

TOPAZ
SEMICONDUCTOR

SD1100, SD1101

N-CHANNEL ENHANCEMENT-MODE HIGH-VOLTAGE D-MOS POWER FETS

ORDERING INFORMATION

Sorted Chips In Conductive Waffle Pack	SD1100CHP	SD1101CHP
TO-226AA (TO-92) Package	—	SD1101BD
TO-206AA (TO-18) Package	SD1100DD	SD1101DD
TO-205AF (TO-39) Package	SD1100HD	SD1101HD
Description	450V, 35 ohm	400V, 25 ohm

FEATURES

- Gate Stand-off, $\pm 40V$ min.
- P-channel complements available, VP0540 series
- 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		
SD1100	450V	
SD1101	400V	
Drain-Gate Voltage ($R_{GS} = 1M\Omega$)		
SD1100	450V	
SD1101	400V	
Gate-Source Voltage	$\pm 40V$	
Continuous Drain Current		
	$T_C = +100^\circ C$	$T_C = +25^\circ C$
SD1100DD	.10A	.17A
SD1100HD	.21A	.33A
SD1101BD	.11A	.18A
SD1101DD	.13A	.21A
SD1101HD	.26A	.41A
Peak Pulsed Drain Current	0.25A	

Maximum Power Dissipation

	$T_C = +100^\circ C$	$T_C = +25^\circ C$
HD, TO-39 Pkg.	2.75W	6.88W
BD, TO-92 Pkg.	0.5W	1.35W
DD, TO-18 Pkg.	0.7W	1.80W

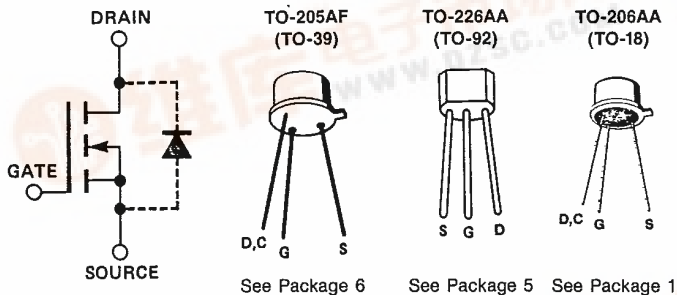
Linear Derating Factor

	Junction to Ambient (mW/ $^\circ C$)	Junction to Ambient (mW/ $^\circ C$)
HD, TO-39 Pkg.	36.6	55
BD, TO-92 Pkg.	6.66	10.8
DD, TO-18 Pkg.	9.33	14.4

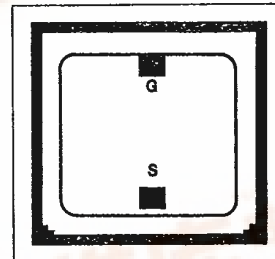
Operating Junction and

Storage Temperature Range	$-55^\circ C$ to $+150^\circ C$
Lead Temperature (1/6" from mounting surface for 10 Sec)	$+260^\circ C$

PIN CONFIGURATIONS



CHIP CONFIGURATION



Dimensions: .054 x .051 x .020 in.
Drain is backside contact

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ELECTRICAL CHARACTERISTICS ($T_C = +25^\circ\text{C}$ unless otherwise noted)

#	CHARACTERISTIC	SD1100			SD1101			UNIT	TEST CONDITIONS
		MIN	TYP	MAX	MIN	TYP	MAX		
1	BV_{DSS} Drain Source Breakdown Voltage	450	475		400	425		V	$I_D = 10\mu\text{A}$, $V_{GS} = 0$
2	I_{GSSF} Gate Forward Leakage Current		.03	10		.03	10	nA	$V_{GS} = 20\text{V}$ $V_{DS} = 0$
3	I_{GSSR} Gate Reverse Leakage Current		-.03	-10		-.03	-10		$V_{GS} = -20\text{V}$
4	I_{DSS} Drain-Source OFF Leakage Current		2.0	200				nA	$V_{DS} = 360\text{V}$ $V_{GS} = 0$
5				2.0				μA	$T_C = +125^\circ\text{C}$
6						2.0	200	nA	$V_{DS} = 320\text{V}$ $V_{GS} = 0$
7							2.0	μA	$T_C = +125^\circ\text{C}$
8	$V_{GS(th)}$ Gate Source Threshold Voltage	1.0	3.0	5.0	1.0	3.0	5.0	V	$I_D = 10\mu\text{A}$, $V_{DS} = V_{GS}$
9	$I_{D(ON)}$ ON Drain Current ⁽¹⁾	250	750		250	750		mA	$V_{DS} = 25\text{V}$, $V_{GS} = 10\text{V}$
10	$r_{DS(ON)}$ Drain-Source ON Resistance ⁽¹⁾		13	35		13	25	ohms	$V_{GS} = 10\text{V}$ $I_D = 10\text{mA}$
11			19	60		19	42		$T_C = 125^\circ\text{C}$
12	g_{fs} Forward Transconductance ⁽¹⁾	250	400		250	400			$V_{DS} = 25\text{V}$, $I_D = 250\text{mA}$ $f = 1\text{KHz}$
17	C_{iss} Common-Source Input Capacitance		80	100		80	100	pF	$V_{DS} = 25\text{V}$, $V_{GS} = 0$ $f = 1\text{MHz}$
18	C_{rss} Common-Source Reverse Transfer Capacitance		1.3	2.5		1.3	2.5		
19	C_{oss} Common-Source Output Capacitance		10.5	15		10.5	15		

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

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

