

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

ORDERING INFORMATION

Sorted Chips in Waffle Pack	SD5100CHP	SD5101CHP
14-Pin Plastic Dual In-Line Package	SD5100N	SD5101N
SO-14 Package	SD5100CY	SD5101CY
Description	30V, 70 ohm	15V, 70 ohm

FEATURES

- Common source for 4 channels
- Low feedthrough and feedback transients
- Low Inter-electrode Capacitances

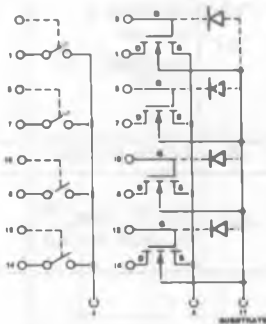
APPLICATIONS

- +30V Switch Drivers—SD5100
- +15V Switch Drivers—SD5101

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

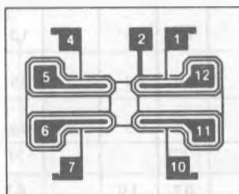
PARAMETER	SD5100	SD5101	UNITS	
V_{DS}	+30	+15	Vdc	I_D Continuous Drain Current 50mA
V_{SD}	+0.5	+0.5	Vdc	P_D Total Package Power Dissipation (at or below $T_A = +25^\circ\text{C}$) 640mW
V_{DB}	+30	+15	Vdc	Linear Derating Factor 10.67mW/ $^\circ\text{C}$
V_{SB}	+0.5	+0.5	Vdc	P_D Single Device Power Dissipation (at or below $T_A = +25^\circ\text{C}$) 300mW
V_{GS}	+20	+20	Vdc	T_J Operating Junction Temperature Range -55 to $+85^\circ\text{C}$
V_{GB}	+20	+20	Vdc	T_S Storage Temperature Range -55 to $+150^\circ\text{C}$
	-0.3	-0.3	Vdc	
V_{GD}	+20	+20	Vdc	
	-30	-15	Vdc	

SCHEMATIC DIAGRAM



Note: Pin numbers correspond to Package Pin-out

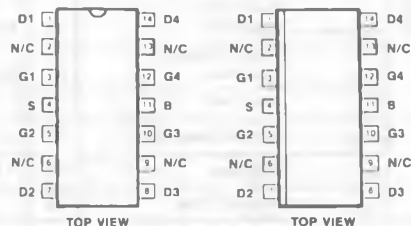
CHIP CONFIGURATION



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

Dimensions: .041 x .033 x .020 inches

PIN CONFIGURATION



DIMENSIONS

14-Pin Plastic DIP
See Package 9

SO-14 Plastic
See Package 20

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

#	CHARACTERISTIC		SD5100			SD5101			UNIT	TEST CONDITIONS	
			MIN	TYP	MAX	MIN	TYP	MAX			
1	STATIC	BV_{DS} Drain-Source Breakdown Voltage	30	35		15	30		V	$I_D = 1.0\mu\text{A}, V_{GS} = V_{BS} = 0$	
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				
16		C_{dg} Reverse Transfer Capacitance	0.3	0.5		0.3	0.5				
17		C_T Cross Talk	-107			-107					dB