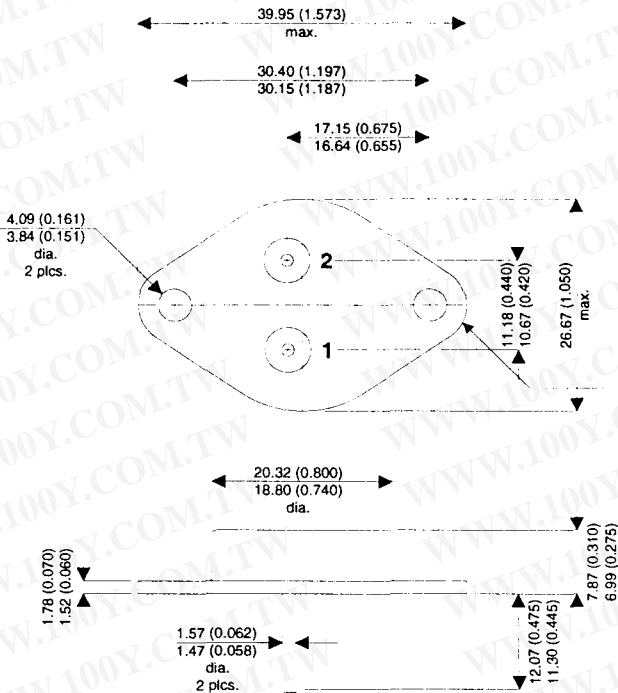


MECHANICAL DATA

Dimensions in mm (inches)



TO-3 Metal Package

Pin 1 – Gate Pin 2 – Source Case – Drain

**N-CHANNEL
POWER MOSFET**

V_{DSS} 500V
 $I_{D(cont)}$ 13A
 $R_{DS(on)}$ 0.40 Ω

FEATURES

- HERMETICALLY SEALED TO-3 METAL PACKAGE
- SIMPLE DRIVE REQUIREMENTS
- SCREENING OPTIONS AVAILABLE

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

V_{GS}	Gate – Source Voltage	$\pm 20V$
V_{DS}	Drain – Source Voltage	500V
V_{DGR}	Drain – Gate Voltage	$R_{GS} = 20k\Omega$ 500V
I_D	Continuous Drain Current	($V_{GS} = 0, T_{case} = 25^{\circ}C$) 13A
I_D	Continuous Drain Current	($V_{GS} = 0, T_{case} = 100^{\circ}C$) 8A
I_{DM}	Pulsed Drain Current ¹	52A
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	150W
	Linear Derating Factor	1.2W/ $^{\circ}C$
I_{LM}	Inductive Current Clamped $L = 100\mu H$	52
T_J, T_{stg}	Operating and Storage Temperature Range	-55 to +150 $^{\circ}C$
T_L	Lead Temperature 1.6mm (0.63") from case for 10 sec.	300 $^{\circ}C$

Notes

1) Repetitive Rating. Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS (T_{case} = 25°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 = 250μA	500	V		
I _{D(on)}	On State Drain Current	V _{DS} > I _{D(on)} × R _{DS(on)} max. V _{GS} = 10V		13	A		
R _{DS(on)}	Static Drain – Source On-State Resistance ¹	V _{GS} = 10V I _D = 7A		0.3	0.4	Ω	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS}	I _D = 250μA	2	4	V	
g _{fs}	Forward Transconductance ¹	V _{DS} > I _{D(on)} × R _{DS(on)} max. I _D = 7A		6	11	S (∅)	
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0	V _{DS} = 0.8BV _{DSS} T _J = 125°C		250 1000	μA	
I _{GSS}	Forward Gate – Source Leakage	V _{GS} = 20V			100	nA	
I _{GSS}	Reverse Gate – Source Leakage	V _{GS} = -20V			-100	nA	
DYNAMIC CHARACTERISTICS							
C _{iss}	Input Capacitance	V _{GS} = 0			200	3000	pF
C _{oss}	Output Capacitance	V _{DS} = 25V			400	600	
C _{rss}	Reverse Transfer Capacitance	f = 1MHz			100	200	
Q _g	Total Gate Charge	V _{GS} = 10V			82	120	nC
Q _{gs}	Gate – Source Charge	I _D = 16A			40		
Q _{gd}	Gate – Drain (“Miller”) Charge	V _{DS} = 0.8BV _{DSS}			42		
t _{d(on)}	Turn-On Delay Time	V _{DD} = 210V				35	ns
t _r	Rise Time	I _D = 7A				50	
t _{d(off)}	Turn-Off Delay Time	R _G = 4.7Ω				150	
t _f	Fall Time					70	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current					13	A
I _{SM}	Pulse Source Current ²					52	
V _{SD}	Diode Forward Voltage ¹	I _S = 13A	T _J = 25°C			1.4	V
t _{rr}	Reverse Recovery Time	I _F = 13A	T _J = 25°C			1300	ns
Q _{rr}	Reverse Recovery Charge ¹	d _i / d _t = 100A/μs V _{DD} ≤ 50V				7.4	μC
t _{on}	Forward Turn-On Time					Negligible	
PACKAGE CHARACTERISTICS							
L _D	Internal Drain Inductance (measured from 6mm down drain lead to centre of die)					5.0	nH
L _S	Internal Source Inductance (from 6mm down source lead to source bond pad)					13	
THERMAL CHARACTERISTICS							
R _{θJC}	Thermal Resistance Junction – Case					0.83	°C/W
R _{θCS}	Thermal Resistance Case – Sink					0.12	
R _{θJA}	Thermal Resistance Junction – Ambient					30	

Notes

- 1) Pulse Test: Pulse Width ≤ 300ms, δ ≤ 2%
- 2) Repetitive Rating – Pulse width limited by maximum junction temperature.