



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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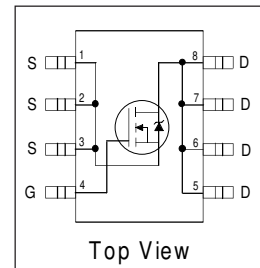
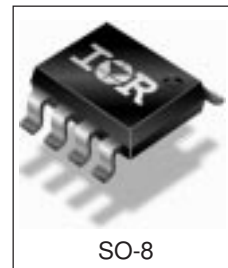
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- N-Channel Application-Specific MOSFETs
- Ideal for CPU Core DC-DC Converters
- Low Conduction Losses
- Low Switching Losses
- Minimizes Parallel MOSFETs for high current applications

HEXFET® Chipset for DC-DC Converters



Description

These new devices employ advanced HEXFET® Power MOSFET technology to achieve an unprecedented balance of on-resistance and gate charge. The reduced conduction and switching losses make them ideal for high efficiency DC-DC converters that power the latest generation of microprocessors.

Both the IRF7809A and IRF7811A have been optimized and are 100% tested for all parameters that are critical in synchronous buck converters including $R_{DS(on)}$, gate charge and $C_{dv/dt}$ -induced turn-on immunity. The IRF7809A offers particularly low $R_{DS(on)}$ and high $C_{dv/dt}$ immunity for synchronous FET applications. The IRF7811A offers an extremely low combination of Q_{sw} & $R_{DS(on)}$ for reduced losses in control FET applications.

The package is designed for vapor phase, infra-red, convection, or wave soldering techniques. Power dissipation of greater than 2W is possible in a typical PCB mount application.

DEVICE RATINGS

	IRF7809A	IRF7811A
V_{DS}	30V	28V
$R_{DS(on)}$	8.5 mΩ	12 mΩ
Q_G	73 nC	23 nC
Q_{sw}	22.5 nC	7 nC
Q_{oss}	30 nC	31 nC

Absolute Maximum Ratings

Parameter	Symbol	IRF7809A	IRF7811A	Units
Drain-Source Voltage	V_{DS}	30	28	V
Gate-Source Voltage	V_{GS}	±12		
Continuous Drain or Source Current ($V_{GS} \geq 4.5V$)	$T_A = 25^\circ C$	14.5	11.4	A
	$T_L = 90^\circ C$	14.2	11.2	
Pulsed Drain Current①	I_{DM}	100	100	
Power Dissipation	$T_A = 25^\circ C$	2.5		W
	$T_L = 90^\circ C$	2.4		
Junction & Storage Temperature Range	T_J, T_{STG}	-55 to 150		°C
Continuous Source Current (Body Diode)	I_S	2.5	2.5	A
Pulsed Source Current①	I_{SM}	50	50	

Thermal Resistance

Parameter		Max.	Units
Maximum Junction-to-Ambient③	$R_{\theta JA}$	50	°C/W
Maximum Junction-to-Lead	$R_{\theta JL}$	25	°C/W

IRF7809A/IRF7811A

International
IR Rectifier

Electrical Characteristics		IRF7809A			IRF7811A			Units	Conditions
Parameter		Min	Typ	Max	Min	Typ	Max		
Drain-to-Source Breakdown Voltage*	V_{DS}	30	-	-	28	-	-	V	$V_{GS} = 0V, I_D = 250\mu A$
Static Drain-Source on Resistance*	$R_{DS(on)}$		7	8.5		10	12	m Ω	$V_{GS} = 4.5V, I_D = 15A$ ②
Gate Threshold Voltage*	$V_{GS(th)}$	1.0			1.0			V	$V_{DS} = V_{GS}, I_D = 250\mu A$
Drain-Source Leakage Current*	I_{DSS}			30			30	μA	$V_{DS} = 24V, V_{GS} = 0$
				150			150		$V_{DS} = 24V, V_{GS} = 0,$ $T_j = 100^\circ C$
Gate-Source Leakage Current*	I_{GSS}			± 100			± 100	nA	$V_{GS} = \pm 12V$
Total Gate Chg Cont FET*	Q_G		61	75		19	23	nC	$V_{GS} = 5V, I_D = 15A, V_{DS} = 16V$
Total Gate Chg Sync FET*	Q_G		55	73		17	20.5		$V_{GS} = 5V, V_{DS} < 100mV$
Pre-Vth Gate-Source Charge	Q_{GS1}		14			2.7			$V_{DS} = 16V, I_D = 15A$
Post-Vth Gate-Source Charge	Q_{GS2}		3.5			1.3			
Gate to Drain Charge	Q_{GD}		13.5			4.5			
Switch Chg($Q_{GS2} + Q_{GD}$)*	Q_{sw}		17	22.5		5.8	7.0		
Output Charge*	Q_{oss}		25	30		26	31		$V_{DS} = 16V, V_{GS} = 0$
Gate Resistance	R_G		1.1			1.8		Ω	
Turn-on Delay Time	$t_{d(on)}$		19			8		ns	$V_{DD} = 16V, I_D = 15A$ $V_{GS} = 5V$ Clamped Inductive Load
Rise Time	t_r		9			4			
Turn-off Delay Time	$t_{d(off)}$		32			16			
Fall Time	t_f		12			8			
Input Capacitance	C_{iss}	-	7300	-	-	1800	-	pF	$V_{DS} = 16V, V_{GS} = 0$
Output Capacitance	C_{oss}	-	900	-	-	900	-		
Reverse Transfer Capacitance	C_{rss}	-	350	-	-	60	-		

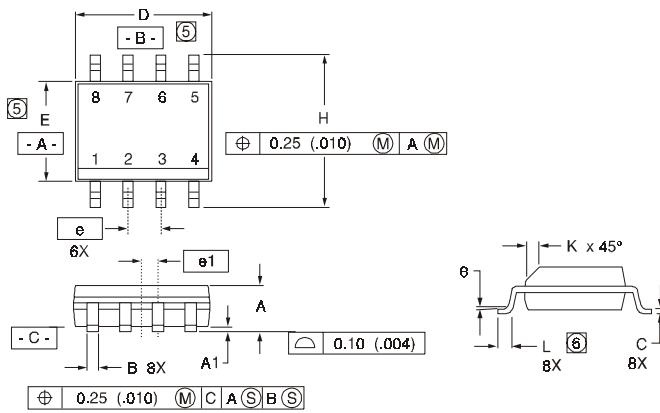
Source-Drain Rating & Characteristics

Parameter		Min	Typ	Max	Min	Typ	Max	Units	Conditions
Diode Forward Voltage*	V_{SD}			1.0			1.0	V	$I_S = 15A$ ②, $V_{GS} = 0V$
Reverse Recovery Charge④	Q_{rr}		94			82		nC	$di/dt \sim 700A/\mu s$ $V_{DS} = 16V, V_{GS} = 0V, I_S = 15A$
Reverse Recovery Charge (with Parallel Schottky)④	$Q_{rr(s)}$		87			74			$di/dt = 700A/\mu s$ (with 10BQ040) $V_{DS} = 16V, V_{GS} = 0V, I_S = 15A$

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
 - ② Pulse width $\leq 300 \mu s$; duty cycle $\leq 2\%$.
 - ③ When mounted on 1 inch square copper board, $t < 10$ sec.
 - ④ Typ = measured - Q_{oss}
- * Devices are 100% tested to these parameters.

SO-8 Package Outline

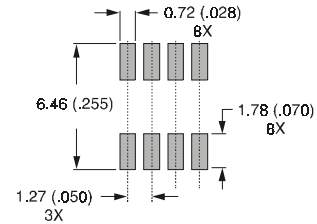


DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
B	.014	.018	0.36	0.46
C	.0075	.0098	0.19	0.25
D	.189	.196	4.80	4.98
E	.150	.157	3.81	3.99
e	.050 BASIC		1.27 BASIC	
e1	.025 BASIC		0.635 BASIC	
H	.2284	.2440	5.80	6.20
K	.011	.019	0.28	0.48
L	.16	.050	0.41	1.27
θ	0°	8°	0°	8°

NOTES:

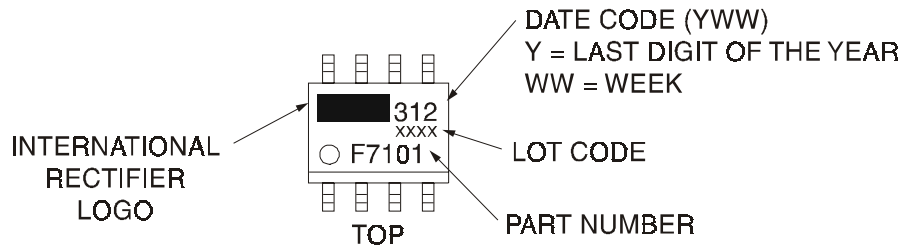
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).
4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA.
5. DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS
MOLD PROTRUSIONS NOT TO EXCEED 0.25 (.006).
6. DIMENSIONS IS THE LENGTH OF LEAD FOR SOLDERING TO A SUBSTRATE..

RECOMMENDED FOOTPRINT



Part Marking Information

EXAMPLE: THIS IS AN IRF7101

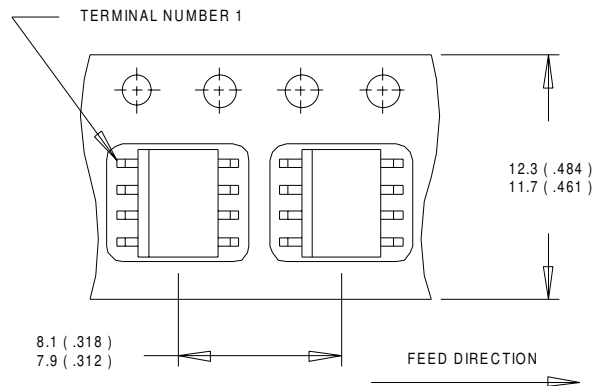


IRF7809A/IRF7811A

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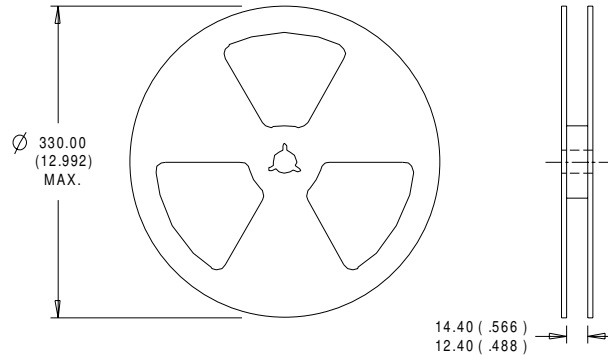
SO-8 Tape & Reel Information

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.

International
IR Rectifier

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<http://www.irf.com/> Data and specifications subject to change without notice. 1/00