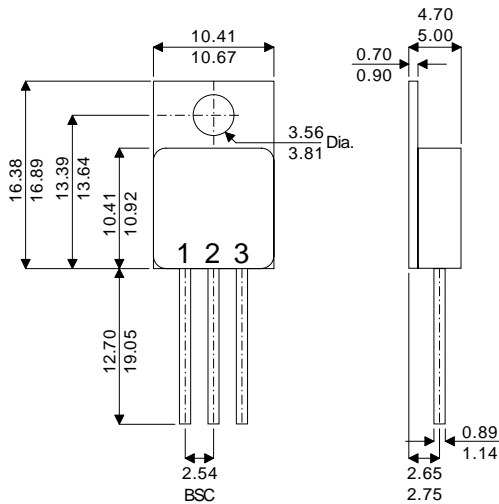


MECHANICAL DATA

Dimensions in mm (inches)



TO-220M – Metal Package

Pad 1 – Gate Pad 2 – Drain Pad 3 – Source

**P-CHANNEL
POWER MOSFET
FOR HI-REL
APPLICATIONS**

V_{DSS} **-100V**
 $I_{D(cont)}$ **-9.3A**
 $R_{DS(on)}$ **0.31Ω**

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 @ $T_{case} = 25^{\circ}C$	-9.3A
I_D	Continuous Drain Current @ $T_{case} = 100^{\circ}C$	-5.8A
I_{DM}	Pulsed Drain Current	-37A
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	45W
	Linear Derating Factor	0.36W/°C
T_J, T_{stg}	Operating and Storage Temperature Range	-55 to 150°C
$R_{\theta JC}$	Thermal Resistance Junction to Case	2.8°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	$V_{GS} = 0$	$I_D = 1\text{mA}$	-100		V	
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = 1\text{mA}$			-0.1	$\text{V}/^\circ\text{C}$	
$R_{DS(on)}$	Static Drain – Source On–State Resistance	$V_{GS} = 10\text{V}$	$I_D = -5.8\text{A}$			0.31	Ω
		$V_{GS} = 10\text{V}$	$I_D = -9.3\text{A}$			0.36	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = 250\mu\text{A}$	-2		-4	V
g_{fs}	Forward Transconductance	$V_{DS} \geq 15\text{V}$	$I_{DS} = -5.8\text{A}$	2.5			$\text{S}(\bar{v})$
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$	$V_{DS} = 0.8BV_{DSS}$			-25	μA
			$T_J = 125^\circ\text{C}$				
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	$V_{GS} = 0$			800		pF
C_{oss}	Output Capacitance	$V_{DS} = 25\text{V}$			350		
C_{rss}	Reverse Transfer Capacitance	$f = 1\text{MHz}$			125		
Q_g	Total Gate Charge	$V_{GS} = 10\text{V}$	$I_D = -9.3\text{A}$	14.7		30	nC
Q_{gs}	Gate – Source Charge	$V_{DS} = 0.5BV_{DSS}$		1		7.1	nC
Q_{gd}	Gate – Drain (“Miller”) Charge	$I_D = -9.3\text{A}$		2		21	
$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = -50\text{V}$				60	ns
t_r	Rise Time	$I_D = -9.3\text{A}$				140	
$t_{d(off)}$	Turn–Off Delay Time	$R_G = 7.5\Omega$				140	
t_f	Fall Time					140	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I_S	Continuous Source Current					-9.3	A
I_{SM}	Pulse Source Current					-37	
V_{SD}	Diode Forward Voltage	$I_S = -9.3\text{A}$	$T_J = 25^\circ\text{C}$			-4.7	V
t_{rr}	Reverse Recovery Time	$V_{GS} = 0$				250	ns
Q_{rr}	Reverse Recovery Charge	$I_S = -9.3\text{A}$	$T_J = 25^\circ\text{C}$			3	
		$d_i / d_t \leq 100\text{A}/\mu\text{s}$					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		