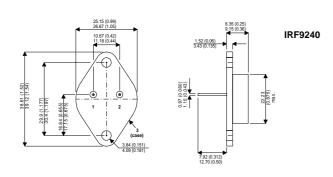


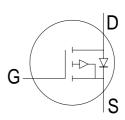
IRF9240 IRFN9240 IRF9240SMD

MECHANICAL DATA

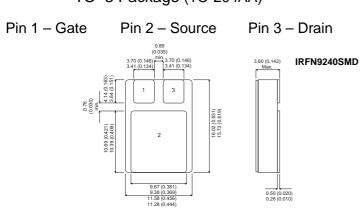
Dimensions in mm (inches)



P-CHANNEL POWER MOSFET



TO-3 Package (TO-204AA)



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°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		±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		−55 to 150°C
T _{stg}	Storage Temperature Range		-33 to 130 C

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IRF9240 IRFN9240 IRF9240SMD

ELECTRICAL RATINGS (T_{case} = 25°C unless otherwise stated)

	Characteristic	Test Conditions	Min.	Тур.	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
		$V_{DS} = -160V , V_{GS} = 0V$			-25	μΑ
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -160V			-1	mA
		V _{GS} = 0V , T _{case} = 125℃			-1	IIIA
,	On State Drain Current ¹	$V_{DS} > I_{D(ON)} \times R_{DS(ON)} Max$	-11			Α
I _{D(ON)}		$V_{GS} = -10V$	-''			_ ^
R _{DS(ON)}	Static Drain – Source On-State Resistance	$V_{GS} = -10V$, $I_D = -7A$		0.35	0.5	Ω
<u> </u>	Forward Transconductance ¹	$V_{DS} > I_{D(ON)} \times R_{DS(ON)} Max$	4	6		S
9 _{fs}		$I_D = -7A$		0		3
C _{iss}	Input capacitance	V _{GS} = 0V		1200		
C _{oss}	Output capacitance	V _{DS} = −25V		570		pF
C _{rss}	Reverse transfer capacitance	f = 1MHz		81		
Q _g	Total Gate Charge	V _{GS} = −10V	28		60	
Q _{gs}	Gate – Source Charge	I _D = -11A	3.0		15	nC
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	
t _r	Rise Time				85	
t _{d(off)}	Turn-off Delay Time				85	ns
t _f	Fall Time				65	
L _D	Internal Drain Inductance			5.0		nΗ
L _S	Internal Source Inductance			12.5		nΗ

THERMAL CHARACTERISTICS

	Characteristic		Min.	Тур.	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		C

SOURCE – DRAIN DIODE RATINGS AND CHARACTERISTICS

Characteristic	Test Conditions	Min.	Тур.	Max.	Unit	
Continuous Source Current (Body Diode)				-11	Α	
Pulsed Source Current ¹ (Body Diode)				-44	Α	
Diode Forward Voltage ²	$V_{GS} = 0V$, $I_S = -11A$ $T_{case} = 25\%$			-4.6	٧	
Reverse Recovery Time	$I_F = -11A$, $dI_F / dt = 100A/μs$ $T_j = 25 °C$		270		ns	
Reverse Recovery Charge	$I_F = -11A$, $dI_F / dt = 100A/μs$ $T_j = 25 °C$		2.0		μC	
	Continuous Source Current (Body Diode) Pulsed Source Current ¹ (Body Diode) Diode Forward Voltage ² Reverse Recovery Time	Continuous Source Current (Body Diode) Pulsed Source Current ¹ (Body Diode) Diode Forward Voltage ² Reverse Recovery Time $V_{GS} = 0 \text{ V}, I_{S} = -11 \text{ A}$ $T_{case} = 25 \text{ C}$ $I_{F} = -11 \text{ A}, dI_{F}/dt = 100 \text{ A}/\mu\text{S}$ $T_{j} = 25 \text{ C}$ Reverse Recovery Charge	Continuous Source Current (Body Diode) Pulsed Source Current (Body Diode) Diode Forward Voltage 2 Reverse Recovery Time $V_{GS} = 0V$, $I_S = -11A$ $T_{case} = 25^{\circ}C$ $I_F = -11A$, $dI_F / dt = 100A/\mu s$ $T_j = 25^{\circ}C$ Reverse Recovery Charge	Continuous Source Current (Body Diode) Pulsed Source Current ¹ (Body Diode) Diode Forward Voltage ² Reverse Recovery Time $V_{GS} = 0V$, $I_{S} = -11A$ $T_{case} = 25 °C$ $I_{F} = -11A$, $dI_{F}/dt = 100A/\mu s$ $T_{j} = 25 °C$ Reverse Recovery Charge $I_{F} = -11A$, $dI_{F}/dt = 100A/\mu s$ $I_{F} = -11A$, $dI_{F}/dt = 100A/\mu s$ 2.0	Continuous Source Current (Body Diode) Pulsed Source Current ¹ (Body Diode) Diode Forward Voltage ² Reverse Recovery Time $V_{GS} = 0V$, $I_{S} = -11A$ $T_{case} = 25C$ $I_{F} = -11A$, $dI_{F}/dt = 100A/\mu s$ $T_{j} = 25C$ Reverse Recovery Charge $I_{F} = -11A$, $dI_{F}/dt = 100A/\mu s$ $I_{C} = -11A$, $dI_{C}/dt = 100A/\mu s$	

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

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