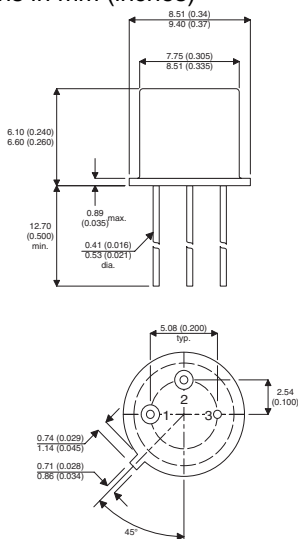


MECHANICAL DATA

Dimensions in mm (inches)



TO-39 PACKAGE (TO-205AD)

(Underside View)

PIN 1 – SOURCE PIN 3 – DRAIN
PIN 2 – GATE CASE – DRAIN

N-CHANNEL ENHANCEMENT MODE MOSFET

V_{DS} **60V**
 I_D **1.2A**
 $R_{DS(on)}$ **2.0Ω**

FEATURES

- Faster switching
- Low Ciss
- Integral Source-Drain Diode
- High Input Impedance and High Gain

DESCRIPTION

This enhancement-mode (normally-off) vertical DMOS FET is ideally suited to a wide range of switching and amplifying applications where high breakdown voltage, high input impedance, low input capacitance, and fast switching speeds are desired.

High Reliability Screening options are available.

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

V_{DS}	Drain - Source Voltage	60V
I_D	Drain Current	1.2A
	- Continuous ($T_C = 25^{\circ}C$)	
	- Continuous ($T_A = 25^{\circ}C$)	0.45A
I_{DM}	Drain Current	8A
	- Pulsed (Note 1)	
V_{GS}	Gate - Source Voltage	$\pm 20V$
$P_{tot(1)}$	Total Power Dissipation at $T_{mb} \leq 25^{\circ}C$	5W
	De-rate Linearly above $25^{\circ}C$	0.040W/ $^{\circ}C$
$P_{tot(2)}$	Total Power Dissipation at $T_{amb} \leq 25^{\circ}C$	700mW
T_j, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150 $^{\circ}C$

THERMAL DATA

R_{thj-c}	Thermal Resistance Junction – Case	Max	20	$^{\circ}C/W$
$R_{thj-amb}$	Thermal Resistance Junction - Ambient	Max	179	$^{\circ}C/W$

NOTES: 1) Repetitive Rating: Pulse Width limited by maximum junction temperature.
2) Pulse Test: Pulse Width $\leq 380\mu s$, Duty Cycle, $\delta \leq 2\%$

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DOC 7927, ISSUE 1

STATIC ELECTRICAL RATINGS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$ Drain – Source Breakdown Voltage	$V_{GS} = 0V$ $I_D = 10\mu A$	60	-	-	V
$V_{GS(th)}$ Gate – Source threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 1.0mA$	0.8	-	2.4	
I_{GSS} Gate – Source Leakage Current	$V_{GS} = \pm 20V$ $V_{DS} = 0V$	-	-	± 20	nA
I_{DSS} Zero Gate Voltage Drain Current	$V_{DS} = 60V$ $V_{GS} = 0V$	-	-	0.5	μA
	$V_{DS} = 48V$ $T_C = 125^{\circ}\text{C}$	-	-	100	
$I_{D(on)}$ On – State Drain Current (note 2)	$V_{DS} = 18V$ $V_{GS} = 10V$	2	-	-	A
$R_{DS(on)}$ Drain – Source On Resistance (note 2)	$V_{GS} = 10V$ $I_D = 1.0A$	-	-	2	Ω
g_{FS} Forward Transconductance (note 2)	$V_{DS} = 18V$ $I_D = 1.0A$	300	-	-	ms
V_{SD} Diode Forward Voltage (note 2)	$V_{GS} = 0V$ $I_s = 0.45A$	-	0.8	-	V

DYNAMIC CHARACTERISTICS

C_{iss} Input Capacitance	$V_{DS} = 18V$ $f = 1.0MHz$ $V_{GS} = 0V$	-	-	75	pF
C_{oss} Output Capacitance		-	-	45	
C_{rss} Reverse Transfer Capacitance		-	-	20	
$t_{d(on)}$ Turn-On Delay	$V_{DD} = 18V$ $I_D = 1A$ (note 2)	-	-	7	ns
t_r Rise Time		-	-	8	
$t_{d(off)}$ Turn-Off Delay Time		-	-	12	
t_f Fall Time		-	-	15	
t_{rr} Reverse Recovery Time	$V_{GS} = 0V$, $I_F = 0.45A$, $I_R = 0.1A$	-	50	-	ns

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