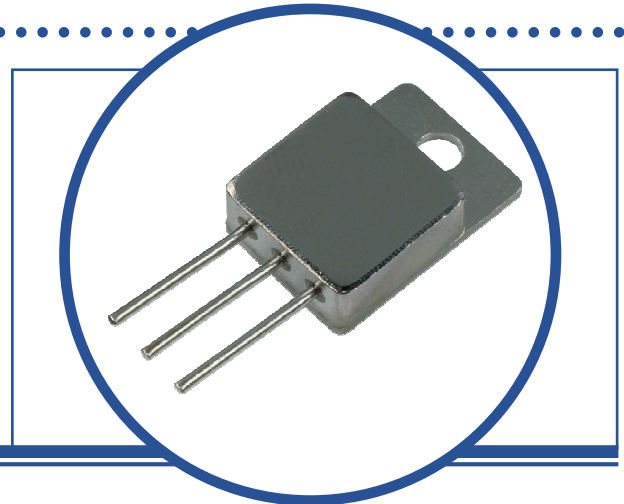


N-CHANNEL POWER MOSFET

IRFM140 / 2N7218

- Low $R_{DS(on)}$ MOSFET Transistor
In A Isolated 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		100V
V _{GS}	Gate – Source Voltage		±20V
I _D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	28A
I _D	Continuous Drain Current	$T_C = 100^\circ\text{C}$	20A
I _{DM}	Pulsed Drain Current ⁽¹⁾		112A
P _D	Total Power Dissipation at	$T_C = 25^\circ\text{C}$	100W
	Derate Above 25°C		0.8W/°C
E _{AS}	Single Pulse Avalanche Energy ⁽²⁾		250mJ
dv/dt	Peak Diode Recovery ⁽³⁾		5.5V/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			1.25	°C/W

Notes

- (1) Repetitive Rating: Pulse width limited by maximum junction temperature
- (2) @V_{DD} = 25V, L ≥ 470μH, Peak I_L = 28A, Starting T_J = 25°C
- (3) @ I_{SD} ≤ 28A, di/dt ≤ 170A/μs, V_{DD} ≤ BV_{DSS}, T_J ≤ 150°C, Suggested R_G = 9.1Ω
- (4) Pulse Width ≤ 300us, δ ≤ 2%

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ELECTRICAL CHARACTERISTICS (T_J = 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	100			V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = 1.0mA		0.13		V/°C
R _{DS(on)} ⁽⁴⁾	Static Drain-Source On-State Resistance	V _{GS} = 10V I _D = 20A			0.077	Ω
		V _{GS} = 10V I _D = 28A			0.125	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} I _D = 250μA	2		4	V
g _{fs} ⁽⁴⁾	Forward Transconductance	V _{DS} ≥ 15V I _{DS} = 21A	9.1			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		1660		pF
C _{oss}	Output Capacitance	V _{DS} = 25V		550		
C _{rss}	Reverse Transfer Capacitance	f = 1.0MHz		120		
Q _g	Total Gate Charge	V _{GS} = 10V	30		59	nC
Q _{gs}	Gate-Source Charge	I _D = 28A	2.4		12	
Q _{gd}	Gate-Drain Charge	V _{DS} = 0.5BV _{DSS}	12		30.7	
t _{d(on)}	Turn-On Delay Time	V _{DD} = 50V			21	ns
t _r	Rise Time	I _D = 20A			145	
t _{d(off)}	Turn-Off Delay Time				64	
t _f	Fall Time	R _G = 9.1Ω			105	

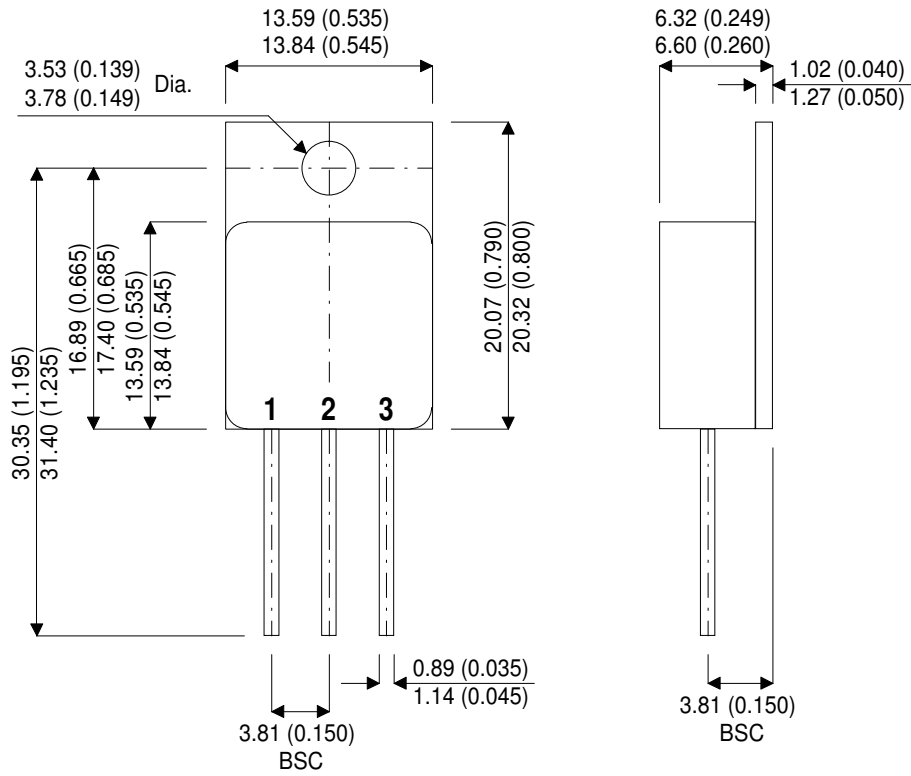
SOURCE-DRAIN DIODE CHARACTERISTICS

I _S	Continuous Source Current				28	A
I _{SM} ⁽¹⁾	Pulse Source Current				112	
V _{SD} ⁽⁴⁾	Diode Forward Voltage	I _S = 28A V _{GS} = 0	T _J = 25°C		1.5	V
t _{rr} ⁽⁴⁾	Reverse Recovery Time	I _S = 28A	T _J = 25°C		400	ns
Q _{rr} ⁽⁴⁾	Reverse Recovery Charge	V _{DD} ≤ 50V	di/dt = 100A/μs		2.9	μC

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MECHANICAL DATA

Dimensions in mm (inches)



TO-254AA

Pin 1 - Drain

Pin 2 - Source

Pin 3 - Gate