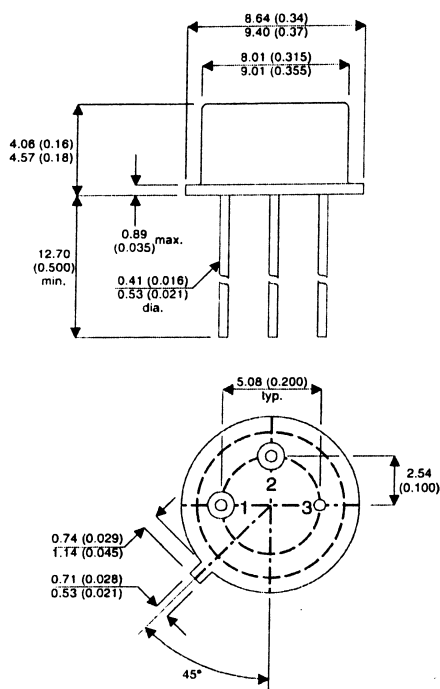


2N6782

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**

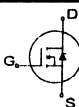
APPLICATIONS

- FAST SWITCHING
- MOTOR CONTROLS
- POWER SUPPLIES

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

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

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

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS							
BV_{DSS}	Drain – Source Breakdown Voltage	$V_{GS} = 0$	$I_D = 0.25\text{mA}$	100*			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = 0.5\text{A}$	2*		4.0*	V
		$V_{DS} = 0$	$T_A = 125^{\circ}\text{C}$	1*		4.0*	
I_{GSSF}	Gate Body Leakage Forward	$V_{GS} = 20\text{V}$				100*	nA
		$V_{DS} = 0$	$T_A = 125^{\circ}\text{C}$			200*	
I_{GSSR}	Gate Body Leakage Reverse	$V_{GS} = -20\text{V}$				-100*	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 80\text{V}$	$V_{GS} = 0$			0.25*	mA
		$V_{DS} = 100\text{v}$	$V_{GS} = 0$			1*	
			$T_C = 125^{\circ}\text{C}$			1	
$I_{D(on)}$	On State Drain Current1	$V_{GS} = 10\text{V}$		3.5			A
$V_{DS(on)}$	Static Drain Source On-State Voltage1	$V_{GS} = 10\text{V}$	$I_D = 3.5\text{A}$	2.1*			V
$R_{DS(on)}$	Static Drain Source On-State Resistance1	$V_{GS} = 10\text{V}$	$I_D = 2.25\text{A}$			0.6*	Ω
			$T_C = 125^{\circ}\text{C}$			1.08*	
DYNAMIC CHARACTERISTICS							
g_{fs}	Forward Transductance 1	$V_{DS} = 5\text{V}$	$I_{DS} = 2.25\text{A}$	1.0*		3.0*	S (τ)
C_{iss}	Input Capacitance	$V_{GS} = 0$ $f = 1\text{MHz}$	$V_{DS} = 25\text{V}$	60*		200*	pF
C_{oss}	Output Capacitance			40*		100*	
C_{rss}	Reverse Transfer Capacitance			10*		25*	
$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = 34\text{V}$	$I_D = 2.25\text{A}$			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	$I_S = 3.5\text{A}$	$V_{GS} = 0$			1.5*	V
		$T_J = 25^{\circ}\text{C}$					
t_{rr}	Reverse Recovery Time	$I_F = I_S$	$T_J = 25^{\circ}\text{C}$		200		nS
		$d_i / d_t = 100\text{A}/\mu\text{s}$					
THERMAL CHARACTERISTICS							
$R_{\theta JC}$	Thermal Resistance Junction – Case	Free Air Operation				8.33*	$^{\circ}\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance Junction – Ambient					175	

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

* JEDEC registered Values