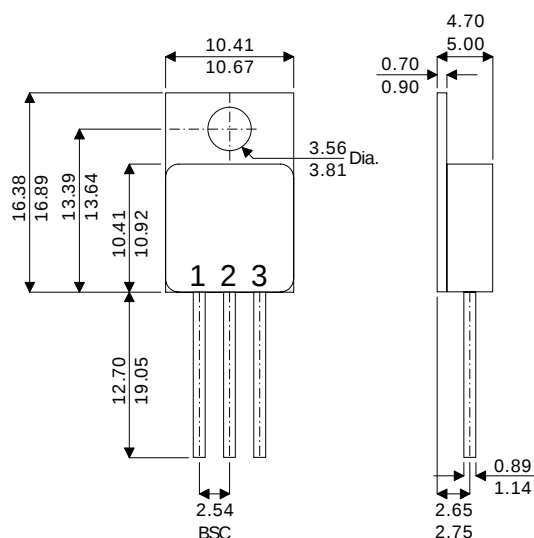


MECHANICAL DATA

Dimensions in mm (inches)



TO-220M – Metal Package

Pad 1 – Gate

Pad 2 – Drain

Pad 3 – Source

N-CHANNEL POWER MOSFET FOR HI-REL APPLICATIONS

V_{DSS} 60V

$I_{D(cont)}$ 20A

$R_{DS(on)}$ 0.035 Ω

FEATURES

- HERMETICALLY SEALED TO-220 METAL PACKAGE
- SIMPLE DRIVE REQUIREMENTS
- LIGHTWEIGHT
- SCREENING OPTIONS AVAILABLE
- ALL LEADS ISOLATED FROM CASE

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

V_{GS}	Gate – Source Voltage	$\pm 20\text{V}$
I_D	Continuous Drain Current @ $T_C = 25^\circ\text{C}$	20A
I_D	Continuous Drain Current @ $T_C = 100^\circ\text{C}$	20A
I_{DM}	Pulsed Drain Current	128A
P_D	Power Dissipation @ $T_C = 25^\circ\text{C}$	60W
	Linear Derating Factor	0.48W/ $^\circ\text{C}$
T_J, T_{stg}	Operating and Storage Temperature Range	-55 to 150°C
$R_{\theta JC}$	Thermal Resistance Junction to Case	2.1 $^\circ\text{C/W}$ max.
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	80 $^\circ\text{C/W}$ max.

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ 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	60			V
ΔBV _{DSS} ΔT _J	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = 1mA			0.68		V/°C
R _{DS(on)}	Static Drain – Source On–State Resistance	V _{GS} = 10V	I _D = 20A			0.035	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS}	I _D = 250μA	2		4	V
g _{fs}	Forward Transconductance	V _{DS} ≥ 15V	I _D = 20A	17			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			2400		pF
C _{oss}	Output Capacitance	V _{DS} = 25V			1100		
C _{rss}	Reverse Transfer Capacitance	f = 1MHz			230		
Q _g	Total Gate Charge	V _{GS} = 10V		39		88	nC
Q _{gs}	Gate – Source Charge	I _D = 20A		6.7		15	
Q _{gd}	Gate – Drain (“Miller”) Charge	V _{DS} = 0.5BV _{DSS}		18		52	
t _{d(on)}	Turn–On Delay Time	V _{GS} = 10V				23	ns
t _r	Rise Time	V _{DD} = 30V				130	
t _{d(off)}	Turn–Off Delay Time	I _D = 20A				81	
t _f	Fall Time	R _G = 9.1Ω				79	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current					20	A
I _{SM}	Pulse Source Current					128	
V _{SD}	Diode Forward Voltage	I _S = 20A	T _J = 25°C			2.5	V
		V _{GS} = 0					
t _{rr}	Reverse Recovery Time	I _F = 20A	T _J = 25°C			220	ns
Q _{rr}	Reverse Recovery Charge	d _i / d _t ≤ 100A/μs V _{DD} ≤ 50V				1.6	μC
PACKAGE CHARACTERISTICS							
L _D	Internal Drain Inductance	(from 6mm down drain lead pad to centre of die)			8.7		nH
L _S	Internal Source Inductance	(from 6mm down source lead to centre of source bond pad)			8.7		