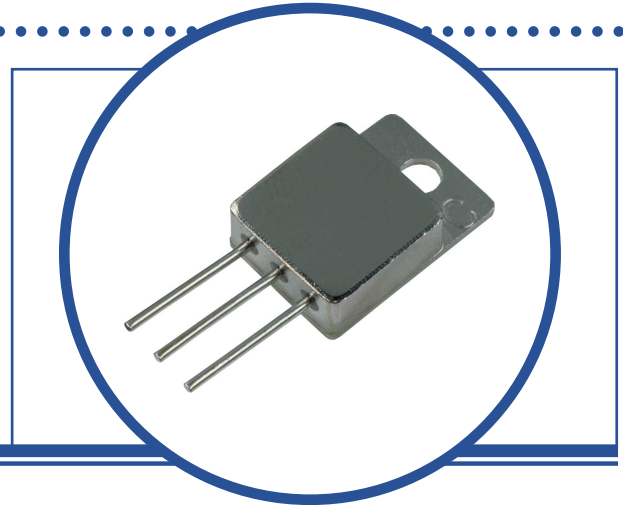


N-CHANNEL POWER MOSFET

2N7225 / IRFM250

- $V_{DS} = 200V$, $I_D(CONT) = 27.4A$, $R_{DS(ON)} = 100m\Omega$
- Hermetic Isolated Metal TO-254AA Package
- Integral Body Diode
- High-Reliability Screening Options Available
- Tabless and Z Tab options available



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

V_{DS}	Drain – Source Voltage		200V
V_{GS}	Gate – Source Voltage		$\pm 20V$
I_D	Continuous Drain Current	$T_C = 25^\circ C$	27.4A
I_D	Continuous Drain Current	$T_C = 100^\circ C$	17A
I_{DM}	Pulsed Drain Current ⁽¹⁾		110A
P_D	Total Power Dissipation at	$T_C = 25^\circ C$	150W
		Derate Above $25^\circ C$	1.2W/ $^\circ C$
dv/dt	Peak Diode Recovery ⁽²⁾		5.5V/ns
T_J	Junction Temperature Range		-55 to +150 $^\circ C$
T_{stg}	Storage Temperature Range		-55 to +150 $^\circ C$

THERMAL PROPERTIES

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance Junction to Case	0.83	$^\circ C/W$

INTERNAL PACKAGE INDUCTANCE

Symbols	Parameters	Min.	Typ.	Max.	Units
L_D	Internal Drain Inductance		8.7		nH
L_S	Internal Source Inductance		8.7		

Notes

- (1) Repetitive Rating: Pulse width limited by maximum junction temperature
- (2) @ $I_{SD} \leq 27.4A$, $di/dt \leq 190A/\mu s$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^\circ C$, Suggested $R_G = 2.35\Omega$
- (3) Pulse Width $\leq 300\mu s$, $\delta \leq 2\%$

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 an order.



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Document Number 3351
Issue 3
Page 1 of 3

N-CHANNEL POWER MOSFET

2N7225 / IRFM250

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		0.28		V/°C
R _{DS(on)} ⁽³⁾	Static Drain-Source On-State Resistance	V _{GS} = 10V I _D = 17A			0.100	Ω
		V _{GS} = 10V I _D = 27.4A			0.105	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} I _D = 250μA	2		4	V
		T _J = 125°C	1.0			
		T _J = -55°C			5	
g _{fs} ⁽³⁾	Forward Transconductance	V _{DS} ≥ 15V I _{DS} = 17A	9			S(Ω)
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0 V _{DS} = 0.8BV _{DSS}			25	μA
		T _J = 125°C			250	
I _{GSS}	Forward Gate-Source Leakage	V _{GS} = 20V V _{DS} = 0V			100	nA
		T _J = 125°C			200	
I _{GSS}	Reverse Gate-Source Leakage	V _{GS} = -20V V _{DS} = 0V			-100	
		T _J = 125°C			-200	

DYNAMIC CHARACTERISTICS

C _{iss}	Input Capacitance	V _{GS} = 0		3500		pF
C _{oss}	Output Capacitance	V _{DS} = 25V		700		
C _{rss}	Reverse Transfer Capacitance	f = 1.0MHz		110		
Q _g	Total Gate Charge	V _{GS} = 10V		85		nC
Q _{gs}	Gate-Source Charge	I _D = 27.4A		15		
Q _{gd}	Gate-Drain Charge	V _{DS} = 0.5BV _{DSS}		45		
t _{d(on)}	Turn-On Delay Time	V _{DD} = 100V			35	ns
t _r	Rise Time	I _D = 27.4A			190	
t _{d(off)}	Turn-Off Delay Time	V _{GS} = 10V			170	
t _f	Fall Time	R _G = 2.35Ω			130	

SOURCE-DRAIN DIODE CHARACTERISTICS

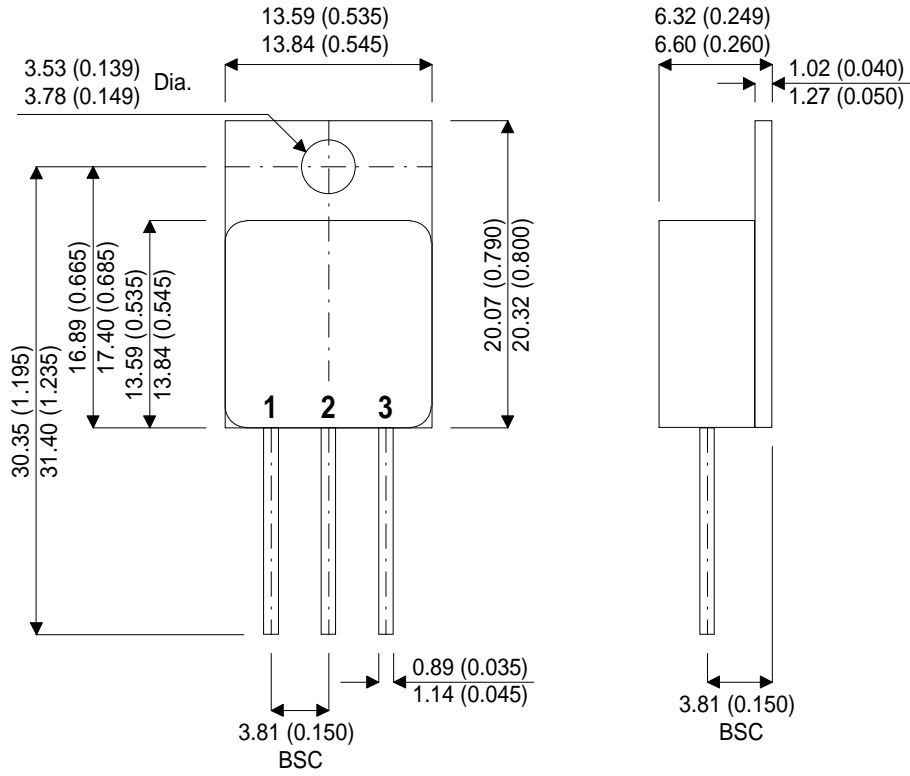
I _S	Continuous Source Current				27.4	A
I _{SM} ⁽¹⁾	Pulse Source Current				110	
V _{SD} ⁽³⁾	Diode Forward Voltage	I _S = 27.4A T _J = 25°C V _{GS} = 0			1.9	V
t _{on}	Forward Turn-On Time			Negligible		

N-CHANNEL POWER MOSFET

2N7225 / IRFM250

MECHANICAL DATA

Dimensions in mm (Inches)



TO-254AA

Isolated Metal Package

PIN 1 – Drain

PIN 2 – Source

PIN 3 - Gate