SCL4051B
SINGLE 8 CHANNEL MULTIPLEXER/DEMULTIPLEXER

SCL4052B
DIFFERENTIAL 4 CHANNEL MULTIPLEXER/DEMULTIPLEXER

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TRIPLE 4 CHANNEL MULTIPLEXER/DEMULTIPLEXER

SCL4051B pinout: V_{DD} 2 1 0 3 A B C (16 15 14 13 12 11 10 9) / (1 2 3 4 5 6 7 8) 4 6 COMM 7 5 INH V_{EE} V_{SS}

SCL4052B pinout: V_{DD} COM B COM A AY AX A B C (16 15 14 13 12 11 10 9) / (1 2 3 4 5 6 7 8) BY BX CY COM C CX INH V_{EE} V_{SS}

SCL4053B pinout: V_{DD} 2X 1X X 0X 3X A B (16 15 14 13 12 11 10 9) / (1 2 3 4 5 6 7 8) 0Y 2Y COM Y 3Y 1Y INH V_{EE} V_{SS}

SCL4051B block diagram: V_{DD} (16), A (11), B (10), C (9), INH (6), V_{SS} (8), V_{EE} (7). LOGIC LEVEL CONVERSION → BINARY TO 1 OF 8 DECODER with Inhibit → CHANNEL 0 IN/OUT (13), CHANNEL 1 IN/OUT (14), CHANNEL 2 IN/OUT (15), CHANNEL 3 IN/OUT (12), CHANNEL 4 IN/OUT (1), CHANNEL 5 IN/OUT (5), CHANNEL 6 IN/OUT (2), CHANNEL 7 IN/OUT (4), COMMON OUT/IN (3).

SCL4052B block diagram: LOGIC LEVEL CONVERSION → BINARY TO 1 OF 4 DECODER with Inhibit → CHANNEL X OUT/IN, CHANNEL 0X IN/OUT, CHANNEL 1X IN/OUT, CHANNEL 2X IN/OUT, CHANNEL 3X IN/OUT, CHANNEL 0Y IN/OUT, CHANNEL 1Y IN/OUT, CHANNEL 2Y IN/OUT, CHANNEL 3Y IN/OUT, COMMON Y OUT/IN.

SCL4053B block diagram: LOGIC LEVEL CONVERSION → BINARY TO 1 OF 4 DECODER with Inhibit → CHANNEL Ax IN/OUT, CHANNEL Ay IN/OUT, CHANNEL Bx IN/OUT, CHANNEL By IN/OUT, CHANNEL Cx IN/OUT, CHANNEL Cy IN/OUT, COMMON C OUT/IN, COMMON B OUT/IN, COMMON A OUT/IN.

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

PARAMETER	CONDITIONS	V_{SS} (Vdc)	V_{DD} (Vdc)	V_{EE} (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		5		0.05	5		150	
		0	10	0		10		0.1	10		300	µAdc
			5	-5								
		0	15	0		29		0.2	20		600	
			7.5	-7.5								
INPUT HIGH VOLTAGE MINIMUM V_{IH} (CONTROL/INHIBIT INPUT)	V_{IS} = V_{EE}	0	5	0		3.5		2.75	3.5		3.5	Vdc
	V_{OS} = V_{DD}	0	10	0		7		5.5	7		7	
	I_{OS} = 10µA	0	15	0		11		8.25	11		11	
INPUT LOW VOLTAGE MAXIMUM V_{IL} (CONTROL/INHIBIT INPUT)	V_{IS} = V_{EE}	0	5	0	1.5		1.5	2.25		1.5		Vdc
	V_{OS} = V_{DD}	0	10	0	3		3	4.5		3		
	I_{OS} = 10µA	0	15	0	4		4	6.75		4		
SWITCH INPUT/OUTPUT LEAKAGE I_{off} ANY CHANNEL OFF	V_{IN} = V_{SS} OR V_{DD} V_{IS} = ± 7.5Vdc	0	7.5	-7.5		±100		±0.01	±100		±1000	nAdc
ALL CHANNELS OFF V_{IS} = ±7.5Vdc Inh = 7.5 Vdc	SCL4051B					±400		±0.08	±400		±1000	
	SCL4052B	0	7.5	-7.5		±200		±0.04	±200		±1000	
	SCL4053B					±100		±0.02	±100		±1000	
ON RESISTANCE R_{ON}	V_{IS} = V_{SS} or V_{DD}	-7.5	7.5	-7.5		220		125	280		400	Ω
	$V_{EE} \leq V_{IS} \leq V_{DD}$	0	15	0								
	R_L = 10kΩ	-5	5	-5		310		180	400		590	
		0	10	0								
		-2.5	2.5	-2.5		2000		470	2500		3500	
		0	5	0								
ON RESISTANCE MATCH DELTA R_{ON} (SAME PACKAGE)	V_{IS} = V_{SS} or V_{DD}	-7.5	7.5	-7.5				5				Ω
	$V_{EE} \leq V_{IS} \leq V_{DD}$	0	15	0								
	R_L = 10kΩ	-5	10	-5				10				
		0	10	0								
		-2.5	2.5	-2.5				50				
		0	5	0								

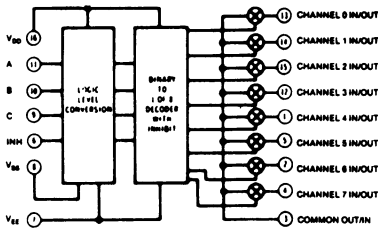Note: *T_{LOW} = -55°C for C / H devices, -40°C for E / S devices, **T_{HIGH} = +125°C for C and H devices, +85°C for E / S devices.
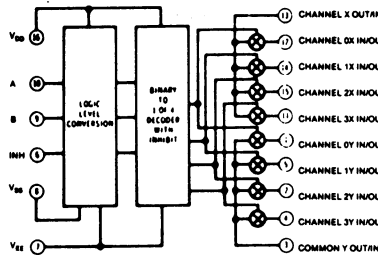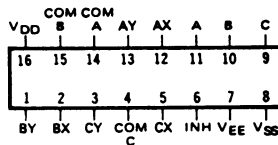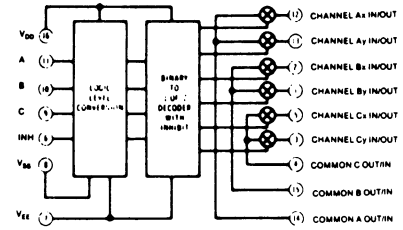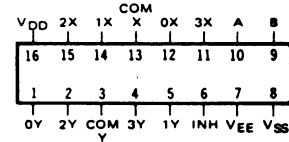
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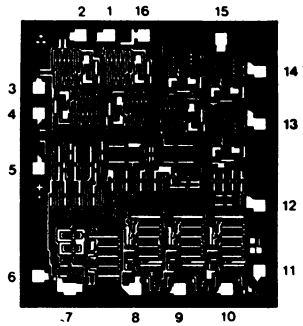## SCL4052B
DIFFERENTIAL 4 CHANNEL MULTIPLEXER/DEMULTIPLEXER

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TRIPLE 4 CHANNEL MULTIPLEXER/DEMULTIPLEXER

DYNAMIC CHARACTERISTICS: (C_L = 50pF, T_A = 25°C)

| PARAMETER	CONDITIONS	V_{SS} (Vdc)	V_{DD} (Vdc)	V_{EE} Vdc	MINIMUM	TYPICAL	MAXIMUM	UNIT
PROPAGATION DELAY TIME t_{PLH}, t_{PHL} (SIGNAL IN TO OUT)	$V_C = V_{DD}$ R_L =10kΩ	0	5	0		30	60	ns
	V_{IS} = SQ. WAVE	0	10	0		15	30	
	V_{IN} = V_{SS} or V_{DD}	0	15	0		12.5	25	
BANDWIDTH (-3dB) (SINEWAVE) BW V_{IN} = V_{SS} or V_{DD} Inh = V_{SS} V_{IS} = 5V_{PP} CENTERED @ 0.0Vdc	R_L = 1kΩ	0	5	-5		54		MHz
	R_L = 10kΩ					40		
	R_L = 100kΩ					38		
	R_L = 1MΩ					37		
INSERTION LOSS = 20 log$_{10}$ $\underline{V}_{OS}$ + V_{iS} V_C = V_{DD} V_{IS} = 5V_{PP} CENTERED @ 0.0Vdc	R_L = 1kΩ	0	5	-5		2.3		dB
	R_L = 10kΩ					0.2		
	R_L = 100kΩ					0.1		
	R_L = 1MΩ					0.05		
SIGNAL DISTORTION (SINEWAVE) Inh = V_{SS} V_{IS} = 5V_{PP} CENTERED @ 0.0Vdc	V_{IN} = V_{SS} or V_{DD} f_{IS} = 1.0kHz R_L = 10kΩ	-7.5	7.5	-7.5		0.1		%
		-5	5	-5		0.2		
		-2.5	2.5	-2.5		1		
FEEDTHROUGH (-50dB) V_{IN} = V_{SS} or V_{DD} Inh = V_{SS} V_{IS} = 5V_{PP} CENTERED @ 0.0Vdc	R_L = 1kΩ	0	5	-5		1250		kHz
	R_L = 10kΩ					140		
	R_L = 100kΩ					18		
	R_L = 1MΩ					2		
CROSSTALK (-50dB) (BETWEEN 2 SWITCHES) Inh = V_{SS} V_{IS} = 5V_{PP} CENTERED @ 0.0Vdc	V_{IN} = V_{SS} or V_{DD} R_L = 1kΩ	0	5	-5		1		MHz
CAPACITANCE INPUT C_{IS}	Inh = V_{DD}	0	5	-5		5		pF
COMMON C_{OS} SCL4051B						30		
COMMON C_{OS} SCL4052B		0	5	-5		18		
COMMON C_{OS} SCL4053B						10		
FEEDTHROUGH C_{IOS}		0	5	-5		0.2		
CONTROL INPUT PROPAGATION DELAY TIME T_{PC} (TURN ON)	Inh = V_{SS} $V_{EE} \le V_{IS} \le V_{DD}$ R_L = 10kΩ	0	7.5	-7.5		160	320	ns
		0	15	0		120	240	
		0	5	-5		225	450	
		0	10	0		160	320	
		-2.5	2.5	-2.5		400	800	
		0	5	0		360	720	
INHIBIT INPUT PROPAGATION DELAY TIME T_{PLH}, T_{PHL} (TURN ON)	V_{IN} = V_{SS} or V_{DD} V_{IS} = V_{DD} R_L = 10kΩ	0	7.5	-7.5		160	320	ns
		0	15	0		120	240	
		0	5	-5		200	400	
		0	10	0		160	320	
		-2.5	2.5	-2.5		400	800	
		0	5	0		360	720	
INHIBIT RECOVERY TIME t_{rel}	V_{IN} = V_{SS} or V_{DD} $V_{EE} \le V_{IS} \le V_{DD}$ R_L = 10kΩ	0	7.5	-7.5		150	300	ns
		0	15	0		80	160	
		0	5	-5		200	400	
		0	10	0		105	210	
		-2.5	2.5	-2.5		300	600	
		0	5	0		225	450	

DIE DRAWINGS

SCL4051B
81 x 89 mils

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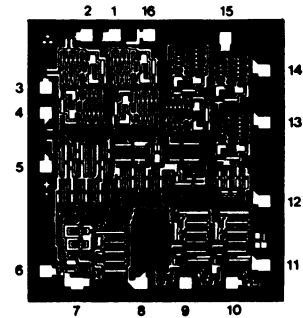
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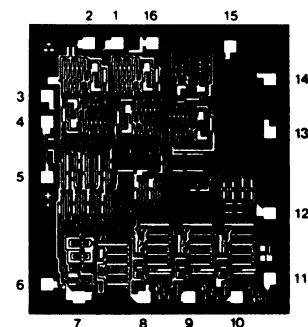
Note: Refer to "SCL4000B SERIES FAMILY SPECIFICATIONS" for remaining Dynamic & Static Characteristics, and, for recommended and maximum operating conditions.