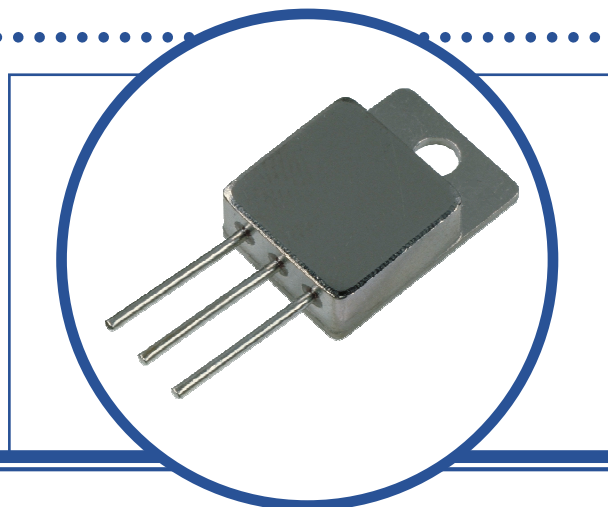


N-CHANNEL POWER MOSFET

IRFM540

- 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		$\pm 20\text{V}$
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	18A
I_D	Continuous Drain Current	$T_C = 100^\circ\text{C}$	12A
I_{DM}	Pulsed Drain Current ⁽¹⁾		72A
P_D	Total Power Dissipation at	$T_C = 25^\circ\text{C}$	78W
		Derate Above 25°C	0.62W/ $^\circ\text{C}$
T_J	Junction Temperature Range		-55 to $+150^\circ\text{C}$
T_{stg}	Storage Temperature Range		-55 to $+150^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case			1.6	$^\circ\text{C/W}$

Notes

- (1) Repetitive Rating: Pulse width limited by maximum junction temperature
(2) Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$

N-CHANNEL POWER MOSFET IRFM540

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		0.1		V/°C
R _{DS(on)} ⁽²⁾	Static Drain-Source On-State Resistance	V _{GS} = 10V I _D = 12A			0.092	Ω
		V _{GS} = 10V I _D = 18A			0.11	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} I _D = 250μA	2		4	V
g _{fs} ⁽²⁾	Forward Transconductance	V _{DS} ≥ 15V I _{DS} = 12A	9.1			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		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 = 18A	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 = 18A			145	
t _{d(off)}	Turn-Off Delay Time				64	
t _f	Fall Time	R _G = 9.1Ω			105	

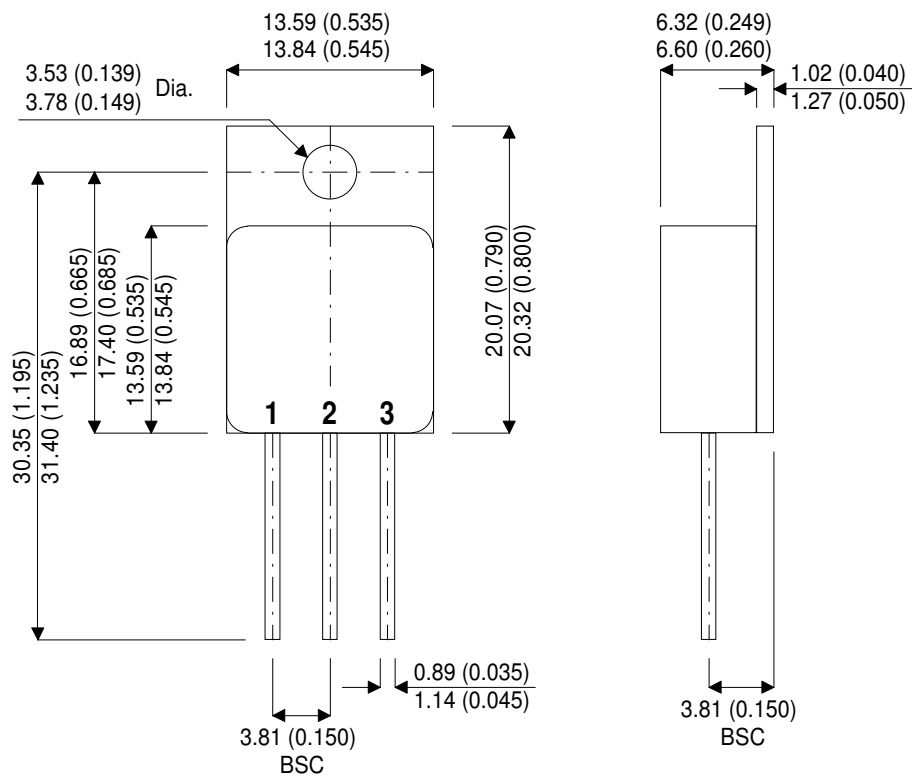
SOURCE-DRAIN DIODE CHARACTERISTICS

I _S	Continuous Source Current				18	A
I _{SM} ⁽¹⁾	Pulse Source Current				72	
V _{SD} ⁽²⁾	Diode Forward Voltage	I _S = 18A T _J = 25°C V _{GS} = 0			1.5	V
t _{rr} ⁽²⁾	Reverse Recovery Time	I _S = 18A T _J = 25°C			400	ns
Q _{rr} ⁽²⁾	Reverse Recovery Charge	V _{DD} ≤ 50V di/dt = 100A/μs			2.4	μC

N-CHANNEL POWER MOSFET IRFM540

MECHANICAL DATA

Dimensions in mm (inches)



TO-254AA

Pin 1 - Drain

Pin 2 - Source

Pin 3 - Gate