



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
SD1112, SD1113	200V

Drain-Gate Voltage

SD1102	250V
SD1112, SD1113	200V

Gate-Source Voltage

	$\pm 40V$
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Continuous Drain Current

	$T_C = +100^\circ C$	$T_C = +25^\circ C$
SD1102BD, SD1113BD	.17A	.28A
SD1112BD	.20A	.33A
SD1102DD, SD1113DD	.20A	.32A
SD1112DD	.24A	.38A
SD1102HD, SD1113HD	.40A	.63A
SD1112HD	.48A	.76A

Peak Pulsed Drain Current 0.8A

Continuous Device Dissipation

	$T_C = +100^\circ C$	$T_C = +25^\circ C$
SD1102/1112/1113BD	0.5W	1.35W
SD1102/1112/1113DD	0.7W	1.80W
SD1102/1112/1113HD	2.75W	6.88W

Linear Derating Factor

	Junction to Ambient	Junction to Ambient
SD1102/1112/1113BD	6.66mW/ $^\circ C$	10.8mW/ $^\circ C$
SD1102/1112/1113DD	9.33mW/ $^\circ C$	14.4mW/ $^\circ C$
SD1102/1112/1113HD	36.6mW/ $^\circ C$	55mW/ $^\circ C$

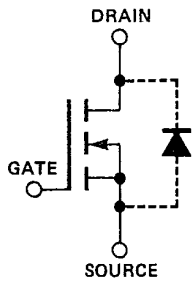
Operating Junction and

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

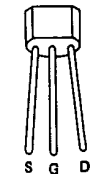


TO-205AF (TO-39)



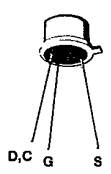
See Package 6

TO-226AA (TO-92)



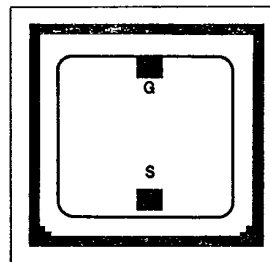
See Package 5

TO-206AA (TO-18)



See Package 1

CHIP CONFIGURATION



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



**SD1102, SD1112,
SD1113**

T-29-25

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	$B_{V_{DSS}}$	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						
5	STATIC	I_{DSS}	Drain-Source OFF Leakage Current		2.0	200				nA	$V_{DS} = 200\text{V}$ $V_{GS} = 0$			
6						2.0					μA	$T_C = +125^\circ\text{C}$		
7									2.0	200	nA	$V_{DS} = 160\text{V}$ $V_{GS} = 0$		
8										2.0	μA	$T_C = +125^\circ\text{C}$		
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							6.6	7.0						
13							10	11.9						$T_C = +125^\circ\text{C}$
14							6.6	10						
15						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

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

