-V _{th} Gate-to-Source Charge	Q_{gs1}	—	3.4	—		$V_{DS} = 16V, I_D = 15A$
Post-V _{th} Gate-to-Source Charge	Q_{gs2}	—	1.6	—		
Gate-to-Drain ("Miller") Charge	Q_{gd}	—	5.1	—		
Switch Charge ($Q_{gs2} + Q_{gd}$)	Q_{SW}	—	6.7	—		
Output Charge	Q_{OSS}	—	8.1	12		
Gate Resistance	R_G	0.5	—	4.4	Ω	
Turn-On Delay Time	$t_{d(on)}$	—	8.6	—	ns	$V_{DD} = 16V$
Rise Time	t_r	—	21	—		$I_D = 15A$
Turn-Off Delay Time	$t_{d(off)}$	—	43	—		$V_{GS} = 5.0V$
Fall Time	t_f	—	10	—		Clamped Inductive Load
Input Capacitance	C_{iss}	—	1801	—	pF	$V_{GS} = 0V$
Output Capacitance	C_{oss}	—	723	—		$V_{DS} = 10V$
Reverse Transfer Capacitance	C_{rss}	—	46	—		

Diode Characteristics

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Diode Forward Voltage	V_{SD}	—	—	1.3	V	$T_J = 25^\circ C, I_S = 15A$ ②, $V_{GS} = 0V$
Reverse Recovery Charge ④	Q_{rr}	—	50	—	nC	$di/dt = 700A/\mu s$ $V_{DD} = 16V, V_{GS} = 0V, I_D = 15A$
Reverse Recovery Charge (with Parallel Schottsky) ④	Q_{rr}	—	43	—	nC	$di/dt = 700A/\mu s$, (with 10BQ040) $V_{DD} = 16V, V_{GS} = 0V, I_D = 15A$

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Pulse width $\leq 400 \mu s$; duty cycle $\leq 2\%$.
- ③ When mounted on 1 inch square copper board, $t < 10$ sec.
- ④ Typ = measured - Q_{oss}
- ⑤ Typical values of $R_{DS(on)}$ measured at $V_{GS} = 4.5V$, Q_G , Q_{SW} and Q_{OSS} measured at $V_{GS} = 5.0V$, $I_F = 15A$.
- ⑥ R_θ is measured at T_J approximately $90^\circ C$

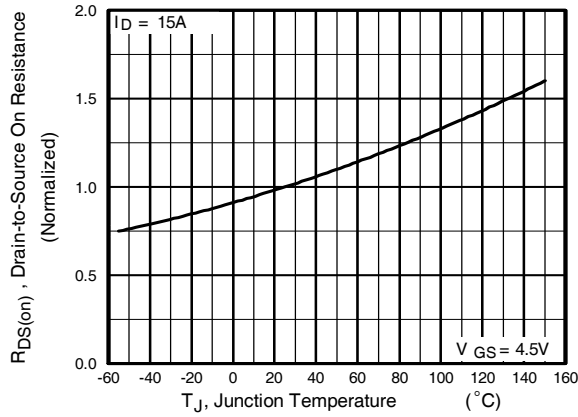


Figure 1. Normalized On-Resistance vs. Temperature

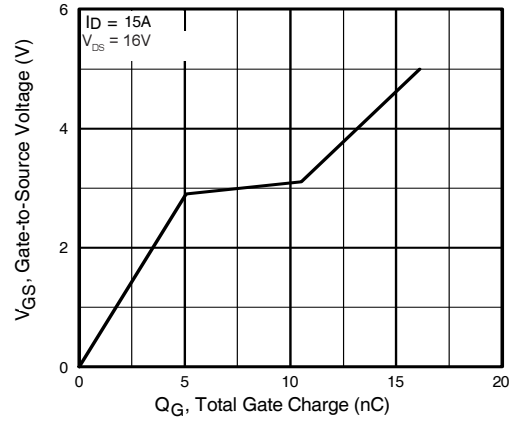


Figure 2. Gate-to-Source Voltage vs. Typical Gate Charge

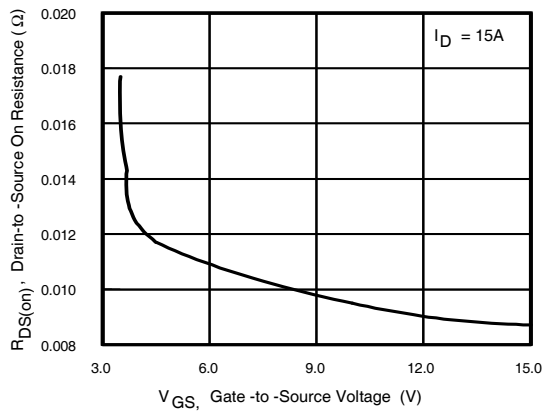
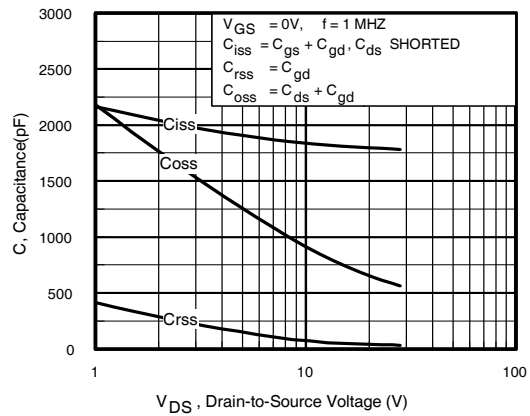

 Figure 3. Typical $R_{DS(on)}$ vs. Gate-to-Source Voltage


Figure 4. Typical Capacitance vs. Drain-to-Source Voltage

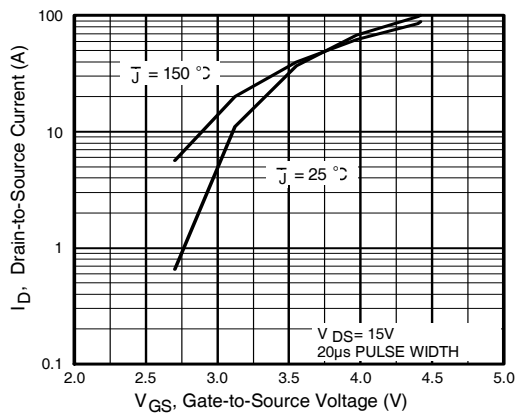


Figure 5. Typical Transfer Characteristics

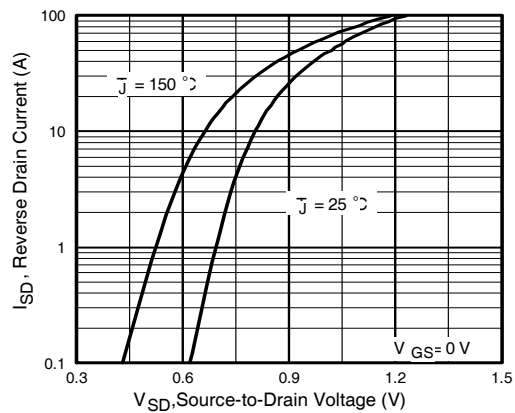


Figure 6. Typical Source-Drain Diode Forward Voltage

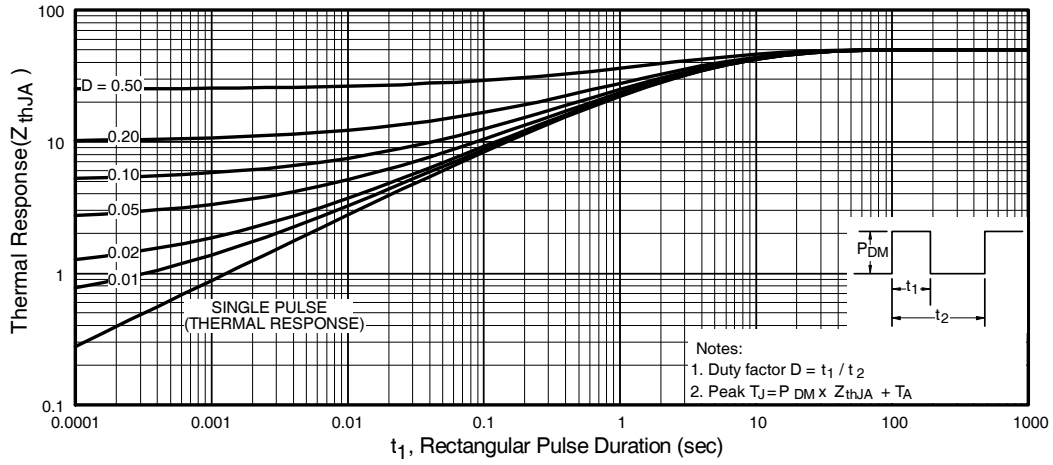


Figure 7. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

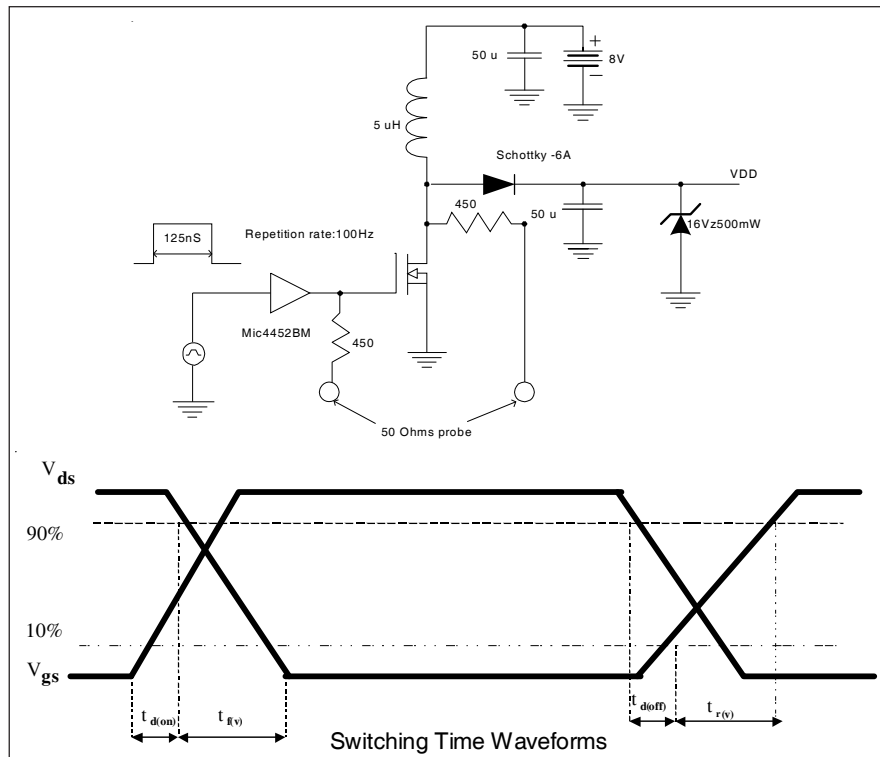
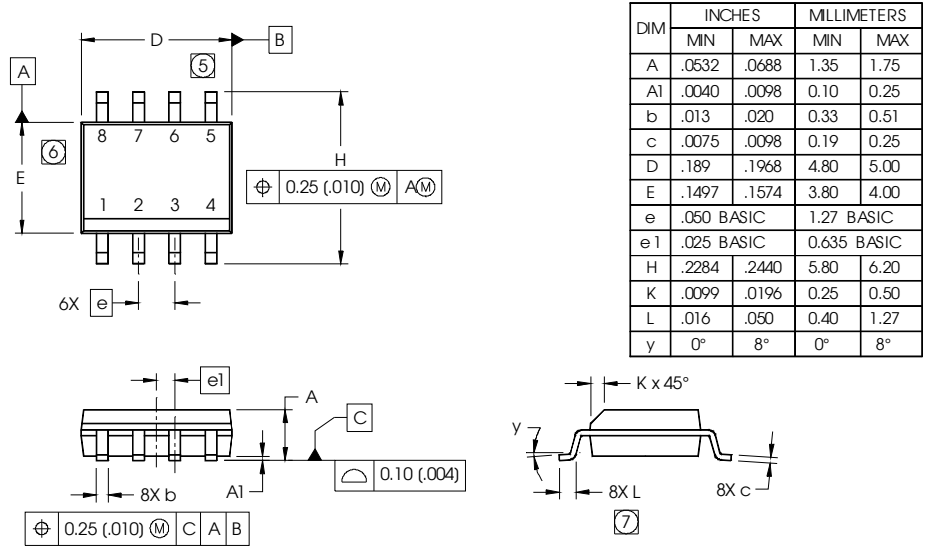


Figure 8. Clamped Inductive load test diagram and switching waveform



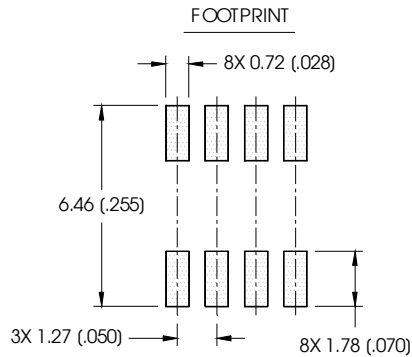
SO-8 Package Outline

Dimensions are shown in millimeters (inches)



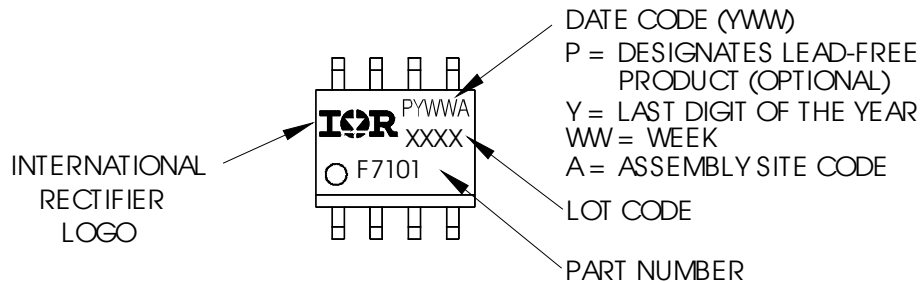
NOTES:

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 (.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.



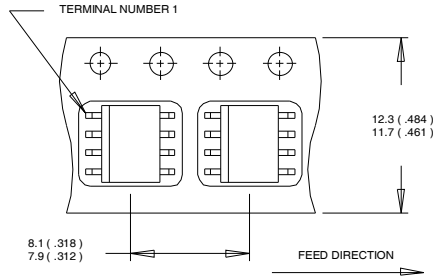
SO-8 Part Marking

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

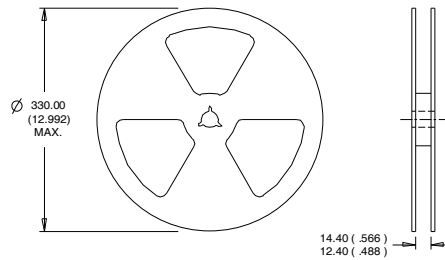


Note: For the most current drawing please refer to IR website at: <http://www.irf.com/package/>

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.

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

Qualification information[†]

Qualification level	Industriid (per JEDEC JESD47F ^{††} guidelines)	
Moisture Sensitivity Level	SO-8	MSL1 (per JEDEC J-STD-020D ^{††})
RoHS compliant	Yes	

[†] Qualification standards can be found at International Rectifier's web site: <http://www.irf.com/product-info/reliability>
^{††} Applicable version of JEDEC standard at the time of product release