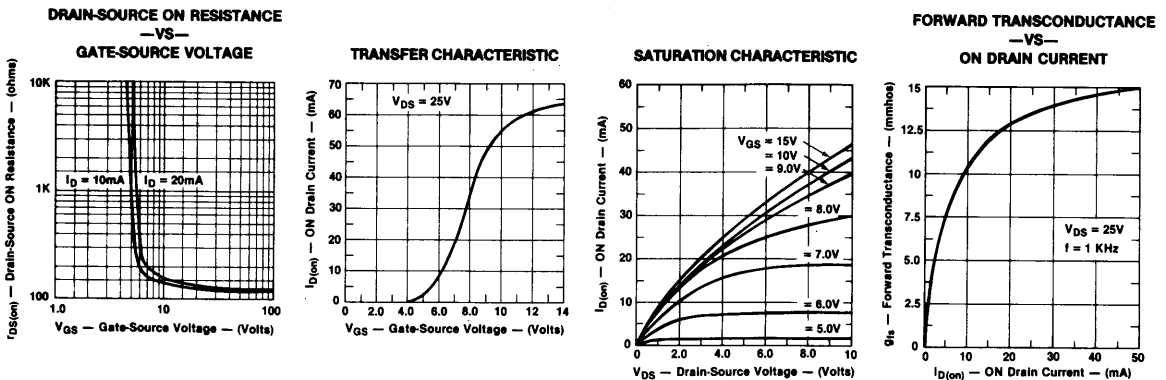


**ELECTRICAL CHARACTERISTICS** ( $T_A = +25^\circ\text{C}$  unless otherwise noted.)

#	CHARACTERISTIC		SD1202			UNITS	TEST CONDITIONS
			MIN	TYP	MAX		
1	STATIC	$BV_{DSS}$ Drain Source Breakdown Voltage	200	260		V	$I_D = 1.0\mu\text{A}$ , $V_{GS} = 0$
2		$V_{GS(th)}$ Gate Source Threshold Voltage	1.0		5.0	V	$I_D = 10\mu\text{A}$ , $V_{DS} = V_{GS}$
3		$I_{GBS}$ Gate-Body Leakage Current		.02	1.0	nA	$V_{GS} = 100\text{V}$ , $V_{DS} = 0$
4		$I_{DSS}$ Drain-Source OFF Leakage Current		1.0	3.0	nA	$V_{DS} = 180\text{V}$ , $V_{GS} = 0$
5		$I_{D(on)}$ Drain Source ON Current	40	55		mA	$V_{DS} = 25\text{V}$ , $V_{GS} = 10\text{V}$
6		$r_{DS(on)}$ Drain-Source ON Resistance		150	250	ohms	$I_D = 10\text{mA}$ , $V_{GS} = 10\text{V}$
7	DYNAMIC	$g_{fs}$ Common-Source Forward Transconductance		13		mmhos	$V_{DS} = 20\text{V}$ , $I_D = 20\text{mA}$ $f = 1\text{KHz}$ (Note 1)
8		$C_{iss}$ Common-Source Input Capacitance		8.0		pF	$V_{DS} = 20\text{V}$ , $V_{GS} = 0$ $f = 1\text{MHz}$
9		$C_{rss}$ Common-Source Reverse Transfer Capacitance		0.8		pF	
10		$C_{oss}$ Common-Source Output Capacitance		1.5		pF	

Note 1: Pulse Test 80 $\mu$ Sec, 1% Duty Cycle

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



## N-CHANNEL ENHANCEMENT-MODE VERTICAL D-MOS FET

### FEATURES

- Guaranteed  $BV_{DSS}$  of 600V min
- Low Output and Transfer Capacitance
- Extended Safe Operating Area
- Available in Low Cost TO-92 Package

### APPLICATIONS

- Output Switching
- High Speed Pulse Amplifiers
- Solid-State Relays
- Display Drivers
- High Voltage ATE
- Telecommunications Switching

### ABSOLUTE MAXIMUM RATINGS

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

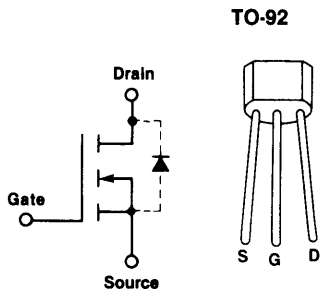
Drain-Source Voltage			
SD1500	600V		
SD1501	550V		
Drain-Gate Voltage ( $V_{GS} = 0$ )			
SD1500	600V		
SD1501	550V		
Gate-Source Voltage		$\pm 30V$	
Continuous Drain Current			
	$T_A = +25^\circ\text{C}$	$T_C = +25^\circ\text{C}$	
SD1500BD } SD1501BD }	50	100	mA

Peak Pulsed Drain Current			200mA
Continuous Device Dissipation			
	$T_A = +25^\circ\text{C}$	$T_C = +25^\circ\text{C}$	
SD1500BD } SD1501BD }	300mW	1.0W	
Linear Derating Factor			
	$T_A = +25^\circ\text{C}$	$T_C = +25^\circ\text{C}$	
SD1500BD } SD1501BD }	3.0	1.0	mW/ $^\circ\text{C}$
Operating Junction			
Temperature Range			-55 to +125 $^\circ\text{C}$
Storage Temperature Range			-55 to +125 $^\circ\text{C}$
Lead Temperature (1/16" from mounting surface for 30 Sec)			+260 $^\circ\text{C}$

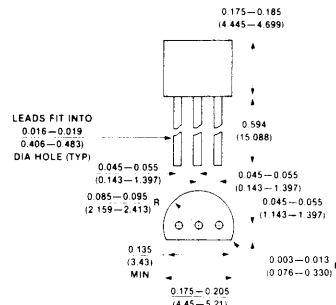
### ORDERING INFORMATION

TO-92 Plastic Package	SD1500BD	SD1501BD
Sorted Chips in Waffle Pack	SD1500CHP	SD1501CHP
Description	600 Volt, 60 ohm	550 Volt, 60 ohm

### CONFIGURATION

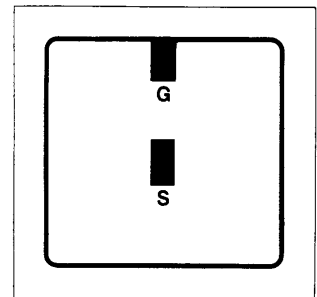


### PACKAGE DIMENSIONS TO-92



All dimensions in inches and (millimeters)

### CHIP CONFIGURATION

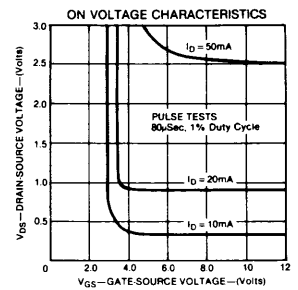
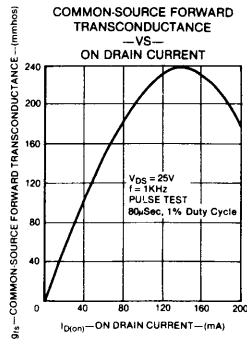
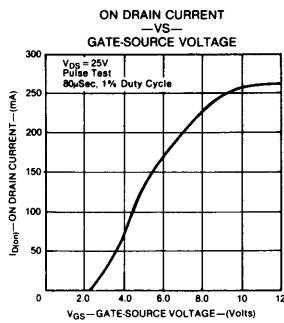
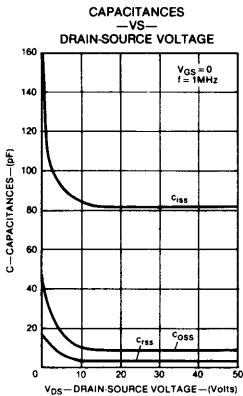


Dimensions: .055 x .057 x .013 inches  
Drain is backside contact.

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

#	CHARACTERISTIC	SD1500			SD1501			UNIT	TEST CONDITION		
		MIN	TYP	MAX	MIN	TYP	MAX				
1	BV <sub>DSS</sub> Drain-Source Breakdown Voltage	600	700		550	600		V	I <sub>D</sub> = 10μA, V <sub>GS</sub> = 0		
2	V <sub>GS(th)</sub> Gate-Source Threshold Voltage	1.0	2.9	4.0	1.0	2.9	4.0	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 1mA		
3	STATIC	I <sub>GBS</sub> Gate-Body Leakage Current		.03	1.0		.03	1.0	nA	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0	
4					10			10		T <sub>A</sub> = +125°C	
5		I <sub>DSS</sub> Drain-Source OFF Leakage Current		0.1	1.0					V <sub>DS</sub> = 480V, V <sub>GS</sub> = 0	
6					50					T <sub>A</sub> = +125°C	
7							0.1	1.0			V <sub>DS</sub> = 440V, V <sub>GS</sub> = 0
8								50			T <sub>A</sub> = +125°C
9		I <sub>D(on)</sub> ON Drain Current	100	260		100	260		mA	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 15V (Note 1)	
10		r <sub>DS(on)</sub> Drain-Source ON Resistance		45	60		45	60	ohms	V <sub>GS</sub> = 15V, I <sub>D</sub> = 20mA (Note 1)	
11									(Note 1)		
12	g <sub>fs</sub> Common-Source Forward Transcond.	100	215		100	215		mmhos	V <sub>DS</sub> = 25V, I <sub>D</sub> = 100mA f = 1KHz (Note 1)		
13	DYNAMIC	C <sub>iss</sub> Common-Source Input Capacitance		80	100		80	100	pF	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0 f = 1MHz	
14			C <sub>rss</sub> Common-Source Reverse Transfer Capacitance		1.0	2.0		1.0			2.0
15		C <sub>oss</sub> Common-Source Output Capacitance		6.0	10		6.0	10			
16		t <sub>on</sub> Turn-On Time		7.0	12		7.0	12			nSec
17	t <sub>off</sub> Turn-Off Time		7.0	12		7.0	12	V <sub>DD</sub> = 25V R <sub>L</sub> = 51 ohms R <sub>G</sub> = 51 ohms V <sub>G(on)</sub> = 10V			

## TYPICAL PERFORMANCE CHARACTERISTICS (T<sub>A</sub> = +25°C unless otherwise noted)



## N-CHANNEL ENHANCEMENT-MODE FET ULTRA HIGH-SPEED DUAL DRIVER

### FEATURES

- High-Speed
- Low Interelectrode Capacitance
- High Gain

### APPLICATIONS

- Analog Comparators
- Differential Amplifiers
- Differential Drivers
- Line Drivers

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = +25°C, per side, unless otherwise noted)

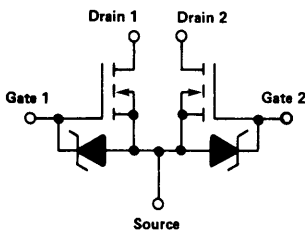
Drain-Source Voltage	+25V
Gate-Source Voltage	-0.3V
Gate-Drain Voltage	+25V
	-0.3V
	+25V
Source-Drain Voltage	-0.3V
Continuous Drain Current (each side)	100mA
Continuous Drain Current (total)	140mA

Power Dissipation (each side)	367mW
Linear Derating Factor	2.9mW/°C
Total Device Dissipation	500mW
Linear Derating Factor	4.0mW/°C
Operating Junction and Storage	
Temperature Range	-55 to +150°C
Lead Temperature (1/16" from mounting surface for 10 Sec)	+300°C

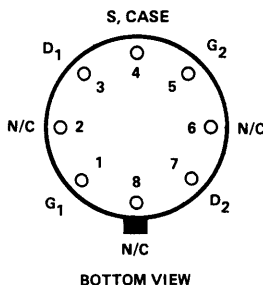
### ORDERING INFORMATION

TO-99 Hermetic Package	SD2215HD
Description (each side)	25V, 25 ohm

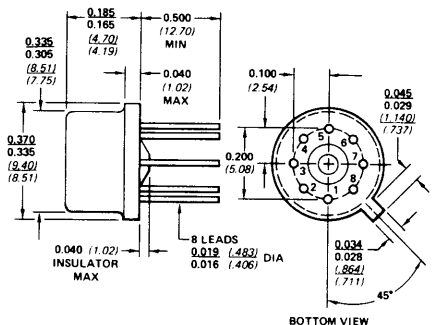
### SCHEMATIC DIAGRAM



### PIN CONFIGURATION



### PACKAGE DIMENSIONS TO-99



All dimensions in inches and (millimeters)

**ELECTRICAL CHARACTERISTICS** ( $T_A = +25^\circ\text{C}$ , per side, unless otherwise noted)

CHARACTERISTIC		MIN	TYP	MAX	UNIT	TEST CONDITION
STATIC	$BV_{DS}$ Drain-Source Breakdown Voltage	25	28		V	$I_D = 1.0\mu\text{A}$ , $V_{GS} = 0$
	$I_{D(off)}$ Drain-Source OFF Leakage Current		.05	1.0	$\mu\text{A}$	$V_{DS} = 25\text{V}$ , $V_{GS} = 0$
	$I_{GSS}$ Gate-Source Leakage Current		.01	1.0	$\mu\text{A}$	$V_{GS} = 25\text{V}$ , $V_{DS} = 0$
	$I_{D(on)}$ Gate-Source ON Current	100			mA	$V_{DS} = 15\text{V}$ $V_{GS} = 10\text{V}$ (Note 1)
	$V_{GS(th)}$ Gate-Source Threshold Voltage	0.5	1.2	2.0	V	$I_D = 1.0\mu\text{A}$ , $V_{DS} = V_{GS}$
	$V_{DS(on)}$ Drain-Source ON Voltage		30	35	mV	$I_D = 1.0\text{mA}$ $V_{GS} = 5.0\text{V}$ (Note 1)
	$r_{DS(on)}$ Drain-Source ON Resistance		30	35	ohms	
	$V_{DS(on)}$ Drain-Source ON Voltage		22	25	mV	$I_D = 1.0\text{mA}$ $V_{GS} = 10\text{V}$ (Note 1)
	$r_{DS(on)}$ Drain-Source ON Resistance		22	25	ohms	
DYNAMIC	$g_{fs}$ Common-Source Forward Transcond.	25	30		mmhos	$I_D = 40\text{mA}$ , $V_{DS} = 15\text{V}$ $f = 1\text{KHz}$ (Note 1)
	$C_{iss}$ Common-Source Input Capacitance			10	pF	$V_{DS} = 15\text{V}$ , $V_{GS} = 0$ $f = 1\text{MHz}$
	$C_{oss}$ Common-Source Output Capacitance			5.0		
	$C_{rns}$ Common-Source Reverse Transfer Capacitance			1.0		
	$t_{d(on)}$ Turn ON Delay Time		1.4		nSec	$V_{DD} = 10\text{V}$ , $R_L = 330\Omega$ $V_{G(on)} = 10\text{V}$ , $R_G = 51\Omega$ $C_L = 1.5\text{pF}$
	$t_r$ Rise Time		1.6			
	$t_{(off)}$ Turn OFF Time		15			

**Note 1:** Pulse Test 80 $\mu$  Sec, 1% Duty Cycle