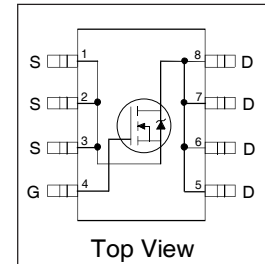


HEXFET® Power MOSFET

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 ($V_{GS} \geq 4.5V$)	$T_A = 25^\circ C$	I_D	10.8	A
	$T_L = 90^\circ C$		11.8	
Pulsed Drain Current ①		I_{DM}	100	
Power Dissipation ③	$T_A = 25^\circ C$	P_D	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		$V_{GS} = 5.0V, V_{DS} < 100mV$
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		$V_{DS} = 16V, V_{GS} = 0$
Gate Resistance	R_G	0.5	—	4.4	Ω	
Turn-On Delay Time	$t_{d(on)}$	—	8.6	—	ns	$V_{DD} = 16V$ $I_D = 15A$ $V_{GS} = 5.0V$ Clamped Inductive Load
Rise Time	t_r	—	21	—		
Turn-Off Delay Time	$t_{d(off)}$	—	43	—		
Fall Time	t_f	—	10	—		
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 $90^\circ C$

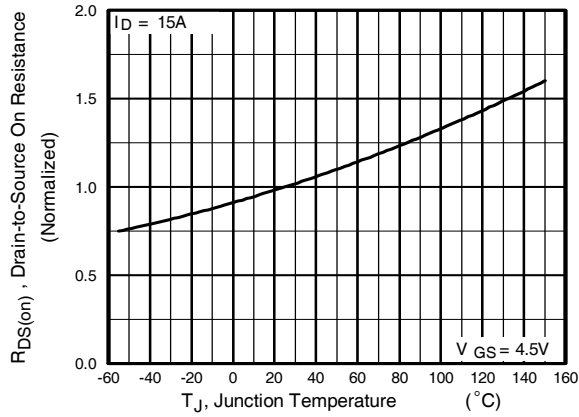


Figure 1. Normalized On-Resistance vs. Temperature

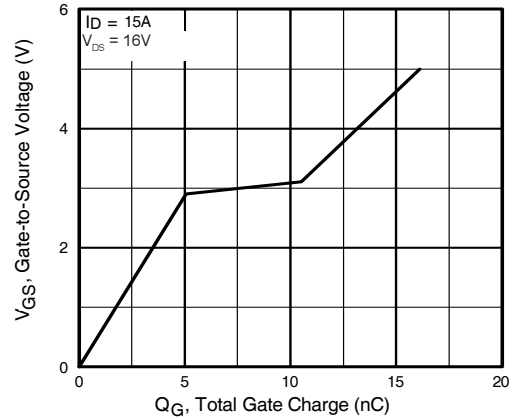


Figure 2. Gate-to-Source Voltage vs. Typical Gate Charge

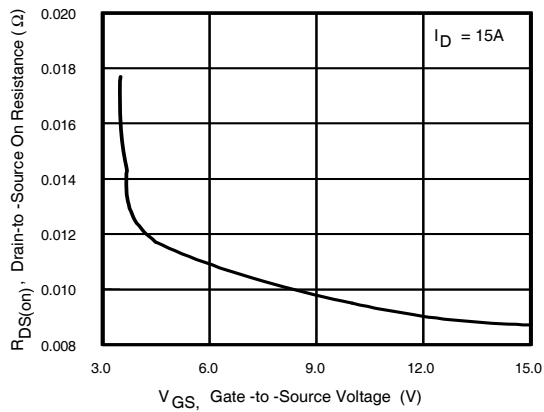
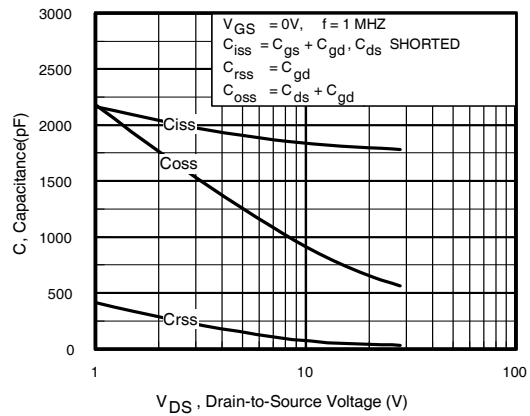

 Figure 3. Typical $R_{DS(on)}$ vs. Gate-to-Source Voltage


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

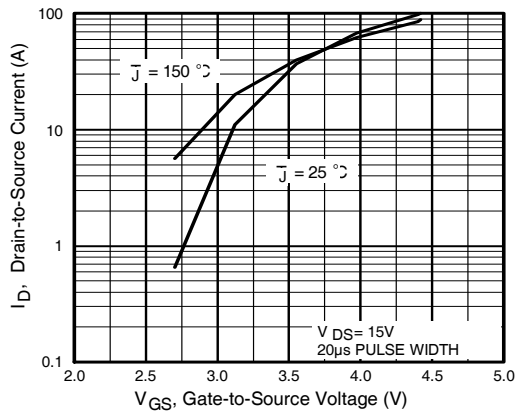


Figure 5. Typical Transfer Characteristics

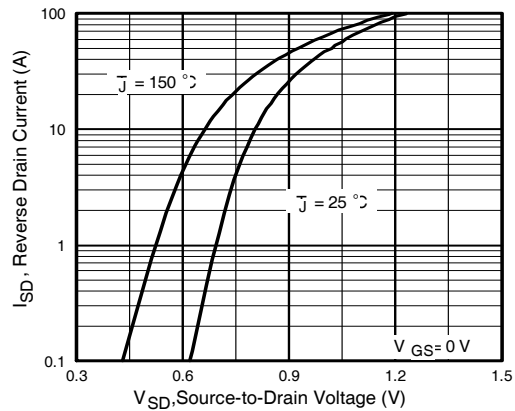


Figure 6. Typical Source-Drain Diode Forward Voltage

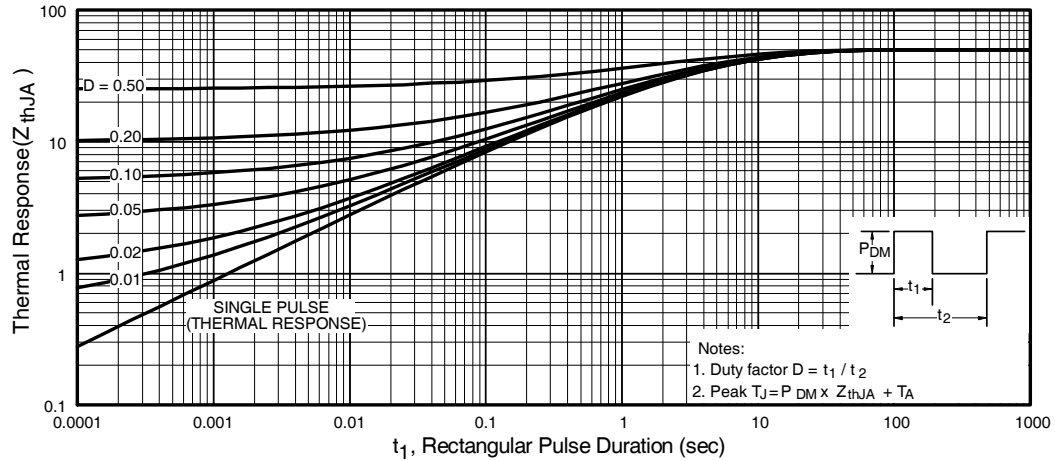


Figure 7. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

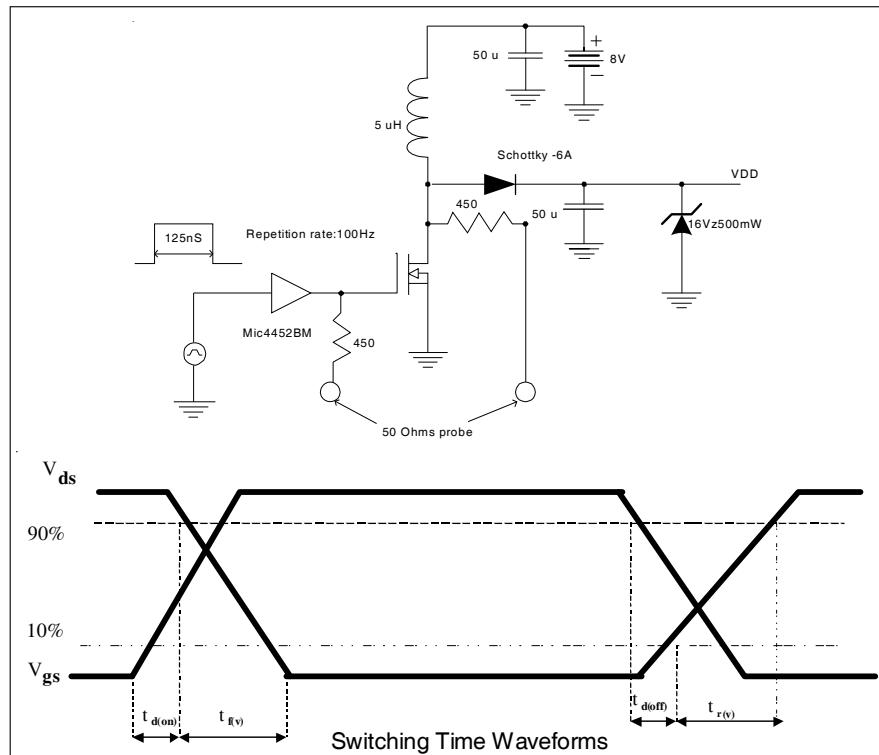
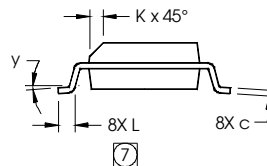
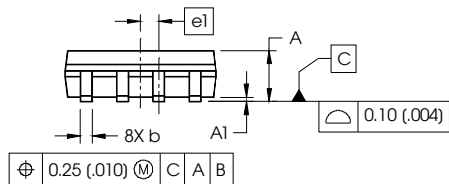
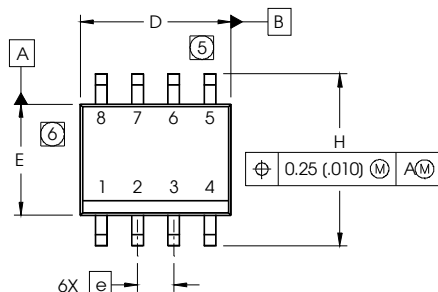


Figure 8. Clamped Inductive load test diagram and switching waveform

SO-8 Package Outline

Dimensions are shown in millimeters (inches)

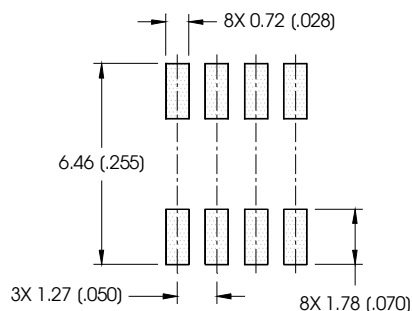


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.013	.020	0.33	0.51
c	.0075	.0098	0.19	0.25
D	.189	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
e	.050 BASIC		1.27 BASIC	
e1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.0099	.0196	0.25	0.50
L	.016	.050	0.40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

NOTES:

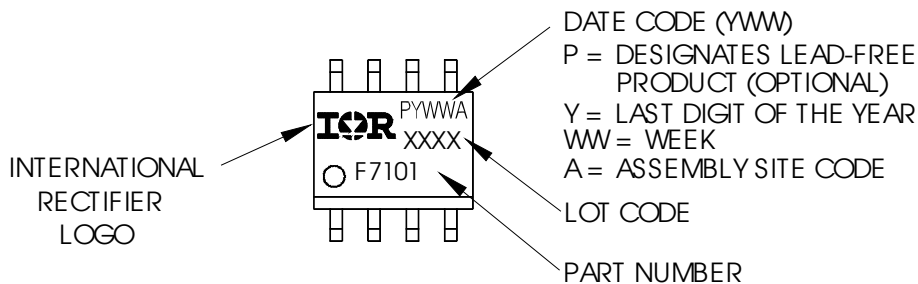
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
2. CONTROLLING DIMENSION: MILLIMETER
3. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA.
- ⑤ DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 (.006).
- ⑥ DIMENSION DOES NOT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

FOOTPRINT



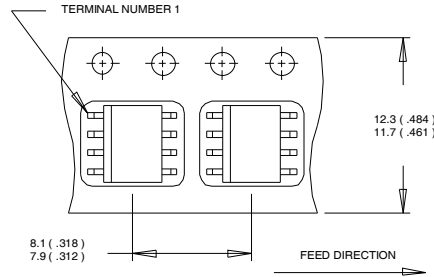
SO-8 Part Marking

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

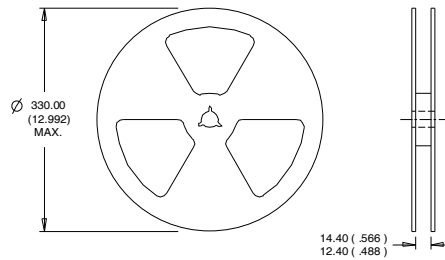


Note: For the most current drawing please refer to IR website at: <http://www.irf.com/package/>

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

International
 Rectifier

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 To contact International Rectifier, please visit <http://www.irf.com/whoto-call/>