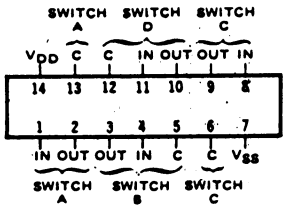
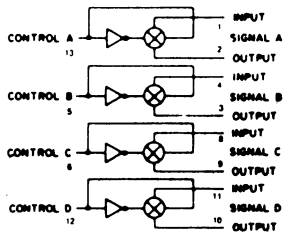
SCL4016B

QUAD ANALOG SWITCH





TYPICAL ON-RESISTANCE CHARACTERISTICS (VARIATION FROM R_{ON} = 0 Ohm)

CHARACTERISTIC	SUPPLY CONDITIONS		LOAD CONDITIONS					
			RL = 1 k Ohm		RL = 10 k Ohm		RL = 100 k Ohm	
	V_{DD}	V_{SS}	Ohm	V_{IS}	Ohm	V_{IS}	Ohm	V_{IS}
R_{ON}	15	0	200	15	200	15	180	15
			200	0	200	0	200	0
R_{ON} (MAX)	15	0	300	11	300	9.3	320	9.2
R_{ON}	10	0	290	10	250	10	240	10
			290	0	250	0	300	0
R_{ON} (MAX)	10	0	500	7.4	560	5.6	610	5.5
R_{ON}	5	0	860	5	470	5	450	5
			600	0	580	0	800	0
R_{ON} (MAX)	5	0	1.7k	4.2	7k	2.9	33k	2.7
R_{ON}	7.5	-7.5	200	7.5	200	7.5	180	7.5
			200	-7.5	200	-7.5	180	-7.5
R_{ON} (MAX)	7.5	-7.5	290	±0.25	280	±25	400	±0.25
R_{ON}	5	-5	260	5	250	5	240	5
			310	-5	250	-5	240	-5
R_{ON} (MAX)	5	-5	600	±0.25	580	±0.25	760	±0.25
R_{ON}	2.5	-2.5	590	2.5	450	2.5	490	2.5
			720	-2.5	520	-2.5	520	-2.5
R_{ON} (MAX)	2.5	-2.5	232k	±0.25	300k	±0.25	870k	±0.25

STATIC CHARACTERISTICS: (V_{SS} = 0 V)

PARAMETER	CONDITIONS	V_{SS} (Vdc)	V_{DD} (Vdc)	T_{LOW}* MIN	T_{LOW}* MAX	+25°C MIN	+25°C TYP	+25°C MAX	T_{HIGH}** MIN	T_{HIGH}** MAX	UNIT
QUIESCENT DEVICE CURRENT I_{DD}	V_{IN} = V_{SS} OR V_{DD}	0	5		0.05		0.0005	0.05		1.5	μAdc
		0	10		0.1		0.001	0.1		3.0	
		0	15		0.2		0.002	0.2		6.0	
INPUT HIGH VOLTAGE MINIMUM V_{IH} (CONTROL INPUT)	NOTE	0	5		3.5		1.5	3.5		3.5	Vdc
		0	10		7		1.5	7		7	
		0	15		11		1.5	11		11	
INPUT LOW VOLTAGE MAXIMUM V_{IL} (CONTROL INPUT)	V_{IS} = V_{SS} V_{OS} = V_{DD} I_{OS} = 10μA	0	5	0.9		0.7	1.5		0.4		Vdc
		0	10	0.9		0.7	1.5		0.4		
		0	15	0.9		0.7	1.5		0.4		
SWITCH INPUT/OUTPUT LEAKAGE I_{off} (SWITCH OFF)	V_C = V_{SS} V_{IS} = V_{DD}	0	15		±0.1		$\pm 10^{-5}$	±0.1		±1	μAdc
ON RESISTANCE R_{ON}	V_{IS} = (V_{DD} - V_{SS}) ÷ 2 V_C = V_{DD} R_L = 10k Ohm	0	15		360		200	400		520	Ohm
		0	10		600		250	660		840	
ON RESISTANCE MATCH DELTA R_{ON} (SAME PACKAGE)	V_C = V_{DD} R_L = 10k Ohm V_{IS} = -7.5V TO 7.5 V	-7.5	7.5				10				Ohm
	V_{IS} = -5V TO 5V	-5	5				15				

Note: *T_{LOW} = -55°C for C / H devices, -40°C for E / S devices, **T_{HIGH} = +125°C for C and H devices, +85°C for E / S devices.

Conditions for measuring V_{IH} :

V_{DD}	V_{OS}	V_{IS}	I_{OS} T_{LOW}	I_{OS} 25°C	I_{OS} T_{HIGH}	UNITS
5	5	4.6	-0.25	-0.20	-0.14	mA
10	10	9.5	-0.62	-0.50	-0.35	mA
15	15	13.5	-1.8	-1.5	-1.1	mA

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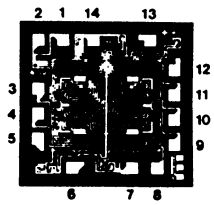
DYNAMIC CHARACTERISTICS: (CL = 50pF, TA = 25°C)

PARAMETER	CONDITIONS	V_{SS} (Vdc)	V_{DD} (Vdc)	MINIMUM	TYPICAL	MAXIMUM	UNIT
SIGNAL INPUTS (V_{IS}) & OUTPUTS (V_{OS})							
PROPAGATION DELAY TIME t_{PLH}, t_{PHL} (SIGNAL IN TO OUT)	$V_C = V_{DD}$, V_{IS} = SQ. WAVE, R_L = 10k Ohm	0	5		20	40	ns
		0	10		10	20	
		0	15		7.5	15	
BANDWIDTH (-3dB) (SINEWAVE) BW $V_C = V_{DD}$ $V_{IS} = 5V_{PP}$ CENTERED @ 0.0Vdc	R_L = 1k Ohm	-5	+5		54		MHz
	R_L = 10k Ohm				40		
	R_L = 100k Ohm				38		
	R_L = 1M Ohm				37		
INSERTION LOSS = 20 $\log_{10}$ V_{IS} + V_{OS} $V_C = V_{DD}$ $V_{IS} = 5V_{PP}$ CENTERED @ 0.0Vdc	R_L = 1k Ohm	-5	+5		2.3		dB
	R_L = 10k Ohm				0.2		
	R_L = 100k Ohm				0.1		
	R_L = 1M Ohm				0.05		
SIGNAL DISTORTION (SINEWAVE) $V_C = V_{DD}$ $V_{IS} = 5V_{PP}$ CENTERED @ 0.0Vdc	f_{IS} = 1.0kHz, R_L = 10k Ohm	-5	+5		0.4		%
FEEDTHROUGH (-50dB) $V_C = V_{DD}$ $V_{IS} = 5V_{PP}$ CENTERED @ 0.0Vdc	R_L = 1k Ohm	-5	+5		1250		kHz
	R_L = 10k Ohm				140		
	R_L = 100k Ohm				18		
	R_L = 1M Ohm				2		
CROSSTALK (-50dB) (BETWEEN 2 SWITCHES) V_C (A) = V_{DD} V_C (B) = V_{SS}	$V_{IS} = 5V_{PP}$ CENTERED @ 0.0Vdc	-5	+5		0.9		MHz
CAPACITANCE	$V_C = V_{SS}$						
INPUT	C_{IS}	-5	+5		4		pF
OUTPUT	C_{OS}				4		
FEEDTHROUGH	C_{IOS}				0.2		
CONTROL INPUT (V_C)							
PROPAGATION DELAY TIME T_{PC} (TURN ON)	$V_{SS} < V_{IS} < V_{DD}$, R_L = 10k Ohm	0	5		40	80	ns
		0	10		20	40	
		0	15		15	30	
INPUT FREQUENCY MAXIMUM f_C	$V_{SS} < V_{IS} < V_{DD}$, R_L = 1.0k Ohm	0	5		5		MHz
		0	10		10		
		0	15		12		
CROSSTALK (TO SIGNAL PORT)	V_C = SQ. WAVE, R_L = 10k Ohm, R_{IN} = 1.0k Ohm	0	5		30		mV
		0	10		50		
		0	15		100		

DIE DRAWING
SCL4016B
54 x 51 mils



Note: Refer to "SCL4000B SERIES FAMILY SPECIFICATIONS" for remaining Dynamic & Static Characteristics, and, for recommended and maximum operating conditions.