



SD1500, SD1501

N-CHANNEL ENHANCEMENT-MODE D-MOS FET SWITCHES

ORDERING INFORMATION

TO-92 Plastic Package	SD1500BD	SD1501BD
Sorted Chips in Waffle Pack	SD1500CHP	SD1501CHP
SOT-89 Surface Mount Pkg.	SD1500CY	SD1501CY
Description	600V, 60ohm	550V, 60ohm

FEATURES

- Guaranteed BVDS of 600V min
- Low Output and Transfer Capacitance
- Extended Safe Operating Area
- Available in Low Cost TO-92 Package
- Available in Surface Mount Package

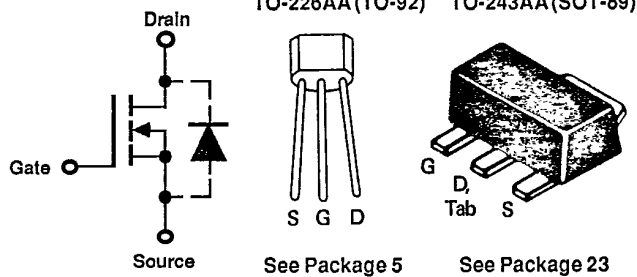
APPLICATIONS

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

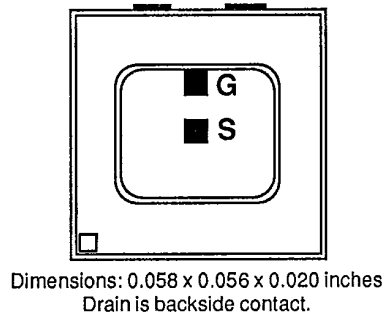
ABSOLUTE MAXIMUM RATINGS (T_c = +25°C unless otherwise noted)

Drain-Source Voltage	SD1500	600V	Peak Pulsed Drain Current	200mA	
SD1501	550V	Continuous Device Dissipation			
Drain-Gate Voltage (V _{GS} = 0)	SD1500	600V	T _c = +25°C	T _c = +100°C	
SD1501	550V	Linear Derating Factor			
Gate-Source Voltage	±40V	T _c = +25°C	T _c = +100°C		
Continuous Drain Current		SD1500-01BD	3.0	0.4	W
T _c = +25°C	180	SD1500-01CY	1.2	0.3	W
T _c = +100°C	65	Operating Junction and Storage			
SD1500-01BD	115	Temperature Range			-55 to +125°C
SD1500-01CY	55	Lead Temperature (1/16" from mounting surface for 30 Sec)			+260°C

CONFIGURATION



CHIP CONFIGURATION

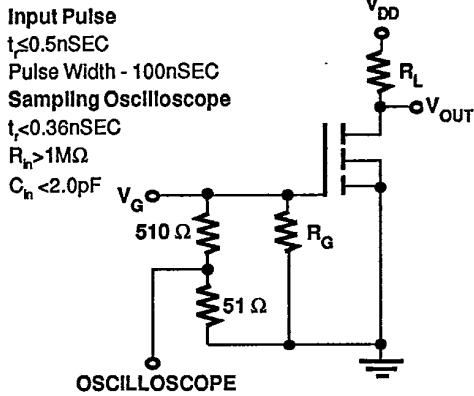


ELECTRICAL CHARACTERISTICS ($T_c = +25^\circ\text{C}$ unless otherwise noted)

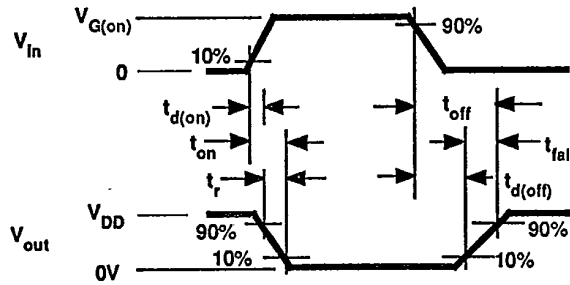
#	CHARACTERISTICS	SD1500			SD1501			UNIT	TEST CONDITION	
		MIN	TYP	MAX	MIN	TYP	MAX			
1	BV_{DSS} Drain-Source Breakdown Voltage	600	700		550	600		V	$I_D = 10\mu\text{A}, V_{GS} = 0$	
2	$V_{GS(th)}$ Gate-Source Threshold Voltage	1.0	2.1	4.0	1.0	2.1	4.0		$V_{DS} = V_{GS}, I_D = 1\text{mA}$	
3	STATIC I_{GSS} Gate-Body Leakage Current		0.3	10		0.3	10	nA	$V_{GS} = 20\text{V}$ $V_{DS} = 0$ $T_c = +125^\circ\text{C}$	
4				100			100			
5		I_{DSS} Drain-Source OFF Leakage Current			1.0					$V_{DS} = 480\text{V}$ $V_{GS} = 0$ $T_c = +125^\circ\text{C}$
6					50					$V_{DS} = 440\text{V}$ $V_{GS} = 0$ $T_c = +125^\circ\text{C}$
7							1.0			
8							50			
9	$I_{D(on)}$ ON Drain Current (1)	100	260		100	260		mA	$V_{DS} = 25\text{V}, V_{GS} = 10\text{V}$	
10	$r_{DS(on)}$ Drain-Source ON Resistance(1)		45	60		45	60		ohms	$V_{GS} = 10\text{V}$ $I_D = 20\text{mA}$ $T_c = +125^\circ\text{C}$
11				100			100			
12	g_{fs} Common-Source(1) Forward Transcond.	100	215		100	215		mS	$V_{DS} = 25\text{V}, I_D = 100\text{mA}$ $f = 1\text{KHz}$ (Note 1)	
13	C_{iss} Common-Source Input Capacitance		80	100		80	100		pF	$V_{DS} = 25\text{V}, V_{GS} = 0$ $f = 1\text{MHz}$
14	C_{rsw} Common-Source Reverse Transfer Capacitance		1.0	2.0		1.0	2.0			
15	C_{oss} Common-Source Output Capacitance		6.0	10		6.0	10			
16	t_{on} Turn-On Time		7.0	12		7.0	12	nSec	$V_{DD} = 25\text{V}$ $R_L = 51\text{ohms}$ $R_G = 51\text{ohms}$ $V_{GS(on)} = 10\text{V}$	
17	t_{off} Turn-Off Time		7.0	12		7.0	12			

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

SWITCHING TIMES TEST CIRCUIT



TEST WAVEFORMS



TYPICAL PERFORMANCE CHARACTERISTICS ($T_c = +25^\circ C$ unless otherwise noted)

