

T-29-25

TOPAZ
SEMICONDUCTOR

2N6781, 2N6782

**N-CHANNEL ENHANCEMENT-MODE
D-MOS POWER FETs**

ORDERING INFORMATION

TO-205 AF (TO-39) Hermetic Package	2N6782	2N6781
Description	100V, 0.6 ohm	60V, 0.6 ohm

FEATURES

- Gate Stand-off Voltage, $\pm 40V$ min.
- Continuous I_D of 1 Amp in small package
- Wide Variety of Packages

APPLICATIONS

- Motor Controls
- Line Drivers
- Power Supplies

ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ C$ unless otherwise noted)

Drain-Source Voltage	100V*
2N6782	100V*
2N6781	60V*
Drain-Gate Voltage ($R_{GS} = 1M\Omega$)	100V*
2N6782	100V*
2N6781	60V*
Gate-Source Voltage	$\pm 40V$
Continuous Drain Current	
$T_C = +100^\circ C$	2.25A*
$T_C = +25^\circ C$	3.5A*
Peak Pulsed Drain Current	8.0A

Maximum Power Dissipation

$T_C = +100^\circ C$	$T_C = +25^\circ C$
6.0W*	15W*

Linear Derating Factor

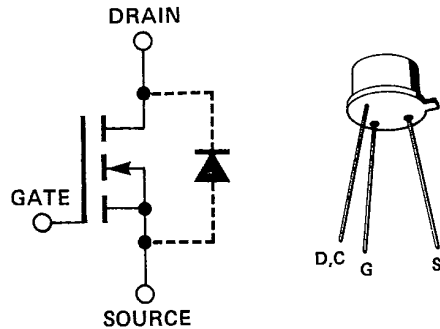
Junction to Ambient	Junction to Case
(mW/ $^\circ C$)	(mW/ $^\circ C$)
5.0*	120*

Operating Junction and Storage

Temperature Range	-55 to +150 $^\circ C$
Lead Temperature (1/16" from mounting surface for 30 Sec)	+300 $^\circ C$ *

*JEDEC Registered Values

CONFIGURATION



PACKAGE DIMENSIONS

TO-205 AF
(See Package 6)



2N6781, 2N6782

ELECTRICAL CHARACTERISTICS (T_c = +25°C unless otherwise noted)

#	CHARACTERISTIC	2N6782			2N6781			UNIT	TEST CONDITIONS
		MIN	TYP	MAX	MIN	TYP	MAX		
1	BV _{DSS} Drain-Source Breakdown Voltage	100*	125		60*	90		V	I _D = 250μA, V _{GS} = 0
2	V _{GS(th)} Gate-Source Threshold Voltage	2.0*	4.0*	2.0*	4.0*			V	V _{DS} = V _{GS} I _D = 250μA
3		1.0*	4.0*	1.0*	4.0*				T _C = +125°C
4	I _{GSS} Gate-Body Leakage Current		100*			100*		nA	V _{GS} = 20V, V _{DS} = 0
5			200*			200*			T _C = +125°C
6				-100*			-100*		V _{GS} = -20V, V _{DS} = 0
7	I _{DSS} Drain-Source OFF Leakage Current		0.25*					mA	V _{DS} = 80V, V _{GS} = 0
8			1.0*						V _{DS} = 100V, V _{GS} = 0
9						0.25*			V _{DS} = 48V, V _{GS} = 0
10						1.0*			V _{DS} = 60V, V _{GS} = 0
11	I _{D(on)} ON Drain Current ⁽¹⁾	3.5*			3.5*			A	V _{DS} = 10V, V _{GS} = 10V
12	V _{DS(on)} Drain-Source ⁽¹⁾ ON Voltage			2.1*			2.1*	V	V _{GS} = 10V, I _D = 3.5A
13	r _{DS(on)} Drain-Source ⁽¹⁾ ON Resistance			0.6*			0.6*	ohms	V _{GS} = 10V
14				1.08*			1.08*		I _D = 2.25A
15	g _{fs} Common-Source ⁽¹⁾ Forward Transcond.	1.0*		3.0*	1.0*		3.0*	S	V _{DS} = 10V, V _{GS} = 10V f = 1KHz
16	C _{iss} Common-Source Input Capacitance	60*		200*	60*		200*	pF	V _{DS} = 25V, V _{GS} = 0 f = 1MHz
17	C _{rss} Common-Source Reverse Transfer Capacitance	10*		25*	10*		25*		
18	C _{OSS} Common-Source Output Capacitance	40*		100*	40*		100*		
19	t _{d(on)} Turn-ON Delay Time			15*			15*	nsec	V _{DD} = 34V R _L = 15 ohms R _G = 25 ohms V _{G(on)} = 10V
20	t _r Rise Time			25*			25*		
21	t _{d(off)} Turn-OFF Delay Time			25*			25*		
22	t _f Fall Time			20*			20*		
23	I _S Continuous Source Current ⁽¹⁾	3.5*			3.5*			A	
24	I _{SM} Peak Source Current ⁽¹⁾	8.0*			8.0*				
25	V _{SD} Source-Drain ⁽¹⁾ Forward Voltage	0.75*		1.50*	0.75*		1.50*	V	V _{GS} = 0, I _S = 3.5A
26	R _{th J-C} Thermal Resistance Junction-to-Case			8.33*			8.33*	°C/W	
27	R _{th J-A} Thermal Resistance Junction-to-Ambient			170			170	°C/W	

Note 1: Pulse Test 80μSec, 1% Duty Cycle *JEDEC Registered Values

TYPICAL PERFORMANCE CHARACTERISTICS ($T_A = +25^\circ\text{C}$ unless otherwise specified)

