



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, $I_{DSS} < 200nA$

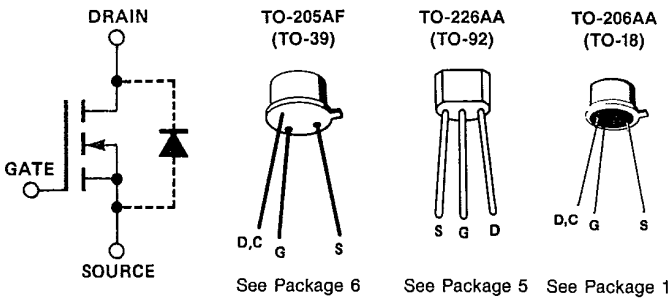
APPLICATIONS

- Motor Controls
- Line Drivers
- Power Supplies

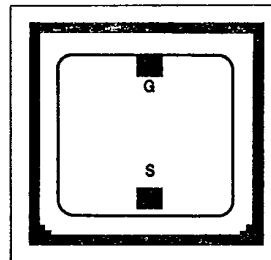
ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ C$ unless otherwise noted)

Drain-Source Voltage	SD1102 250V	SD1112, SD1113 200V	Continuous Device Dissipation	$T_C = +100^\circ C$	$T_C = +25^\circ C$
Drain-Gate Voltage	SD1102 250V	SD1112, SD1113 200V	SD1102/1112/1113BD	0.5W	1.35W
Gate-Source Voltage $\pm 40V$		SD1102/1112/1113DD	0.7W	1.80W
Continuous Drain Current	$T_C = +100^\circ C$	$T_C = +25^\circ C$	SD1102/1112/1113HD	2.75W	6.88W
SD1102BD, SD1113BD	.17A	.28A	Linear Derating Factor	Junction to Ambient	Junction to Ambient
SD1112BD	.20A	.33A	SD1102/1112/1113BD	6.66mW/ $^\circ C$	10.8mW/ $^\circ C$
SD1102DD, SD1113DD	.20A	.32A	SD1102/1112/1113DD	9.33mW/ $^\circ C$	14.4mW/ $^\circ C$
SD1112DD	.24A	.38A	SD1102/1112/1113HD	36.6mW/ $^\circ C$	55mW/ $^\circ C$
SD1102HD, SD1113HD	.40A	.63A	Operating Junction and Storage Temperature Range $-55^\circ C$ to $+150^\circ C$	
SD1112HD	.48A	.76A	Lead Temperature (1/16" from mounting surface for 10 Sec) $+260^\circ C$	
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°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 = 10μA, 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 = 10μA		
3	I _{GSSF}	Gate Forward Leakage Current		.03	10		.03	10	nA	V _{GS} = 20V V _{DS} = 0		
4	I _{GSSR}	Gate Reverse Leakage Current		-.03	-10		-.03	-10	nA		V _{GS} = -20V	
5	I _{DSS}	Drain-Source OFF Leakage Current		2.0	200				nA	V _{DS} = 200V V _{GS} = 0	T _C = +125°C	
6					2.0				μA			
7								2.0	200	nA	V _{DS} = 160V V _{GS} = 0	T _C = +125°C
8								2.0	200	μA		
9	I _{D(ON)}	ON Drain Current ¹	0.8	1.0		0.5	1.0		A	V _{DS} = 25V, V _{GS} = 10V		
10	r _{DS(ON)}	Drain-Source ON Resistance ⁽¹⁾	SD1102	6.6	10				ohms	V _{GS} = 10V I _D = 100mA	T _C = 125°C	
11				12	17							
12			SD1112	6.6	7.0							
13				10	11.9						T _C = +125°C	
14	SD1113	6.6	10				T _C = +125°C					
15		12	17									
16	g _{fs}	Common-Source Forward Transcond. ⁽¹⁾	200	300		200	300		mmhos	V _{DS} = 25V, I _D = 0.5A f = 1KHz		
17	C _{iss}	Common-Source Input Capacitance		80	100		80	100		pF	V _{DS} = 25V, V _{GS} = 0 f = 1MHz	
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} = 60V, V _{G(on)} = 10V R _G = 51Ω, R _L = 68Ω		
21	t _{off}	Turn OFF Time			18			18				

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



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

