



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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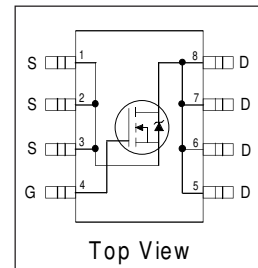
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- N-Channel Application-Specific MOSFETs
- Ideal for CPU Core DC-DC Converters
- New **CopperStrap™** Interconnect for Lower Electrical and Thermal Resistance
- Low Conduction Losses
- Low Switching Losses
- Minimizes Parallel MOSFETs for high current 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 mobile microprocessors.

The IRF7809/IRF7811 employs a new **CopperStrap™** interconnect technology pioneered by International Rectifier to dramatically improve the electrical & thermal resistance contribution of the package. The new **CopperStrap** SO-8 power MOSFETs are capable of current ratings over 17A and power dissipation of 3.5W @ 25°C ambient conditions, thereby reducing the need for paralleled devices, improving efficiency and reliability and reducing board space.

DEVICE RATINGS

	IRF7809	IRF7811
V_{DS}	30V	28V
$R_{DS(on)}$	7.5 mΩ	11 mΩ
Q_G	77.5 nC	23 nC
Q_{sw}	23.9 nC	7 nC
Q_{oss}	30 nC	31 nC

Absolute Maximum Ratings

Parameter	Symbol	IRF7809	IRF7811	Units
Drain-Source Voltage	V_{DS}	30	28	V
Gate-Source Voltage	V_{GS}	±12		
Continuous Drain or Source Current ($V_{GS} \geq 4.5V$)	$T_A = 25^\circ C$	17.6	14	A
	$T_L = 90^\circ C$	16.3	13	
Pulsed Drain Current①	I_{DM}	100	100	
Power Dissipation	$T_A = 25^\circ C$	3.5		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	2.5	A
Pulsed Source Current①	I_{SM}	50	50	

Thermal Resistance

Parameter		Max.	Units
Maximum Junction-to-Ambient③	$R_{\theta JA}$	35	°C/W
Maximum Junction-to-Lead	$R_{\theta JL}$	20	°C/W

IRF7809/IRF7811

International
IR Rectifier

Electrical Characteristics		IRF7809			IRF7811			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*	$R_{DS(on)}$		6	7.5		9	11	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		66.7	86.6		19	23	nC	$V_{GS} = 5V, I_D = 15A, V_{DS} = 16V$
Total Gate Chg Sync FET*	Q_G		59.6	77.5		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}		4			1.3			
Gate to Drain Charge	Q_{GD}		12.2			4.5			
Switch Chg($Q_{GS2} + Q_{GD}$)*	Q_{sw}		18.4	24		5.8	7.0		
Output Charge*	Q_{oss}		25	30		26	31		$V_{DS} = 16V, V_{GS} = 0$
Gate Resistance	R_G		1.5			1.9		Ω	
Turn-on Delay Time	$t_{d(on)}$		17			10		ns	$V_{DD} = 16V, I_D = 15A$ $V_{GS} = 5V$ Clamped Inductive Load
Rise Time	t_r		10			5			
Turn-off Delay Time	$t_{d(off)}$		39			19			
Fall Time	t_f		19			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	-		

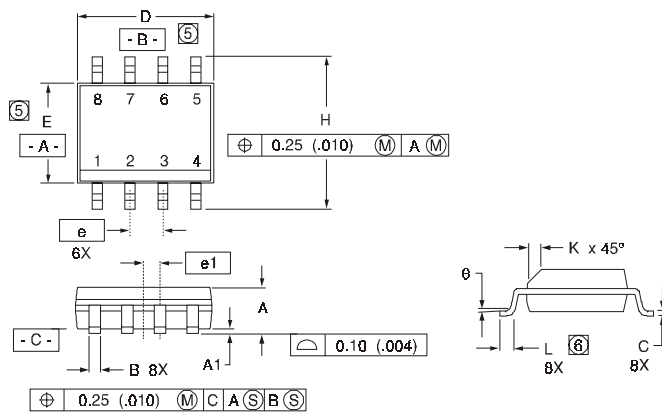
Source-Drain Rating & Characteristics

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) $V_{DS} = 16V, V_{GS} = 0V, I_S = 15A$

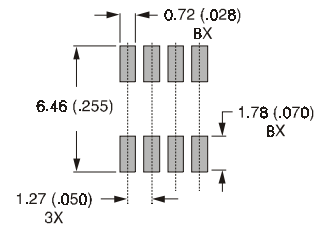
Notes:

- 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



RECOMMENDED FOOTPRINT

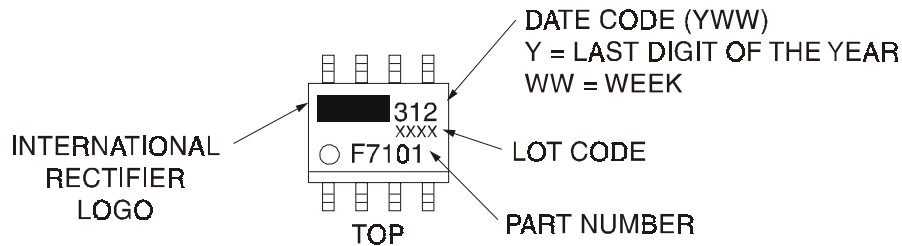


NOTES:

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..

Part Marking Information

EXAMPLE: THIS IS AN IRF7101

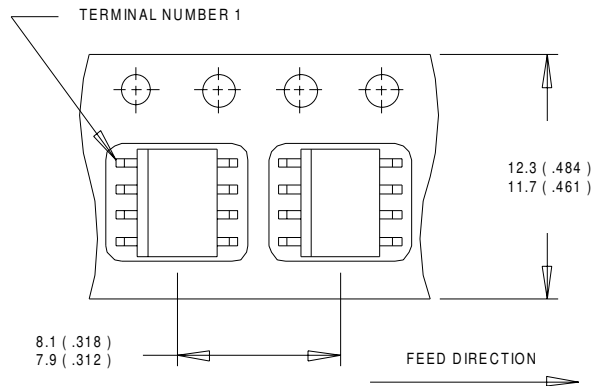


IRF7809/IRF7811

International
IR Rectifier

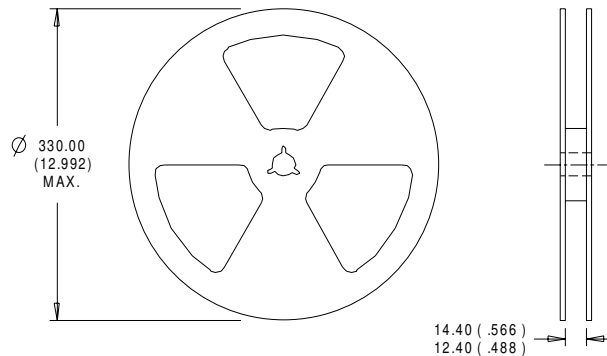
SO-8 Tape & Reel Information

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