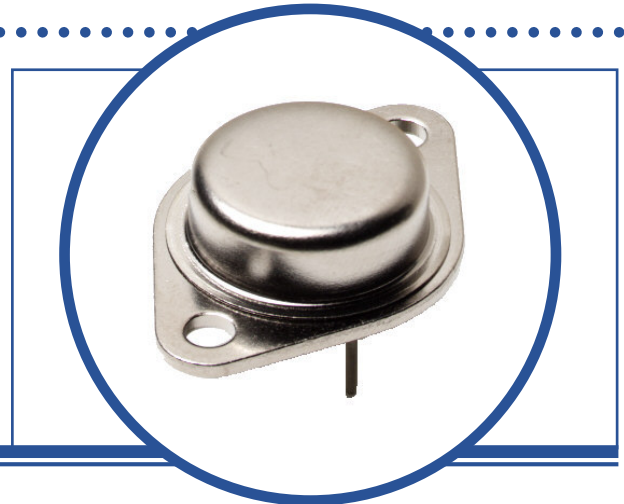


N-CHANNEL POWER MOSFET

IRF240

- Low $R_{DS(on)}$ MOSFET Transistor In A Hermetic Metal Package
- 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		200V
V _{GS}	Gate – Source Voltage		±20V
I _D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	18A
I _D	Continuous Drain Current	$T_C = 100^\circ\text{C}$	11A
I _{DM}	Pulsed Drain Current ⁽¹⁾		72A
P _D	Total Power Dissipation at	$T_C = 25^\circ\text{C}$	125W
		Derate Above 25°C	1.0W/°C
E _{AS}	Single Pulse Avalanche Energy ⁽²⁾		12.5mJ
dv/dt	Peak Diode Recovery ⁽³⁾		5V/ns
T _J	Junction Temperature Range		-55 to +150°C
T _{stg}	Storage Temperature Range		-55 to +150°C

THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
R _{θJC}	Thermal Resistance, Junction To Case			1.0	°C/W

INTERNAL PACKAGE INDUCTANCE

Symbols	Parameters	Min.	Typ.	Max.	Units
L _D	Internal Drain Inductance		5		nH
L _S	Internal Source Inductance		13		

Notes

- (1) Repetitive Rating: Pulse width limited by maximum junction temperature
- (2) @V_{DD} = 50V, L ≥ 2.1mH, Peak I_L = 18A, Starting T_J = 25°C
- (3) @ I_{SD} ≤ 18A, di/dt ≤ 160A/μs, V_{DD} ≤ BV_{DSS}, T_J ≤ 150°C, Suggested R_G = 9.1Ω
- (4) Pulse Width ≤ 300us, δ ≤ 2%

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°C unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 I _D = 1.0mA	200			V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = 1.0mA		0.29		V/°C
R _{DS(on)}	Static Drain-Source On-State Resistance	V _{GS} = 10V I _D = 11A ⁽⁴⁾			0.18	Ω
		V _{GS} = 10V I _D = 18A ⁽⁴⁾			0.21	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} I _D = 250μA	2		4	V
g _{fs}	Forward Transconductance	V _{DS} ≥ 15V I _{DS} = 11A ⁽⁴⁾	6.1			S(Ω)
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0 V _{DS} = 0.8BV _{DSS} T _J = 125°C			25	μA
					250	
I _{GSS}	Forward Gate-Source Leakage	V _{GS} = 20V			100	nA
I _{GSS}	Reverse Gate-Source Leakage	V _{GS} = -20V			-100	

DYNAMIC CHARACTERISTICS

C _{iss}	Input Capacitance	V _{GS} = 0		1300		pF
C _{oss}	Output Capacitance	V _{DS} = 25V		400		
C _{rss}	Reverse Transfer Capacitance	f = 1.0MHz		130		
Q _g	Total Gate Charge	V _{GS} = 10V	32		60	nC
Q _{gs}	Gate-Source Charge	I _D = 18A	2.2		10.6	
Q _{gd}	Gate-Drain Charge	V _{DS} = 0.5BV _{DSS}	14		38	
t _{d(on)}	Turn-On Delay Time	V _{DD} = 100V			20	ns
t _r	Rise Time	I _D = 18A			152	
t _{d(off)}	Turn-Off Delay Time				58	
t _f	Fall Time	R _G = 9.1Ω			67	

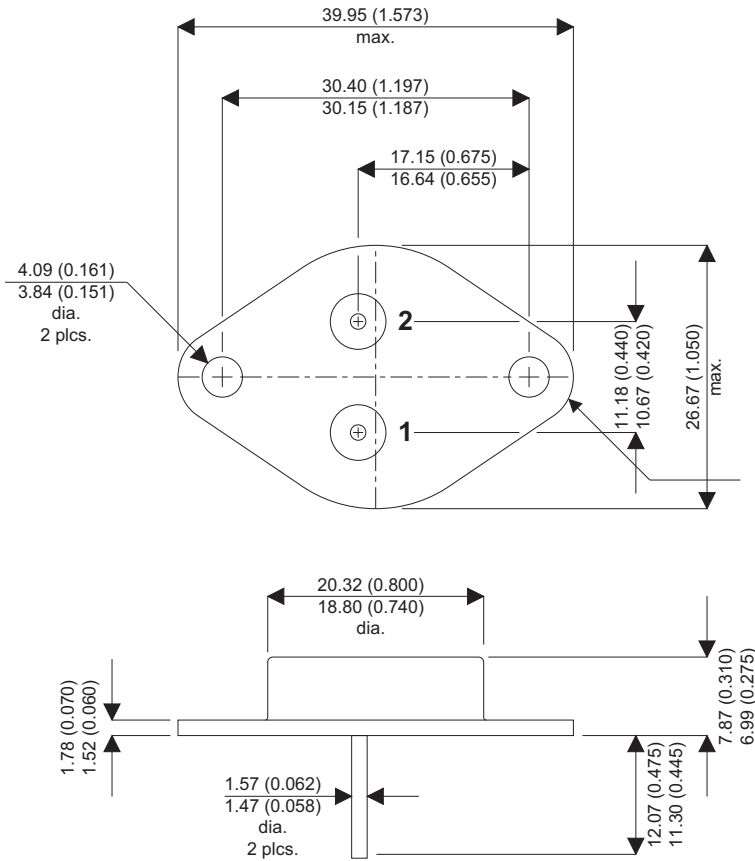
SOURCE-DRAIN DIODE CHARACTERISTICS

I _S	Continuous Source Current				18	A
I _{SM}	Pulse Source Current ⁽¹⁾				72	
V _{SD}	Diode Forward Voltage	I _S = 18A V _{GS} = 0 ⁽⁴⁾	T _J = 25°C		1.5	V
t _{rr}	Reverse Recovery Time	I _S = 18A	T _J = 25°C		500	ns
Q _{rr}	Reverse Recovery Charge	V _{DD} ≤ 50V	di/dt = 100A/μs ⁽⁴⁾		5.3	μC

N-CHANNEL POWER MOSFET IRF240

MECHANICAL DATA

Dimensions in mm (inches)



TO3 (TO-204AE)

Pin 1 - Gate

Pin 2 - Source

Case - Drain