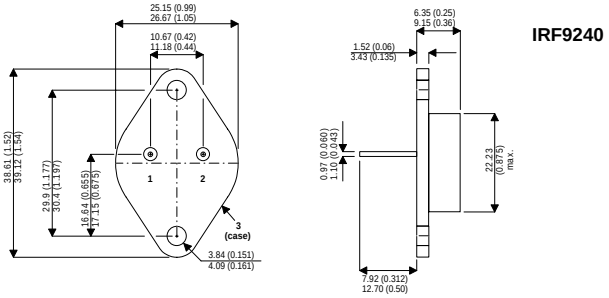
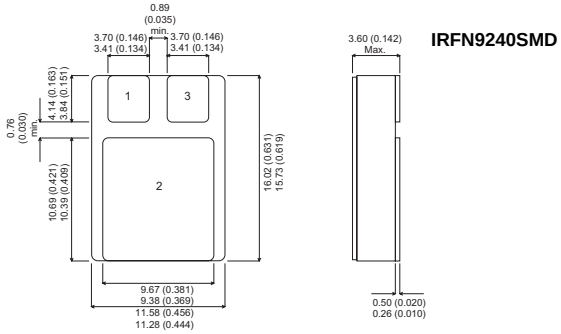
IRF9240
IRFN9240
IRF9240SMD

MECHANICAL DATA
Dimensions in mm (inches)



TO–3 Package (TO-204AA)

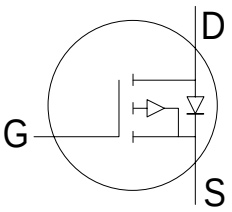
Pin 1 – Gate Pin 2 – Source Pin 3 – Drain



SMD1 (TO276AB)

Pin 1 – Gate Pin 2 – Drain Pin 3 – Source

P–CHANNEL POWER MOSFET



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°C unless otherwise stated)

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

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

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IRF9240
IRFN9240
IRF9240SMD

ELECTRICAL RATINGS (T_{case} = 25°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 = –250µA	–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 V_{GS} = 0V , T_{case} = 125℃			–1	mA
$I_{D(ON)}$	On State Drain Current [1]	V_{DS} > $I_{D(ON)}$ x $R_{DS(ON)}$ 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} > $I_{D(ON)}$ x $R_{DS(ON)}$ Max I_D = –7A	4	6		S
C_{iss}	Input capacitance	V_{GS} = 0V V_{DS} = –25V f = 1MHz		1200		pF
C_{oss}	Output capacitance			570		
C_{rss}	Reverse transfer capacitance			81		
Q_g	Total Gate Charge	V_{GS} = –10V I_D = –11A V_{DS} = -100V	28		60	nC
Q_{gs}	Gate – Source Charge		3.0		15	
Q_{gd}	Gate – Drain (“Miller”) Charge		4.5		38	
$t_{d(on)}$	Turn–on Delay Time	V_{DD} = -100V I_D = –11A Z_O = 9.1Ω			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	°C/W
$R_{\theta JA}$	Junction to Ambient (TO-3 package only)			30	°C/W
T_L	Max. Lead Temperature 0.063” from case for 10 sec. (TO-3 package only)		300		℃

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℃			–4.6	V
t_{rr}	Reverse Recovery Time	I_F = –11A , dI_F / dt = 100A/µs T_j = 25℃		270		ns
Q_{rr}	Reverse Recovery Charge	I_F = –11A , dI_F / dt = 100A/µs T_j = 25℃		2.0		µC

1) Pulse Test: Pulse Width < 300µS , Duty Cycle ≤ 2% 2) Repetitive Rating: Pulse Width limited by maximum junction temperature.

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