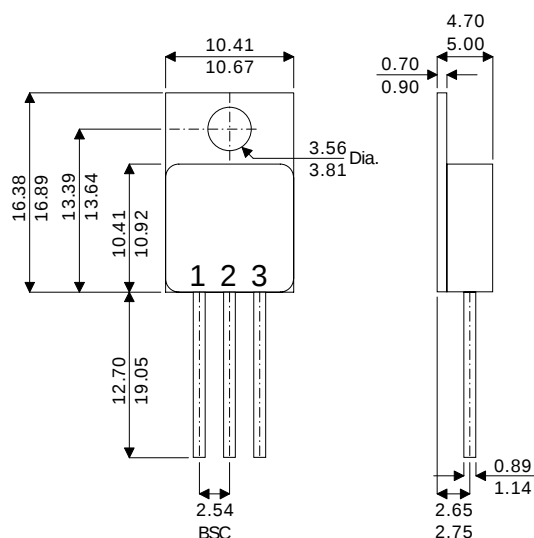


MECHANICAL DATA

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} **500V**
 $I_{D(cont)}$ **5.5A**
 $R_{DS(on)}$ **0.85Ω**
FEATURES

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

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

V_{GS}	Gate – Source Voltage	±20V
I_D	Continuous Drain Current @ $T_{case} = 25^{\circ}C$	5.5A
I_D	Continuous Drain Current @ $T_{case} = 100^{\circ}C$	3.5A
I_{DM}	Pulsed Drain Current	22A
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	60W
	Linear Derating Factor	0.48W/°C
T_J, T_{stg}	Operating and Storage Temperature Range	–55 to 150°C
$R_{\theta JC}$	Thermal Resistance Junction to Case	2.1°C/W max.
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	80°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	500			V
ΔBV _{DSS}	Temperature Coefficient of	Reference to 25°C			0.78		V/°C
ΔT _J	Breakdown Voltage	I _D = 1mA					
R _{DS(on)}	Static Drain – Source On–State Resistance	V _{GS} = 10V	I _D = 3.5A			0.85	Ω
		V _{GS} = 10V	I _D = 5.5A			0.98	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS}	I _D = 250μA	2		4	V
g _{fs}	Forward Transconductance	V _{DS} ≥ 15V	I _{DS} = 3.5A	4.7			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			1300		pF
C _{oss}	Output Capacitance	V _{DS} = 25V			310		
C _{rss}	Reverse Transfer Capacitance	f = 1MHz			120		
Q _g	Total Gate Charge	V _{GS} = 10V I _D = 5.5A V _{DS} = 0.5BV _{DSS}		27.3		68.5	nC
Q _{gs}	Gate – Source Charge	I _D = 5.5A		2		12.5	nC
Q _{gd}	Gate – Drain (“Miller”) Charge	V _{DS} = 0.5BV _{DSS}		11.1		42.4	
t _{d(on)}	Turn–On Delay Time	V _{DD} = 250V I _D = 5.5A R _G = 9.1Ω				21	ns
t _r	Rise Time					73	
t _{d(off)}	Turn–Off Delay Time					72	
t _f	Fall Time					51	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current					5.5	A
I _{SM}	Pulse Source Current					22	
V _{SD}	Diode Forward Voltage	I _S = 5.5A T _J = 25°C V _{GS} = 0				1.5	V
t _{rr}	Reverse Recovery Time	I _S = 5.5A T _J = 25°C				700	ns
Q _{rr}	Reverse Recovery Charge	d _i / d _t ≤ 100A/μs V _{DD} ≤ 50V				8.9	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		