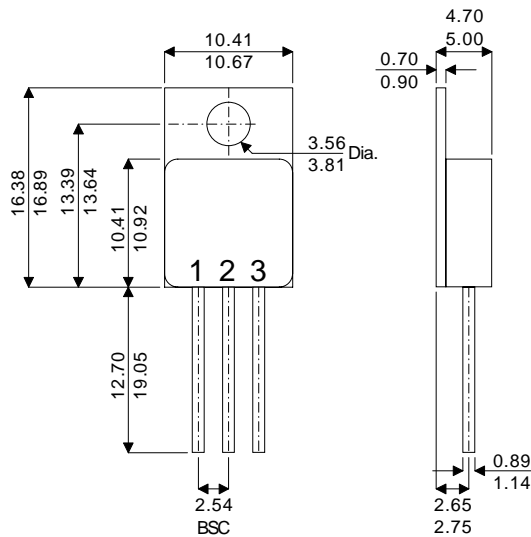


MECHANICAL DATA

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	$V_{GS} = 0$	$I_D = 1\text{mA}$	500	V	
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = 1\text{mA}$		0.78	$\text{V}/^\circ\text{C}$	
$R_{DS(on)}$	Static Drain – Source On–State Resistance	$V_{GS} = 10\text{V}$	$I_D = 3.5\text{A}$		0.85	Ω
		$V_{GS} = 10\text{V}$	$I_D = 5.5\text{A}$		0.98	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = 250\mu\text{A}$	2	4	V
g_{fs}	Forward Transconductance	$V_{DS} \geq 15\text{V}$	$I_{DS} = 3.5\text{A}$	4.7		$\text{S}(\bar{v})$
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	$V_{GS} = 0$			1300	pF
C_{oss}	Output Capacitance	$V_{DS} = 25\text{V}$			310	
C_{riss}	Reverse Transfer Capacitance	$f = 1\text{MHz}$			120	
Q_g	Total Gate Charge	$V_{GS} = 10\text{V}$	$I_D = 5.5\text{A}$	27.3	68.5	nC
Q_{gs}	Gate – Source Charge	$I_D = 5.5\text{A}$		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	$V_{DD} = 250\text{V}$			21	ns
t_r	Rise Time	$I_D = 5.5\text{A}$			73	
$t_{d(off)}$	Turn–Off Delay Time	$R_G = 9.1\Omega$			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	$I_S = 5.5\text{A}$	$T_J = 25^\circ\text{C}$		1.5	V
t_{rr}	Reverse Recovery Time	$I_S = 5.5\text{A}$	$T_J = 25^\circ\text{C}$		700	ns
Q_{rr}	Reverse Recovery Charge	$d_i / d_t \leq 100\text{A}/\mu\text{s}$		$V_{DD} \leq 50\text{V}$	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		



LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.