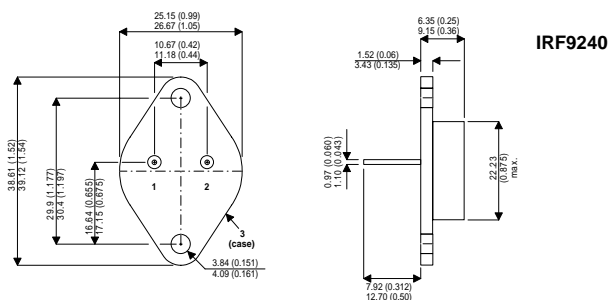
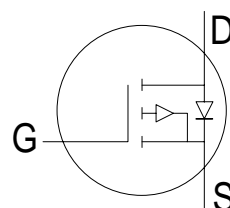


MECHANICAL DATA

Dimensions in mm (inches)



P-CHANNEL POWER MOSFET

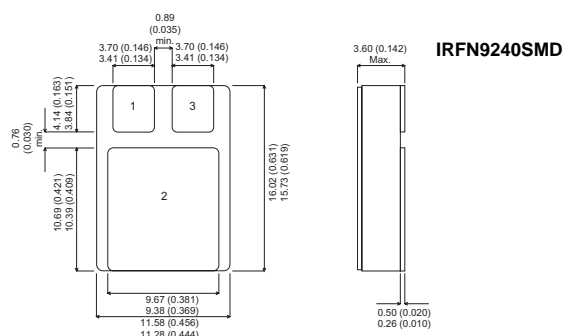


TO-3 Package (TO-204AA)

Pin 1 – Gate

Pin 2 – Source

Pin 3 – Drain



SMD1 (TO276AB)

Pin 1 – Gate

Pin 2 – Drain

Pin 3 – Source

FEATURES

- P-CHANNEL POWER MOSFET
- HIGH VOLTAGE
- INTEGRAL PROTECTION DIODE
- AVAILABLE IN TO-3 (TO-204AA) AND CERAMIC SURFACE MOUNT SMD1 (TO276AB) PACKAGE

Note: IRF9240SMD also available with pins 1 and 3 reversed on SMD 1 package.

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

V_{DSS}	Drain – Source Voltage		–200V
V_{DGR}	Drain – Gate Voltage ($R_{GS} = 20K\Omega$)		–200V
V_{GS}	Gate – Source Voltage		$\pm 20V$
I_D	Continuous Drain Current	@ $T_{case} = 25^{\circ}C$	–11A
		@ $T_{case} = 100^{\circ}C$	–7.0A
I_{DM}	Pulsed Drain Current		–44A
P_D	Max. Power Dissipation	@ $T_{case} = 25^{\circ}C$	125W
	Linear Derating Factor		1W / $^{\circ}C$
T_j	Operating Junction and		
T_{stg}	Storage Temperature Range		–55 to $150^{\circ}C$

Semelab Plc 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.

ELECTRICAL RATINGS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise stated)

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain – Source Breakdown Voltage	$V_{GS} = 0V, I_D = -1mA$	-200			V
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-2		-4	V
I_{GSS}	Gate – Source Leakage Current (forward)	$V_{GS} = -20V$			-100	nA
	Gate – Source Leakage Current (reverse)	$V_{GS} = 20V$			100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -160V, V_{GS} = 0V$			-25	μA
		$V_{DS} = -160V$			-1	mA
		$V_{GS} = 0V, T_{case} = 125^{\circ}\text{C}$				
$I_{D(ON)}$	On State Drain Current ¹	$V_{DS} > I_{D(ON)} \times R_{DS(ON)} \text{ Max}$ $V_{GS} = -10V$	-11			A
$R_{DS(ON)}$	Static Drain – Source On-State Resistance	$V_{GS} = -10V, I_D = -7A$		0.35	0.5	Ω
g_{fs}	Forward Transconductance ¹	$V_{DS} > I_{D(ON)} \times R_{DS(ON)} \text{ Max}$ $I_D = -7A$	4	6		S
C_{iss}	Input capacitance	$V_{GS} = 0V$		1200		pF
C_{oss}	Output capacitance	$V_{DS} = -25V$		570		
C_{rss}	Reverse transfer capacitance	$f = 1MHz$		81		
Q_g	Total Gate Charge	$V_{GS} = -10V$	28		60	nC
Q_{gs}	Gate – Source Charge	$I_D = -11A$	3.0		15	
Q_{gd}	Gate – Drain ("Miller") Charge	$V_{DS} = -100V$	4.5		38	
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = -100V$ $I_D = -11A$ $Z_O = 9.1\Omega$			35	ns
t_r	Rise Time				85	
$t_{d(off)}$	Turn-off Delay Time				85	
t_f	Fall Time				65	
L_D	Internal Drain Inductance			5.0		nH
L_S	Internal Source Inductance			12.5		nH

THERMAL CHARACTERISTICS

	Characteristic	Min.	Typ.	Max.	Unit
$R_{\theta JC}$	Junction to Case			1.0	$^{\circ}\text{C/W}$
$R_{\theta JA}$	Junction to Ambient (TO-3 package only)			30	$^{\circ}\text{C/W}$
T_L	Max. Lead Temperature 0.063" from case for 10 sec. (TO-3 package only)		300		$^{\circ}\text{C}$

SOURCE – DRAIN DIODE RATINGS AND CHARACTERISTICS

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current (Body Diode)				-11	A
I_{SM}	Pulsed Source Current ¹ (Body Diode)				-44	
V_{SD}	Diode Forward Voltage ²	$V_{GS} = 0V, I_S = -11A$ $T_{case} = 25^{\circ}\text{C}$			-4.6	V
t_{rr}	Reverse Recovery Time	$I_F = -11A, dI_F / dt = 100A/\mu s$ $T_j = 25^{\circ}\text{C}$		270		ns
Q_{rr}	Reverse Recovery Charge	$I_F = -11A, dI_F / dt = 100A/\mu s$ $T_j = 25^{\circ}\text{C}$		2.0		μC

1) Pulse Test: Pulse Width < 300 μs , Duty Cycle $\leq 2\%$ 2) Repetitive Rating: Pulse Width limited by maximum junction temperature.

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