



SD1102, SD1112, SD1113

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

ORDERING INFORMATION

Sorted Chips in Carriers	SD1102CHP	SD1112CHP	SD1113CHP
TO-206AA (TO-18) Package	SD1102DD	SD1112DD	SD1113DD
TO-205AF (TO-39) Package	SD1102HD	SD1112HD	SD1113HD
TO-226AA (TO-92) Package	SD1102BD	SD1112BD	SD1113BD
Description	250V, 10 ohms	200V, 7.0 ohms	200V, 10 ohms

FEATURES

- Gate Stand-off, $\pm 40V$ min.
- Wide variety of Packages
- Low Drain-Source Off Leakage, $I_{DSS} < 200nA$

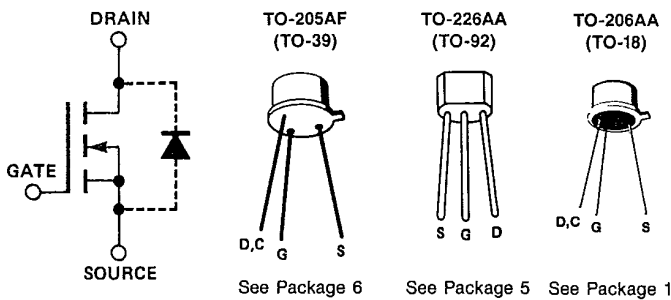
APPLICATIONS

- Motor Controls
- Line Drivers
- Power Supplies

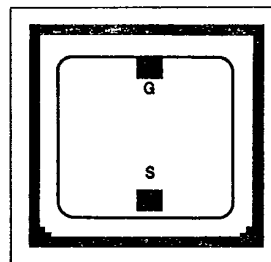
ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ C$ unless otherwise noted)

Drain-Source Voltage	SD1102	250V	Continuous Device Dissipation	$T_C = +100^\circ C$	$T_C = +25^\circ C$
	SD1112, SD1113	200V		0.5W	1.35W
Drain-Gate Voltage	SD1102	250V		0.7W	1.80W
	SD1112, SD1113	200V		2.75W	6.88W
Gate-Source Voltage		$\pm 40V$	Linear Derating Factor	Junction to Ambient	Junction to Ambient
Continuous Drain Current				6.66mW/ $^\circ C$	10.8mW/ $^\circ C$
		$T_C = +100^\circ C$		9.33mW/ $^\circ C$	14.4mW/ $^\circ C$
	SD1102BD, SD1113BD	.17A		36.6mW/ $^\circ C$	55mW/ $^\circ C$
	SD1112BD	.20A		Operating Junction and Storage Temperature Range	$-55^\circ C$ to $+150^\circ C$
	SD1102DD, SD1113DD	.20A		Lead Temperature (1/8" from mounting surface for 10 Sec)	$+260^\circ C$
	SD1112DD	.24A			
	SD1102HD, SD1113HD	.40A			
	SD1112HD	.48A			
Peak Pulsed Drain Current		0.8A			

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		SD1102			SD1112, SD1113			UNIT	TEST CONDITION		
			MIN	TYP	MAX	MIN	TYP	MAX				
1	BV_{DSS}	Drain Source Breakdown Voltage	250	270		200	250		V	$I_D = 10\mu\text{A}, V_{GS} = 0$		
2	$V_{GS(th)}$	Gate Source Threshold Voltage	1.0	3.0	5.0	1.0	3.0	5.0	V	$V_{DS} = V_{GS}, I_D = 10\mu\text{A}$		
3	I_{GSSF}	Gate Forward Leakage Current		.03	10		.03	10	nA	$V_{GS} = 20\text{V}$ $V_{DS} = 0$		
4	I_{GSSR}	Gate Reverse Leakage Current		-.03	-10		-.03	-10			$V_{GS} = -20\text{V}$	
5	I_{DSS}	Drain-Source OFF Leakage Current		2.0	200				nA	$V_{DS} = 200\text{V}$ $V_{GS} = 0$	$T_C = +125^\circ\text{C}$	
6					2.0				μA			
7								2.0	200	nA	$V_{DS} = 160\text{V}$ $V_{GS} = 0$	$T_C = +125^\circ\text{C}$
8								2.0	200	μA	$V_{GS} = 0$	
9	$I_{D(ON)}$	ON Drain Current ¹	0.8	1.0		0.5	1.0		A	$V_{DS} = 25\text{V}, V_{GS} = 10\text{V}$		
10	$r_{DS(ON)}$	Drain-Source ON Resistance ⁽¹⁾	SD1102	6.6	10				ohms	$V_{GS} = 10\text{V}$ $I_D = 100\text{mA}$	$T_C = 125^\circ\text{C}$	
11				12	17							
12			SD1112	6.6	7.0						$T_C = +125^\circ\text{C}$	
13				10	11.9							
14				6.6	10						$T_C = +125^\circ\text{C}$	
15	SD1113	12	17				$T_C = +125^\circ\text{C}$					
16	g_{fs}	Common-Source Forward Transcond. ⁽¹⁾	200	300		200	300		mmhos	$V_{DS} = 25\text{V}, I_D = 0.5\text{A}$ $f = 1\text{KHz}$		
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				
20	t_{on}	Turn ON Time			10			10	ns	$V_{DD} = 60\text{V}, V_{G(on)} = 10\text{V}$ $R_G = 51\Omega, R_L = 68\Omega$		
21	t_{off}	Turn OFF Time			18			18				

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



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

