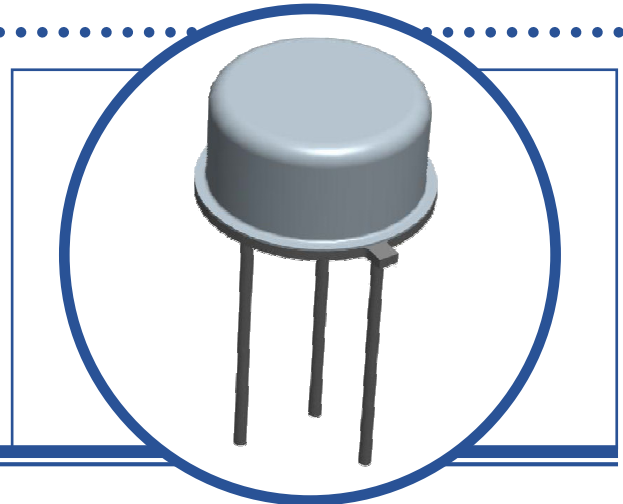


P-CHANNEL POWER MOSFET

IRFF9130 / 2N6849

- MOSFET Transistor In A Hermetic Metal TO-205AF Package
- Single Pulse Avalanche Energy Rated
- Designed For Switching, Power Supply, Motor Control and Amplifier Applications
- Screening Options Available



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

V_{DS}	Drain – Source Voltage		-100V
V_{DG}	Drain – Gate Voltage	$R_{GS} = 20\text{K}\Omega$	-100V
V_{GS}	Gate – Source Voltage		$\pm 20\text{V}$
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	-6.5A
I_D	Continuous Drain Current	$T_C = 100^\circ\text{C}$	-4.1A
I_{DM}	Pulsed Drain Current ⁽¹⁾		-25A
P_D	Total Power Dissipation at	$T_C = 25^\circ\text{C}$	25W
		Derate Above 25°C	0.2W/ $^\circ\text{C}$
E_{AS}	Single Pulse Avalanche Energy ⁽²⁾⁽⁴⁾		500mJ
T_J	Junction Temperature Range		-55 to $+150^\circ\text{C}$
T_{stg}	Storage Temperature Range		-55 to $+150^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	5	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	175	$^\circ\text{C}/\text{W}$

INTERNAL PACKAGE INDUCTANCE

Symbols	Parameters	Typ.	Units
$L_S + L_D$	Total Inductance	7	nH

Notes

- (1) Repetitive Rating: Pulse width limited by maximum junction temperature
- (2) @ $V_{DD} = -25\text{V}$, Starting $T_J = 25^\circ\text{C}$, $L = 17.25\text{mH}$, Peak $I_L = -6.5\text{A}$, $V_{GS} = -10\text{V}$
- (3) Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$
- (4) 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
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0$ $I_D = -1.0\text{mA}$	-100			V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = -1.0\text{mA}$		-0.1		$\text{V}/^\circ\text{C}$
$R_{DS(on)}$	Static Drain-Source On-State Resistance	$V_{GS} = -10\text{V}$ $I_D = -4.1\text{A}^{(3)}$			0.3	Ω
		$T_J = 125^\circ\text{C}$			0.54	
		$V_{GS} = -10\text{V}$ $I_D = -6.5\text{A}^{(3)}$			0.32	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = -250\mu\text{A}$	-2		-4	V
		$T_J = 125^\circ\text{C}$	-1.0			
		$T_J = -55^\circ\text{C}$			-5	
g_{fs}	Forward Transconductance	$V_{DS} \geq -5\text{V}$ $I_{DS} = -4.1\text{A}^{(3)}$	2.5	3.5	7.5	$\text{S}(\Omega)$
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$ $V_{DS} = 0.8BV_{DSS}$			25	μA
		$T_J = 125^\circ\text{C}$			250	
I_{GSS}	Forward Gate-Source Leakage	$V_{GS} = 20\text{V}$			100	nA
		$T_J = 125^\circ\text{C}$			200	
I_{GSS}	Reverse Gate-Source Leakage	$V_{GS} = -20\text{V}$			-100	
		$T_J = 125^\circ\text{C}$			-200	

DYNAMIC CHARACTERISTICS

C_{iss}	Input Capacitance	$V_{GS} = 0$		800		pF
C_{oss}	Output Capacitance	$V_{DS} = -25\text{V}$		350		
C_{rss}	Reverse Transfer Capacitance	$f = 1.0\text{MHz}$		125		
$Q_g^{(4)}$	Total Gate Charge	$V_{GS} = -10\text{V}$			34.8	nC
$Q_{gs}^{(4)}$	Gate-Source Charge	$I_D = -6.5\text{A}$			6.8	
$Q_{gd}^{(4)}$	Gate-Drain Charge	$V_{DS} = 0.5BV_{DSS}$			23.1	
$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = -40\text{V}$			60	ns
t_r	Rise Time	$I_D = -4.1\text{A}$			140	
$t_{d(off)}$	Turn-Off Delay Time				140	
t_f	Fall Time	$R_G = 7.5\Omega$			140	

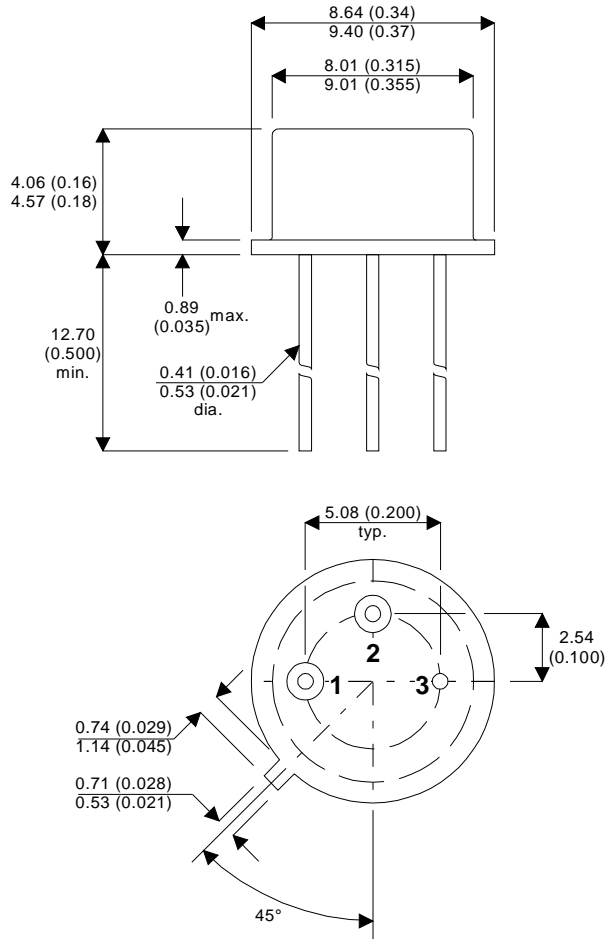
SOURCE-DRAIN DIODE CHARACTERISTICS

I_S	Continuous Source Current				-6.5	A
I_{SM}	Pulse Source Current ⁽¹⁾				-25	
V_{SD}	Diode Forward Voltage	$I_S = -6.5\text{A}$ $T_J = 25^\circ\text{C}$ $V_{GS} = 0^{(4)}$			-4.3	V
t_{rr}	Reverse Recovery Time	$I_S = -6.5\text{A}$ $T_J = 25^\circ\text{C}$			250	ns
Q_{rr}	Reverse Recovery Charge	$V_{DD} \leq -50\text{V}$ $di/dt = 100\text{A}/\mu\text{s}^{(3)}$			3	μC

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MECHANICAL DATA

Dimensions in mm (inches)



TO-39 (TO-205AF)

Pin 1 - Source

Pin 2 - Gate

Pin 3 - Drain