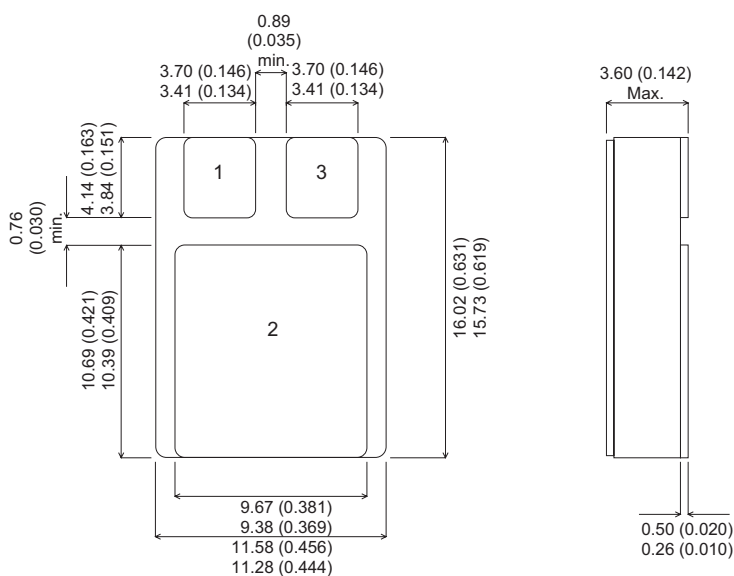


MECHANICAL DATA

Dimensions in mm (inches)



SMD 1 PACKAGE (TO-276AB)

Pad 1 – Source

Pad 2 – Drain

Pad 3 – Gate

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

N-CHANNEL POWER MOSFET

V_{DSS} 200V
 $I_{D(cont)}$ 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

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_{GS}	Gate – Source Voltage	±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/°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°C
T_L	Package Mounting Surface Temperature (for 5 sec)	300°C
$R_{\theta JC}$	Thermal Resistance Junction to Case	0.83°C/W

- Notes**
- 1) Pulse Test: Pulse Width $\leq 300ms$, $\delta \leq 2\%$
 - 2) @ $V_{DD} = 25V$, $L \geq 1.3mH$, Peak $I_L = 27.4A$, Starting $T_J = 25^{\circ}C$
 - 3) @ $I_{SD} \leq 27.5A$, $di/dt \leq 190A/\mu s$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^{\circ}C$

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Issue 2

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	$V_{GS} = 0$	$I_D = 1\text{mA}$	200	V	
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = 1\text{mA}$		0.29	$\text{V}/^{\circ}\text{C}$	
$R_{DS(on)}$	Static Drain – Source On–State Resistance ¹	$V_{GS} = 10\text{V}$	$I_D = 17\text{A}$		0.100	Ω
		$V_{GS} = 10\text{V}$	$I_D = 27.4\text{A}$		0.105	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = 250\mu\text{A}$	2	4	V
g_{fs}	Forward Transconductance ¹	$V_{DS} \geq 15\text{V}$	$I_{DS} = 17\text{A}$	9		$\text{S}(75)$
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$	$V_{DS} = 0.8BV_{DSS}$		25	μA
			$T_J = 125^{\circ}\text{C}$		250	
I_{GSS}	Forward Gate – Source Leakage	$V_{GS} = 20\text{V}$			100	nA
I_{GSS}	Reverse Gate – Source Leakage	$V_{GS} = -20\text{V}$			-100	
DYNAMIC CHARACTERISTICS						
C_{iss}	Input Capacitance	$V_{GS} = 0$			3500	pF
C_{oss}	Output Capacitance	$V_{DS} = 25\text{V}$			700	
C_{rss}	Reverse Transfer Capacitance	$f = 1\text{MHz}$			110	
Q_g	Total Gate Charge ¹	$V_{GS} = 10\text{V}$	$I_D = 22\text{A}$	55	115	nC
Q_{gs}	Gate – Source Charge ¹	$I_D = 22\text{A}$		8	22	nC
Q_{gd}	Gate – Drain (“Miller”) Charge ¹	$V_{DS} = 0.5BV_{DSS}$		30	60	
$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = 100\text{V}$	$V_{GS} = 10\text{V}$		35	ns
t_r	Rise Time				190	
$t_{d(off)}$	Turn–Off Delay Time			$I_D = 27.4\text{A}$	170	
t_f	Fall Time			$R_G = 2.35\Omega$	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	$I_S = 27.4\text{A}$	$T_J = 25^{\circ}\text{C}$		1.9	V
t_{rr}	Reverse Recovery Time	$I_F = 27.4\text{A}$	$T_J = 25^{\circ}\text{C}$		950	ns
Q_{rr}	Reverse Recovery Charge	$d_i / d_t \leq 100\text{A}/\mu\text{s}$		$V_{DD} \leq 30\text{V}$	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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