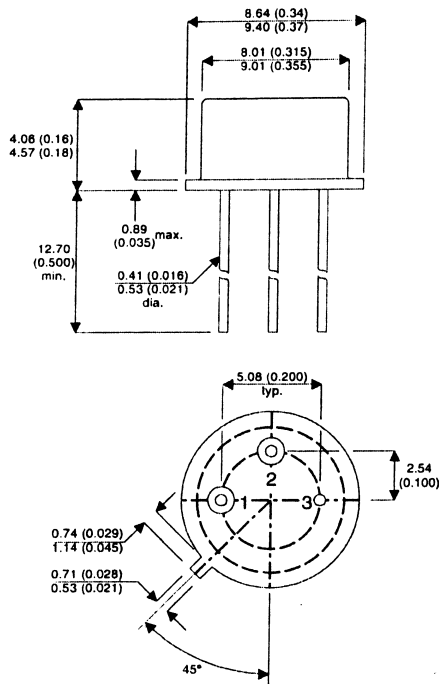


2N6782

MECHANICAL DATA

Dimensions in mm (inches)



TO39 Package (TO-205AF)

Underside View

Pin 1 - Source

Pin 2 - Gate

Pin 3 - Drain and Case

**N-CHANNEL
 POWER MOSFET
 ENHANCEMENT MODE**

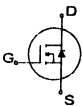
APPLICATIONS

- FAST SWITCHING
- MOTOR CONTROLS
- POWER SUPPLIES

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

V_{DS}	Drain Source Voltage	100V
V_{DGR}	Drain Gate Voltage ($R_{GS} = 1M\Omega$)	100V
$I_D @ T_{case} = 25^{\circ}C$	Continuous Drain Current	3.5A
$I_D @ T_{case} = 100^{\circ}C$	Continuous Drain Current	2.25A
I_{DM}	Pulsed Drain Current ¹	14A
V_{GS}	Gate Source Voltage	$\pm 20V$
$P_D @ T_{case} = 25^{\circ}C$	Maximum Power Dissipation	15W
$P_D @ T_{case} = 100^{\circ}C$	Maximum Power Dissipation	6W
Junction to Case	Linear Derating Factor	0.12W/ $^{\circ}C$
Junction to ambient	Linear Derating Factor	0.005W/ $^{\circ}C$
T_J, T_{stg}	Operating and Storage Temperature Range	-55 to +150 $^{\circ}C$
Lead Temperature	$\frac{1}{16}$ " from case for 10 secs)	300 $^{\circ}C$

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS					
BV_{DSS} Drain – Source Breakdown Voltage	$V_{GS} = 0$ $I_D = 0.25mA$	100*			V
$V_{GS(th)}$ Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 0.5A$	2*		4.0*	V
	$V_{DS} = 0$ $T_A = 125^{\circ}C$	1*		4.0*	
I_{GSSF} Gate Body Leakage Forward	$V_{GS} = 20V$			100*	nA
	$V_{DS} = 0$ $T_A = 125^{\circ}C$			200*	
I_{GSSR} Gate Body Leakage Reverse	$V_{GS} = -20V$			-100*	
I_{DSS} Zero Gate Voltage Drain Current	$V_{DS} = 80V$ $V_{GS} = 0$			0.25*	mA
	$V_{DS} = 100V$ $V_{GS} = 0$			1*	
	$T_C = 125^{\circ}C$			1	
$I_{D(on)}$ On State Drain Current1	$V_{GS} = 10V$	3.5			A
$V_{DS(on)}$ Static Drain Source On-State Voltage1	$V_{GS} = 10V$ $I_D = 3.5A$	2.1*			V
$R_{DS(on)}$ Static Drain Source On-State Resistance1	$V_{GS} = 10V$ $I_D = 2.25A$			0.6*	Ω
	$T_C = 125^{\circ}C$			1.08*	
DYNAMIC CHARACTERISTICS					
g_{fs} Forward Transconductance 1	$V_{DS} = 5V$ $I_{DS} = 2.25A$	1.0*		3.0*	S (τ)
C_{iss} Input Capacitance	$V_{GS} = 0$ $V_{DS} = 25V$ $f = 1MHz$	60*		200*	pF
C_{oss} Output Capacitance		40*		100*	
C_{rss} Reverse Transfer Capacitance		10*		25*	
$t_{d(on)}$ Turn-On Delay Time	$V_{DD} = 34V$ $I_D = 2.25A$			15*	ns
t_r Rise Time	$R_G = 50\Omega$ $R_L = 15\Omega$			25*	
$t_{d(off)}$ Turn-Off Delay Time	(MOSFET switching times are essentially independent of operating temperature.)			25*	
t_f Fall Time				20*	
BODY- DRAIN DIODE RATINGS & CHARACTERISTICS					
I_S Continuous Source Current Body Diode	Modified MOS POWER symbol showing the intergal 			3.5*	A
I_{SM} Source Current1 (Body Diode)	P-N junction rectifier.			14	A
V_{SD} Diode Forward Voltage 1	$I_S = 3.5A$ $V_{GS} = 0$ $T_J = 25^{\circ}C$			1.5*	V
t_{rr} Reverse Recovery Time	$I_F = I_S$ $T_J = 25^{\circ}C$ $d_j / d_t = 100A/\mu s$		200		nS
THERMAL CHARACTERISTICS					
$R_{\theta JC}$ Thermal Resistance Junction – Case	Free Air Operation			8.33*	$^{\circ}C/W$
$R_{\theta JA}$ Thermal Resistance Junction – Ambient				175	

Notes1) Pulse Test: Pulse Width $\leq 300\mu s$, $\delta \leq 2\%$

* JEDEC registered Values