TOPAZ SEMICONDUCTOR

SD1200, SD1201

N-CHANNEL ENHANCEMENT-MODE HIGH-VOLTAGE D-MOS FETs

ORDERING INFORMATION

Sorted Chips in Conductive Waffle Pack	SD1200CHP	SD1201CHP
TO-226AA (TO-92) Package	—	SD1201BD
TO-206AA (TO-18) Package	SD1200DD	SD1201DD
Description	450V, 700 ohm	400V, 500 ohm

FEATURES

- ■ Gate Stand-off Voltage, ±40V min.
- ■ P-Channel Complements Available, SD2204
- ■ Low Capacitance (c_{oss} 1.0pF typ.)
- ■ Low Leakage

APPLICATIONS

- ■ High-Voltage Level Translators
- ■ High-Voltage Display Drivers
- ■ High-Voltage Switches
- ■ AC-DC Relays

ABSOLUTE MAXIMUM RATINGS (T_C = +25°C unless otherwise noted)

Drain-Source Voltage
SD1200 .... 450V
SD1201 .... 400V
Drain-Gate Voltage (R_{GS} = 1MΩ)
SD1200 .... 450V
SD1201 .... 400V
Gate-Source Voltage .... ±40V
Continuous Drain Current

	T_C = +100°C	T_C = +25°C
SD1200DD	18mA	28mA
SD1201BD	18mA	30mA
SD1201DD	20mA	30mA

Peak Drain Current 20mA

Maximum Power Dissipation

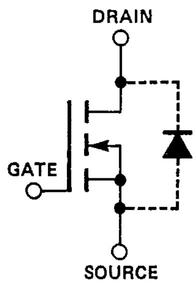
	T_C = +100°C	T_C = +25°C
BD, TO-92 Pkg.	0.3W	0.8W
DD, TO-18 Pkg.	0.4W	1.0W

Linear Derating Factor

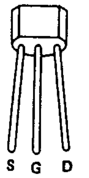
	Junction to Ambient (mW/°C)	Junction to Case (mW/°C)
BD, TO-92 Pkg.	4.0	6.4
DD, TO-18 Pkg.	5.3	8.0

Operating Junction and Storage Temperature Range .... -55°C to +150°C
Lead Temperature (1/16" from mounting surface for 0 Sec) .... +260°C

PIN CONFIGURATIONS

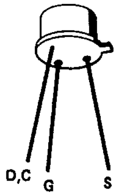


TO-226AA (TO-92)



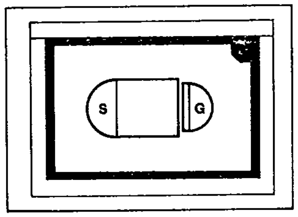
See Package 5

TO-206AA (TO-18)



See Package 1

CHIP CONFIGURATION



**Dimensions: .025 × .035 × .020 in.
Drain is backside contact.**

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

#		CHARACTERISTIC		SD1200			SD1201			UNIT	TEST CONDITIONS	
				MIN	TYP	MAX	MIN	TYP	MAX			
1	STATIC	BV_{DSS}	Drain Source Breakdown Voltage	450	475		400	425		V	I_D = 10μA, V_{GS} = 0	
2		I_{GSSF}	Gate Forward Leakage Current		.03	10		.03	10	nA	V_{GS} = 20V	V_{DS} = 0
3		I_{GSSR}	Gate Reverse Leakage Current		-.03	-10		-.03	-10		V_{GS} = -20V	
4		I_{DSS}	Drain-Source OFF Leakage Current		1.0	100				nA	V_{DS} = 360V V_{GS} = 0	
5						1.0				μA		T_C = +125°C
6								1.0	100	nA	V_{DS} = 320V V_{GS} = 0	
7									1.0	μA		T_C = +125°C
8		$V_{GS(th)}$	Gate Source Threshold Voltage	1.0	3.0	5.0	1.0	3.0	5.0	V	I_D = 10μA, V_{DS} = V_{GS}	
9		$I_{D(ON)}$	ON Drain Current	20	35		20	35		mA	V_{DS} = 25V, V_{GS} = 10V	
10		$r_{DS(ON)}$	Drain-Source ON Resistance		310	700		310	500	ohms	V_{GS} = 10V I_D = 10mA	
11					520	1200		520	850			T_C = 125°C
12	DYNAMIC	g_{fs}	Forward Transconductance	10	20		10	20		mS	V_{DS} = 25V, I_D = 10mA f = 1KHz	
13		c_{iss}	Common-Source Input Capacitance		5.0	10		5.0	10	pF	V_{DS} = 25V, V_{GS} = 0 f = 1MHz	
14		c_{rss}	Common-Source Reverse Transfer Capacitance		0.8	1.0		0.8	1.0			
11		c_{oss}	Common-Source Output Capacitance		1.0	2.0		1.0	2.0			

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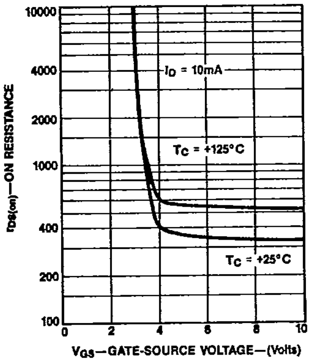
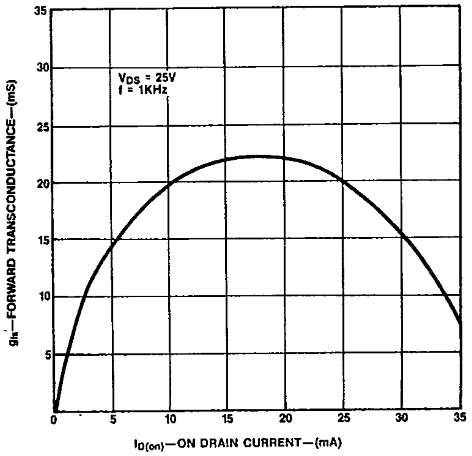
TYPICAL PERFORMANCE CHARACTERISTICS (T_C = +25°C unless otherwise specified)

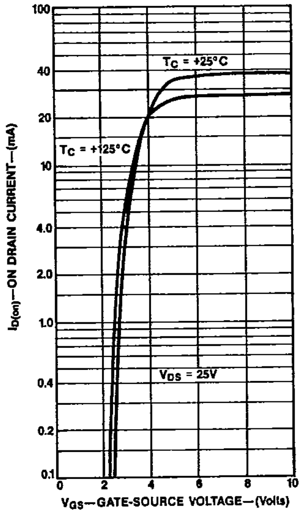
ON RESISTANCE —VS— GATE-SOURCE VOLTAGE



FORWARD TRANSCONDUCTANCE —VS— ON DRAIN CURRENT



ON DRAIN CURRENT —VS— GATE-SOURCE VOLTAGE



CAPACITANCES —VS— DRAIN-SOURCE VOLTAGE