



T-31-25

# SD3300, SD3301

## N-CHANNEL ENHANCEMENT-MODE D-MOS POWER FETs

### ORDERING INFORMATION

Sorted Chips in Waffle Pack	SD3300CHP	SD3301CHP
TO-205AF (TO-39) Hermetic Package	SD3300HD	SD3301HD
TO-226AA (TO-92) Plastic Package	SD3300BD	SD3301BD
TO-237 (TO-92*) Plastic Package	SD3300AD	SD3301AD
Description	100V, 0.6 ohm	60V, 0.4 ohm

### FEATURES

- Gate Stand-off Voltage,  $\pm 40V$  min.
- Continuous  $I_D$  of 1 Amp in small package
- 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	SD3300	100V
	SD3301	60V
Drain-Gate Voltage ( $R_{GS} = 1M\Omega$ )	SD3300	100V
	SD3301	60V
Gate-Source Voltage		$\pm 40V$
Continuous Drain Current		
	$T_C = +100^\circ C$	$T_C = +25^\circ C$
SD3300AD	1.2A	1.9A
SD3300BD	1.0A	1.6A
SD3300HD	2.25A	3.5A
SD3301AD	1.4A	2.3A
SD3301BD	1.2A	1.9A
SD3301HD	2.7A	4.3A
Peak Pulsed Drain Current		8.0A

### Maximum Power Dissipation

	$T_C = +100^\circ C$	$T_C = +25^\circ C$
HD, TO-39 Pkg.	6.0W	15W
BD, TO-92 Pkg.	1.2W	3.0W
AD, TO-237 Pkg.	1.7W	4.3W

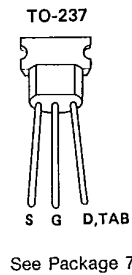
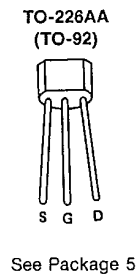
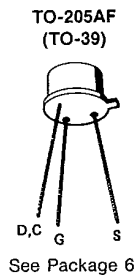
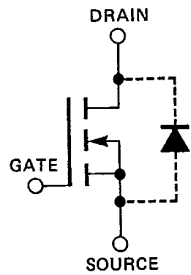
### Linear Derating Factor

	Junction to Ambient ( $mW/^\circ C$ )	Junction to Case ( $mW/^\circ C$ )
HD, TO-39 Pkg.	8.0	120
BD, TO-92 Pkg.	3.2	24
AD, TO-237 Pkg.	4.8	34.4

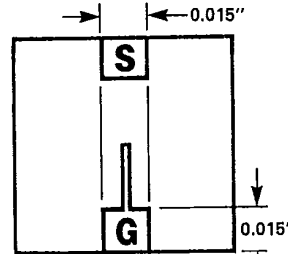
### Operating Junction and Storage

Temperature Range	$-55$ to $+150^\circ C$
Lead Temperature (1/16" from mounting surface for 30 Sec)	$+260^\circ C$

### PIN CONFIGURATIONS



### CHIP CONFIGURATION



Dimensions: .078x.078x.020 in.  
Drain is backside contact.



**ELECTRICAL CHARACTERISTICS** (T<sub>c</sub> = +25°C unless otherwise noted)

#	CHARACTERISTIC	SD3300			SD3301			UNIT	TEST CONDITIONS
		MIN	TYP	MAX	MIN	TYP	MAX		
1	BV <sub>DSS</sub> Drain-Source Breakdown Voltage	100	125		60	90		V	I <sub>D</sub> = 250μA, V <sub>GS</sub> = 0
2	V <sub>GS(th)</sub> Gate-Source Threshold Voltage	1.0		3.0	1.0		3.0	V	V <sub>DS</sub> = V <sub>GS</sub>
3		0.4			0.4				I <sub>D</sub> = 250μA T <sub>C</sub> = +125°C
4	I <sub>GSS</sub> Gate-Body Leakage Current			100			100	nA	V <sub>GS</sub> = 20V, V <sub>DS</sub> = 0
5				200			200		T <sub>C</sub> = +125°C
6				-100			-100		V <sub>GS</sub> = -20V, V <sub>DS</sub> = 0
7	I <sub>DSS</sub> Drain-Source OFF Leakage Current			1.0				μA	V <sub>DS</sub> = 80V, V <sub>GS</sub> = 0
8				1000					T <sub>C</sub> = +125°C
9							1.0		V <sub>DS</sub> = 48V, V <sub>GS</sub> = 0
10							1000		T <sub>C</sub> = +125°C
11	I <sub>D(on)</sub> ON Drain Current <sup>(1)</sup>	3.0			3.5			A	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 10V
12	V <sub>DS(on)</sub> Drain-Source <sup>(1)</sup> ON Voltage			1.8				V	V <sub>GS</sub> = 10V, I <sub>D</sub> = 3.0A
13							1.4		V <sub>GS</sub> = 10V, I <sub>D</sub> = 3.5A
14	r <sub>DS(on)</sub> Drain-Source <sup>(1)</sup> ON Resistance			0.6			0.4	ohms	V <sub>GS</sub> = 10V
15				1.08			0.72		I <sub>D</sub> = 2.25A T <sub>C</sub> = +125°C
16	g <sub>fs</sub> Common-Source <sup>(1)</sup> Forward Transcond.	1.0		3.0	1.0		3.0	S(Ω)	V <sub>DS</sub> = 10V I <sub>D</sub> = 2.25A f = 1KHz
17	C <sub>iss</sub> Common-Source Input Capacitance			200			200	pF	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0 f = 1MHz
18	C <sub>rss</sub> Common-Source Reverse Transfer Capacitance			25			25		
19	C <sub>OSS</sub> Common-Source Output Capacitance			100			100		
20	t <sub>d(on)</sub> Turn-ON Delay Time			15			15	nsec	V <sub>DD</sub> = 34V R <sub>L</sub> = 15 ohms R <sub>G</sub> = 25 ohms V <sub>G(on)</sub> = 10V
21	t <sub>r</sub> Rise Time			25			25		
22	t <sub>d(off)</sub> Turn-OFF Delay Time			25			25		
23	t <sub>f</sub> Fall Time			20			20		
24	I <sub>S</sub> Continuous Source Current <sup>(1)</sup>	3.0			3.5			A	
25	I <sub>SM</sub> Peak Source Current <sup>(1)</sup>	8.0			8.0				
26	V <sub>SD</sub> Source-Drain <sup>(1)</sup> Forward Voltage			2.0				V	V <sub>GS</sub> = 0
27							2.0		I <sub>S</sub> = 3.0A I <sub>S</sub> = 3.5A

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

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

