

SSD5000, SSD5001,
SSD5002

N-CHANNEL ENHANCEMENT-MODE QUAD D-MOS FET ANALOG SWITCH ARRAYS

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

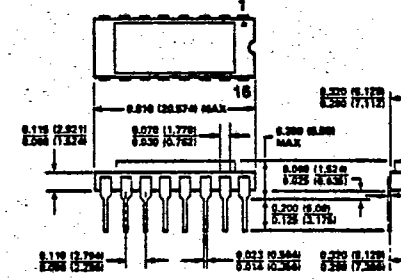
PARAMETER	SD5000	SD5001	SD5002	UNITS	
V _{DS}	+20	+10	+15	Vdc	I _D Continuous Drain Current 50mA
V _{SD}	+20	+10	+15	Vdc	P _D Total Package Power Dissipation (at or below T _A = +25°C) 640mW
V _{DB}	+25	+15	+22.5	Vdc	Linear Derating Factor 10.67mW/°C
V _{SB}	+25	+15	+22.5	Vdc	P _D Single Device Power Dissipation (at or below T _A = +25°C) 300mW
V _{GS}	-25	-15	-22.5	Vdc	T _j Operating Junction Temperature Range -55 to +85°C
V _{GB}	+30	+25	+30	Vdc	T _s Storage Temperature Range .. -55 to +150°C
V _{GD}	-25	-15	-22.5	Vdc	
	+30	+25	+30	Vdc	

ORDERING INFORMATION

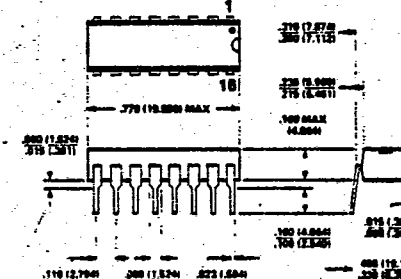
Sorted Chips in Carriers	XSD5000	XSD5001	XSD5002
Ceramic Side-Brazed DIP Pkg.	SSD5000I	SSD5001I	SSD5002I
Plastic DIP Package	SSD5000N	SSD5001N	SSD5002N

PACKAGE DIMENSIONS

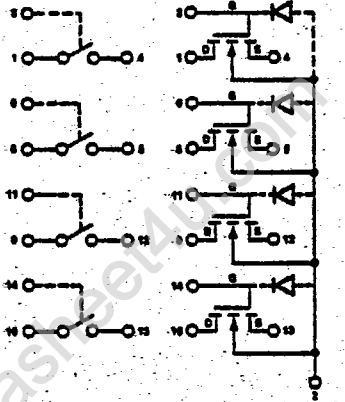
Ceramic Side-Brazed "I" Package



Plastic "N" Package

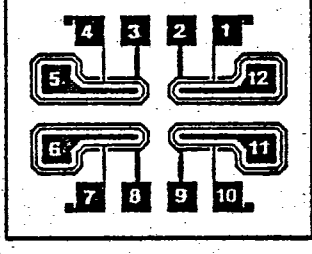


SCHEMATIC DIAGRAM



Note: Pin numbers correspond to Package Pin-out

CHIP CONFIGURATION



PAD NO.	PAD FUNCTION	PAD NO.	PAD FUNCTION
1	Gate No. 1	7	Gate No. 3
2	Source No. 1	8	Source No. 3
3	Source No. 2	9	Source No. 4
4	Gate No. 2	10	Gate No. 4
5	Drain No. 2	11	Drain No. 4
6	Drain No. 3	12	Drain No. 1

Dimensions: .040 x .032 x .010 inches

All dimensions in inches and (millimeters)

SSD5000, SSD5001
SSD5002

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

#	PARAMETER	SSD5000			SSD5001			SSD5002			UNIT	TEST CONDITIONS	
		MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX			
1	BV_{DS} Drain-Source Breakdown Voltage	20	25		10	25		15	25		V	$I_D = 10\text{nA}$ $V_{GS} = V_{BS} = -5\text{V}$	
2	BV_{SD} Source-Drain Breakdown Voltage	20			10			15			V	$I_S = 10\text{nA}$ $V_{GD} = V_{BD} = -5\text{V}$	
3	BV_{DS} Drain-Substrate Breakdown Voltage	25			15			22.5			V	$I_D = 10\text{nA}, V_{GS} = 0$ Source Open	
4	BV_{SB} Source-Substrate Breakdown Voltage	25			15			22.5			V	$I_S = 10\mu\text{A}, V_{GB} = 0$ Drain Open	
5	$I_{D(off)}$ Drain-Source Off Current						10				nA	$V_{DS} = 10\text{V}$	
6										10	nA	$V_{DS} = 15\text{V}$	
7				10							nA	$V_{DS} = 20\text{V}$	
8	$I_{S(off)}$ Source-Drain OFF Current						10				nA	$V_{SD} = 10\text{V}$	
9										10	nA	$V_{SD} = 15\text{V}$	
10				10							nA	$V_{SD} = 20\text{V}$	
11	I_{GBS} Gate-Body Leakage Current					1.0					μA	$V_{DS} = V_{SB} = 0$ $V_{GB} = 25\text{V}$	
12				1.0						1.0	μA	$V_{GB} = 30\text{V}$	
13	$V_{GS(th)}$ Gate Threshold Voltage	0.1	1.0	2.0	0.1	1.0	2.0	0.1	1.0	2.0	V	$V_{DS} = V_{GS}, I_D = 1\mu\text{A}$ $V_{SB} = 0$	
14	$r_{DS(on)}$ Drain-Source ON Resistance		50	70		50	70		50	70	ohms	$V_{GS} = 5\text{V}$	
15			30			30			30		ohms	$V_{GS} = 10\text{V}$	
16				23			23			23		ohms	$V_{GS} = 15\text{V}$
17				19			19			19		ohms	$V_{GS} = 20\text{V}$
18	r_{DSM} ON Resistance Match		1.0	5.0		1.0	5.0		1.0	5.0	ohms	$V_{GS} = 5\text{V}$	
19	g_{fs} Common-Source Forward Transcond.	10	12		10	12		10	12		mmhos	$V_{DS} = 10\text{V}, I_D = 20\text{mA}$ $f = 1\text{KHz}, V_{SB} = 0$	
20	$C_{(gs + pd + gb)}$ Gate Node Capacitance		2.4	3.5		2.4	3.5		2.4	3.5	pF	$V_{DS} = 10\text{V}$ $V_{GS} = V_{BS} = -15\text{V}$ $f = 1\text{MHz}$	
21	$C_{(gs + db)}$ Drain Node Capacitance		1.3	1.5		1.3	1.5		1.3	1.5	pF		
22	$C_{(gs + pd)}$ Source Node Capacitance		3.5	4.0		3.5	4.0		3.5	4.0	pF		
23	$C_{(dg)}$ Reverse Transfer Capacitance		0.3	0.5		0.3	0.5		0.3	0.5	pF		
24	C_T Cross Talk		-107			-107			-107		dB		

SSD5100, SSD5101

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

#	CHARACTERISTIC		SSD5100			SSD5101			UNIT	TEST CONDITIONS	
			MIN	TYP	MAX	MIN	TYP	MAX			
1	STATIC	BV_{DS} Drain-Source Breakdown Voltage	30	35		15	30		V	$I_D = 1.0\mu\text{A}, V_{GS} = 0$	
2		BV_{SD} Source-Drain Breakdown Voltage	0.5			0.5			V	$I_S = 10\text{nA}, V_{GD} = V_{BD} = 0$	
3		BV_{DB} Drain-Substrate Breakdown Voltage	30			15			V	$I_D = 1.0\mu\text{A}, V_{GB} = 0$ Source Open	
4		BV_{SB} Source-Substrate Breakdown Voltage	0.5			0.5			V	$I_S = 100\text{nA}, V_{GB} = 0$ Drain Open	
5		$I_{D(off)}$ Drain-Source OFF Current		1.0	10		1.0	10	nA	$V_{DS} = 10\text{V}, V_{GS} = V_{BS} = 0$	
6		I_{GBS} Gate-Substrate Leakage Current			10			10	μA	$V_{GS} = 20\text{V}, V_{DB} = V_{SB} = 0$	
7		$V_{GS(th)}$ Gate-Source Threshold Voltage	0.5	1.0	2.0	0.5	1.0	2.0	V	$I_D = 1.0\mu\text{A}, V_{DS} = V_{GS}$ $V_{SB} = 0$	
8		$r_{DS(on)}$ Drain-Source ON Resistance		50	70		50	70	ohms	$V_{GS} = 5\text{V}$	$I_D = 1\text{mA}$ $V_{SB} = 0$
9				30	45		30	45	ohms	$V_{GS} = 10\text{V}$	
10				23			23		ohms	$V_{GS} = 15\text{V}$	
11				19			19		ohms	$V_{GS} = 20\text{V}$	
12			r_{DSM} ON Resistance Match		1.0	5.0		1.0	5.0	ohms	
13	DYNAMIC	g_{fs} Common-Source Forward Transcond	.10	15		10	15		mmhos	$V_{DS} = 10\text{V}, I_D = 20\text{mA}$ $f = 1\text{KHz}, V_{SB} = 0$	
14		$C_{(gs+gd+gb)}$ Gate Node Capacitance		2.4	3.5		2.4	3.5	pF	$V_{DS} = 10\text{V}$ $V_{GS} = V_{BS} = -5\text{V}$ $f = 1\text{MHz}$	
15		$C_{(gd+db)}$ Drain Node Capacitance		1.3	1.5		1.3	1.5	pF		
16		C_{dg} Reverse Transfer Capacitance		0.3	0.5		0.3	0.5	pF		
17		C_T Cross Talk		-107			-107		dB		$f = 3\text{KHz}$