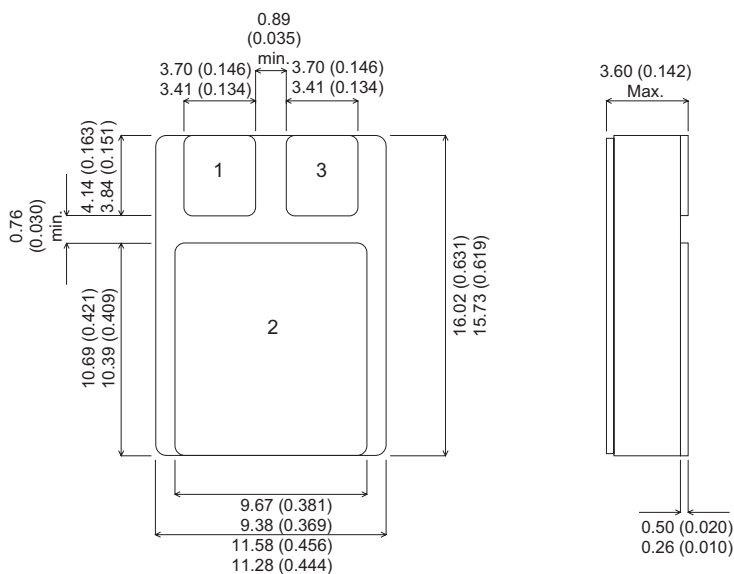


MECHANICAL DATA

Dimensions in mm (inches)



N-CHANNEL POWER MOSFET

V_{DSS}	200V
$I_{D(ont)}$	27.4A
$R_{DS(on)}$	0.100Ω

FEATURES

- **HERMETICALLY SEALED SURFACE MOUNT PACKAGE**
- **SMALL FOOTPRINT – EFFICIENT USE OF PCB SPACE.**
- **SIMPLE DRIVE REQUIREMENTS**
- **LIGHTWEIGHT**
- **HIGH PACKING DENSITIES**

SMD 1 PACKAGE (TO-276AB)

Pad 1 – Source

Pad 2 – Drain

Pad 3 – Gate

Note: IRF250SMD also available with pins 1 and 3 reversed.

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

V_{GS}	Gate – Source Voltage	$\pm 20V$
I_D	Continuous Drain Current ($V_{GS} = 0$, $T_{case} = 25^{\circ}C$)	27.4A
I_D	Continuous Drain Current ($V_{GS} = 0$, $T_{case} = 100^{\circ}C$)	17A
I_{DM}	Pulsed Drain Current ¹	110A
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	150W
	Linear Derating Factor	1.2W/ $^{\circ}C$
E_{AS}	Single Pulse Avalanche Energy ²	500mJ
dv/dt	Peak Diode Recovery ³	5.0V/ns
T_J , T_{stg}	Operating and Storage Temperature Range	-55 to $150^{\circ}C$
T_L	Package Mounting Surface Temperature (for 5 sec)	$300^{\circ}C$
$R_{\theta JC}$	Thermal Resistance Junction to Case	$0.83^{\circ}C/W$

Notes 1) Pulse Test: Pulse Width $\leq 300\text{ms}$, $\delta \leq 2\%$

2) @ $V_{DD} = 25V$, $L \geq 1.3mH$, Peak $I_L = 27.4A$, Starting $T_L = 25^\circ C$

3) @ $I_{SD} \leq 27.5A$, $di/dt \leq 190A/\mu s$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^\circ C$

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 CHARACTERISTICS ($T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS							
BV _{DSS}	Drain – Source Breakdown Voltage	V _{GS} = 0	I _D = 1mA	200			V
ΔBV _{DSS} ΔT _J	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = 1mA			0.29		V/°C
R _{DS(on)}	Static Drain – Source On–State Resistance ¹	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
g _{fs}	Forward Transconductance ¹	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				100	nA
I _{GSS}	Reverse Gate – Source Leakage	V _{GS} = –20V				–100	
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 = 1MHz			110		
Q _g	Total Gate Charge ¹	V _{GS} = 10V	I _D = 22A	55		115	nC
		V _{DS} = 0.5BV _{DSS}					
Q _{gs}	Gate – Source Charge ¹	I _D = 22A		8		22	nC
Q _{gd}	Gate – Drain (“Miller”) Charge ¹	V _{DS} = 0.5BV _{DSS}		30		60	
t _{d(on)}	Turn–On Delay Time	V _{DD} = 100V	V _{GS} = 10V			35	ns
t _r	Rise Time					190	
t _{d(off)}	Turn–Off Delay Time					170	
t _f	Fall Time					130	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current					27.4	A
I _{SM}	Pulse Source Current ²					110	
V _{SD}	Diode Forward Voltage	I _S = 27.4A	T _J = 25°C			1.9	V
		V _{GS} = 0					
t _{rr}	Reverse Recovery Time	I _F = 27.4A	T _J = 25°C			950	ns
Q _{rr}	Reverse Recovery Charge	d _i / d _t ≤ 100A/μs V _{DD} ≤ 30V				9.0	μC
t _{on}	Forward Turn–On Time			Negligible			

Notes

- 1) Pulse Test: Pulse Width $\leq 300\text{ms}$, $\delta \leq 2\%$
- 2) Repetitive Rating – Pulse width limited by maximum junction temperature.

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