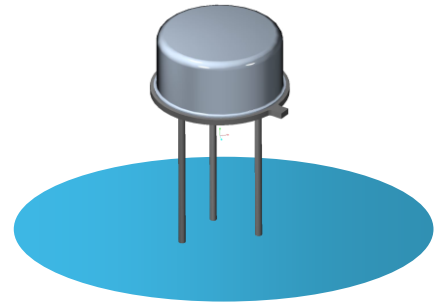


# P-CHANNEL POWER MOSFET



## IRFF9130 / 2N6849

- MOSFET Transistor in a Hermetic Metal TO-205AF Package
- Designed For Switching, Power Supply, Motor Control and Amplifier Applications
- High Reliability and Screening Options Available



### ABSOLUTE MAXIMUM RATINGS (T<sub>C</sub> = 25°C unless otherwise stated)

V <sub>DS</sub>	Drain - Source Voltage	-100V
V <sub>GS</sub>	Gate - Source Voltage	±20V
I <sub>D</sub>	Continuous Drain Current @ T <sub>C</sub> = 25°C	-5.8A
I <sub>D</sub>	Continuous Drain Current @ T <sub>C</sub> = 100°C	-3.7A
I <sub>DM</sub> <sup>(1)</sup>	Pulsed Drain Current	-25A
P <sub>D</sub>	Total Power Dissipation @ T <sub>C</sub> = 25°C	20.833W
	Derate Above 25°C	0.167W/°C
T <sub>J</sub>	Junction Temperature Range	-55 to +150°C
T <sub>stg</sub>	Storage Temperature Range	-55 to +150°C

### THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
R <sub>θJC</sub>	Thermal Resistance, Junction To Case	6	°C/W

### Notes

- (1) Repetitive Rating: Pulse width limited by maximum junction temperature
- (2) Pulse Width ≤ 380μs, δ ≤ 2%
- (3) By Design Only, Not A Production Test.

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
$V_{(BR)DSS}$	Drain - Source Breakdown Voltage	$V_{GS} = 0V$ $I_D = -0.25mA$	-100			V
$R_{DS(on)}^{(2)}$	Static Drain - Source On - State Resistance	$V_{GS} = -10V$ $I_D = -3.7A$			0.3	$\Omega$
		$T_A = 125^\circ\text{C}$			0.54	
		$V_{GS} = -10V$ $I_D = -5.8A$			0.32	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = -250\mu A$	-2		-4	V
		$T_A = 125^\circ\text{C}$	-1.0			
		$T_A = -55^\circ\text{C}$			-5	
gfs	Forward Transconductance	$V_{DS} \geq -5V$ $I_{DS} = -3.7A$	2.5		7.5	S( $\omega$ )
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{GS} = 0$ $V_{DS} = 0.8BV_{DSS}$			100	$\mu A$
		$T_A = 125^\circ\text{C}$			500	
$I_{GSS}$	Gate - Source Leakage	$V_{GS} = \pm 20V$			$\pm 100$	nA
		$T_A = 125^\circ\text{C}$			$\pm 200$	

### DYNAMIC CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise stated)

$C_{iss}$	Input Capacitance	$V_{DS} = -25V$ $V_{GS} = 0V$ $f = 1.0MHz$		845	$pF$	
$C_{oss}$	Output Capacitance			373		
$C_{rss}$	Reverse Transfer Capacitance			92		
$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = -50V$ $I_D = -5.8A$ $R_G = 7.5\Omega$			60	ns
$t_r$	Rise Time				140	
$t_{d(off)}$	Turn-Off Delay Time				140	
$t_f$	Fall Time				140	

### SOURCE-DRAIN DIODE CHARACTERISTICS

$t_{rr}^{(3)}$	Reverse Recovery Time	$I_S = -5.8A$ $T_J = 25^\circ\text{C}$ $V_{DD} \leq -50V$ $di/dt = 100A/\mu s$			250	ns
$V_{SD}$	Diode Forward Voltage	$I_S = -5.8A$ $T_J = 25^\circ\text{C}$ $V_{GS} = 0$			-4.3	V

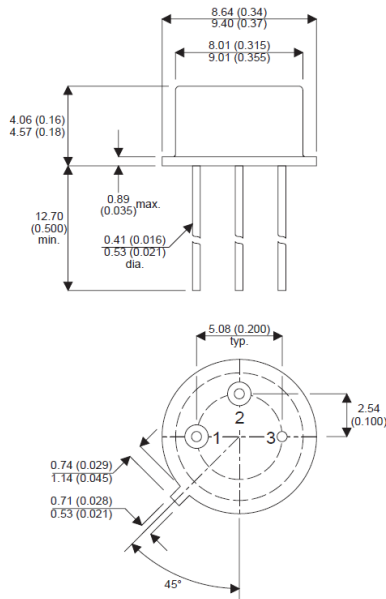
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### MECHANICAL DATA

Dimensions in mm (inches)



TO-39 (TO-205AF)

### PACKAGE PIN CONNECTIONS

Pin	Connection
1	Source
2	Gate
3	Drain

### PART NUMBER VARIANTS<sup>(4)(5)</sup>

Part Number Reference	Termination Finish	SML ROHS
IRFF9130 / 2N6849	Pre-tinned 63% Tin, 37% Lead	LD <sup>(6)</sup>

### Notes

- (4) Specify lead finish option by part number at point of order.
- (5) All design variants contain Lead (Pb) within the construction of the device. The Lead content is fully RoHS compliant but using an exemption as currently understood from the EU directive 2011/65/EU (Annex III, exemption 7a).
- (6) LD = e0, as defined in J-STD-609 2nd Level Interconnect Category.