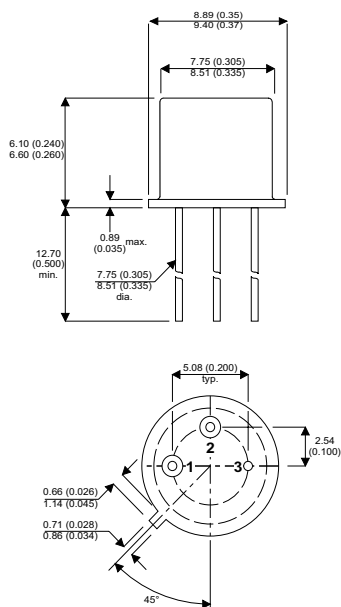


MECHANICAL DATA

Dimensions in mm (inches)



TO39 – Package

Pin 1 – Source Pin 2 – Gate Pin 3 – Drain

Also available in a low profile version.

N-CHANNEL POWER MOSFET

BV_{DSS} 400V

I_D 3.0A

$R_{DS(on)}$ 1.0 Ω

FEATURES

- AVALANCHE ENERGY RATED
- HERMETICALLY SEALED
- DYNAMIC dv/dt RATING
- SIMPLE DRIVE REQUIREMENTS

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

V_{GS}	Gate – Source Voltage	$\pm 20V$
I_D	Continuous Drain Current ($V_{GS} = 10V$, $T_{case} = 25^\circ C$)	3A
I_D	Continuous Drain Current ($V_{GS} = 10V$, $T_{case} = 100^\circ C$)	2A
I_{DM}	Pulsed Drain Current ¹	12A
P_D	Power Dissipation @ $T_{case} = 25^\circ C$	25W
	Linear Derating Factor	0.20W/ $^\circ C$
dv/dt	Peak Diode Recovery ³	4V/ns
T_J , T_{stg}	Operating and Storage Temperature Range	-55 to $150^\circ C$
$R_{\theta JC}$	Thermal Resistance Junction to Case	5.0 $^\circ C/W$
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient	175 $^\circ C/W$

Notes

1) Pulse Test: Pulse Width $\leq 300\mu s$, $\delta \leq 2\%$

2) @ $V_{DD} = 50V$, $L \geq 0.100mH$, $R_G = 25\Omega$, Peak $I_L = 1.5A$, Starting $T_J = 25^\circ C$

3) @ $I_{SD} \leq 1.5A$, $di/dt \leq 50A/\mu s$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^\circ C$, SUGGESTED $R_G = 7.5\Omega$

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}\text{C}$ 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	400			V
ΔBV _{DSS}	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = 1mA			0.37		V/°C
R _{DS(on)}	Static Drain to Source On–State Resistance	V _{GS} = 10V	I _D = 2A			1	Ω
		V _{GS} = 10V	I _D = 3A			1.15	
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} = 2A	2			S(Ω)
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 0.8xMax Rating				25	μA
		V _{GS} = 0	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			620		pF
C _{oss}	Output Capacitance	V _{DS} = 25V			200		
C _{rss}	Reverse Transfer Capacitance	f = 1MHz			75		
Q _g	Total Gate Charge	V _{GS} = 10V I _D = 3A		19.1		33	nC
Q _{gs}	Gate – Source Charge	V _{DS} = Max Rating x 0.5		1		5.8	
Q _{gd}	Gate – Drain (“Miller”) Charge			6.7		19.9	
t _{d(on)}	Turn–On Delay Time	V _{DD} = 200V V _{GS} = 10V I _D = 3A R _G = 7.5Ω				30	ns
t _r	Rise Time					35	
t _{d(off)}	Turn–Off Delay Time					55	
t _f	Fall Time					35	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current					3	A
I _{SM}	Pulse Source Current ²					12	
V _{SD}	Diode Forward Voltage	I _S = 3.0A	T _J = 25°C			1.4	V
		V _{GS} = 0					
t _{rr}	Reverse Recovery TimeReverse	I _F = 3.0A	T _J = 25°C			700	ns
Q _{rr}	Recovery Charge	d _i / d _t ≤ 100A/μs V _{DD} ≤ 50V				6.2	
t _{on}	Forward Turn–On Time				Negligible		μC
PACKAGE CHARACTERISTICS							
L _D	Internal Drain Inductance (from centre of drain pad to die)				5		nH
L _S	Internal Source Inductance (from centre of source pad to end of source bond wire)				15		

Notes

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