TOPAZ SEMICONDUCTOR

T-31-25

SD3300, SD3301

N-CHANNEL ENHANCEMENT-MODE D-MOS POWER FETs

ORDERING INFORMATION

Sorted Chips in Waffle Pack	SD3300CHP	SD3301CHP
TO-205AF (TO-39) Hermetic Package	SD3300HD	SD3301HD
TO-226AA (TO-92) Plastic Package	SD3300BD	SD3301BD
TO-237 (TO-92+) Plastic Package	SD3300AD	SD3301AD
Description	100V, 0.6 ohm	60V, 0.4 ohm

FEATURES

- Gate Stand-off Voltage, ±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°C unless otherwise noted)

Drain-Source Voltage
- SD3300 ..... 100V
- SD3301 ..... 60V

Drain-Gate Voltage (R_{GS} = 1MΩ)
- SD3300 ..... 100V
- SD3301 ..... 60V

Gate-Source Voltage ..... ±40V

Continuous Drain Current

	T_C = +100°C	T_C = +25°C
SD3300AD	1.2A	1.9A
SD3300BD	1.0A	1.6A
SD3300HD	2.25A	3.5A
SD3301AD	1.4A	2.3A
SD3301BD	1.2A	1.9A
SD3301HD	2.7A	4.3A

Peak Pulsed Drain Current 8.0A

Maximum Power Dissipation

	T_C = +100°C	T_C = +25°C
HD, TO-39 Pkg.	6.0W	15W
BD, TO-92 Pkg.	1.2W	3.0W
AD, TO-237 Pkg.	1.7W	4.3W

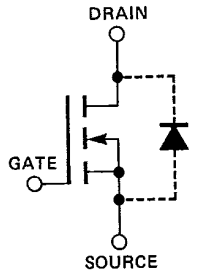
Linear Derating Factor

	Junction to Ambient (mW/°C)	Junction to Case (mW/°C)
HD, TO-39 Pkg.	8.0	120
BD, TO-92 Pkg.	3.2	24
AD, TO-237 Pkg.	4.8	34.4

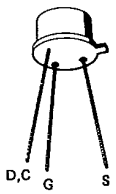
Operating Junction and Storage Temperature Range ..... -55 to +150°C

Lead Temperature (1/16" from mounting surface for 30 Sec) ..... +260°C

PIN CONFIGURATIONS

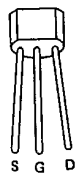


TO-205AF (TO-39)



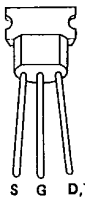
See Package 6

TO-226AA (TO-92)



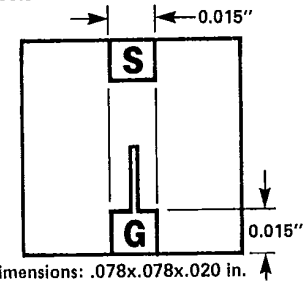
See Package 5

TO-237



See Package 7

CHIP CONFIGURATION



Dimensions: .078x.078x.020 in.
Drain is backside contact.

TOPAZ SEMICONDUCTOR

SD3300, SD3301

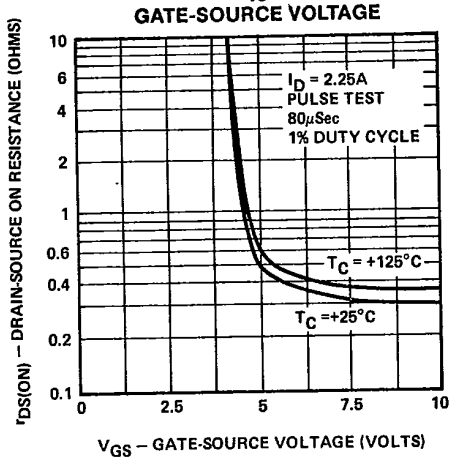
ELECTRICAL CHARACTERISTICS (T_C = +25°C unless otherwise noted)

#		CHARACTERISTIC		SD3300 MIN	SD3300 TYP	SD3300 MAX	SD3301 MIN	SD3301 TYP	SD3301 MAX	UNIT	TEST CONDITIONS	
1	STATIC	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	1.0		3.0	1.0		3.0	V	V_{DS} = V_{GS}	
3				0.4			0.4				I_D = 250μA	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			1.0				μA	V_{DS} = 80V, V_{GS} = 0	
8						1000						T_C = +125°C
9									1.0		V_{DS} = 48V, V_{GS} = 0	
10									1000			T_C = +125°C
11		$I_{D(on)}$	ON Drain Current(1)	3.0			3.5			A	V_{DS} = 10V, V_{GS} = 10V	
12		$V_{DS(on)}$	Drain-Source(1) ON Voltage			1.8				V	V_{GS} = 10V, I_D = 3.0A	
13									1.4		V_{GS} = 10V, I_D = 3.5A	
14		$r_{DS(on)}$	Drain-Source(1) ON Resistance			0.6			0.4	ohms	V_{GS} = 10V	
15						1.08			0.72		I_D = 2.25A	T_C = +125°C
16	DYNAMIC	g_{fs}	Common-Source(1) Forward Transcond.	1.0		3.0	1.0		3.0	S(℧)	V_{DS} = 10V, I_D = 2.25A	f = 1KHz
17		C_{iss}	Common-Source Input Capacitance			200			200	pF	V_{DS} = 25V, V_{GS} = 0, f = 1MHz	
18		C_{rss}	Common-Source Reverse Transfer Capacitance			25			25			
19		C_{oss}	Common-Source Output Capacitance			100			100			
20		$t_{d(on)}$	Turn-ON Delay Time			15			15	nsec	V_{DD} = 34V, R_L = 15 ohms, R_G = 25 ohms, $V_{G(on)}$ = 10V	
21		t_r	Rise Time			25			25			
22		$t_{d(off)}$	Turn-OFF Delay Time			25			25			
23		t_f	Fall Time			20			20			
24	DIODE	I_S	Continuous Source Current(1)	3.0			3.5			A		
25		I_{SM}	Peak Source Current(1)	8.0			8.0					
26		V_{SD}	Source-Drain(1) Forward Voltage			2.0				V	V_{GS} = 0	I_S = 3.0A
27									2.0			I_S = 3.5A

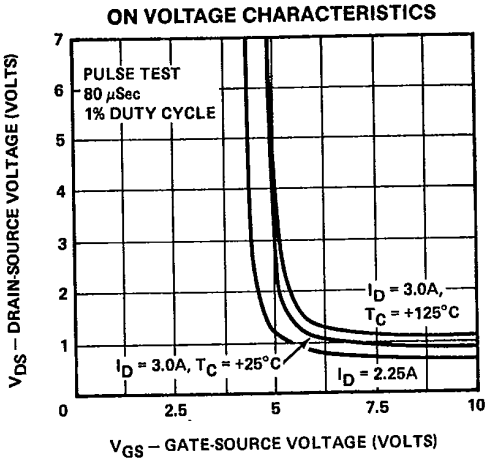
Note 1: Pulse Test 80μSec, 1% Duty Cycle

TYPICAL PERFORMANCE CHARACTERISTICS (T_A = +25°C unless otherwise specified)

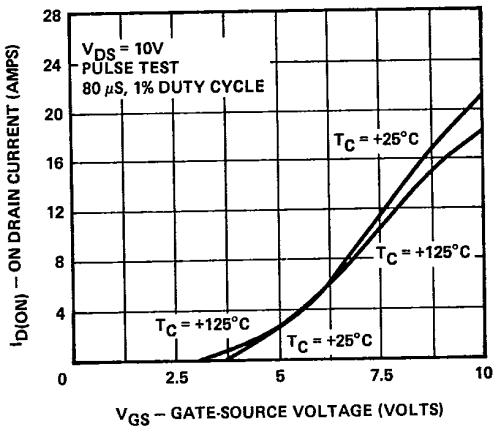
DRAIN-SOURCE ON RESISTANCE —vs— GATE-SOURCE VOLTAGE



ON VOLTAGE CHARACTERISTICS



ON DRAIN CURRENT —vs— GATE-SOURCE VOLTAGE



FORWARD TRANSCONDUCTANCE —vs— ON DRAIN CURRENT