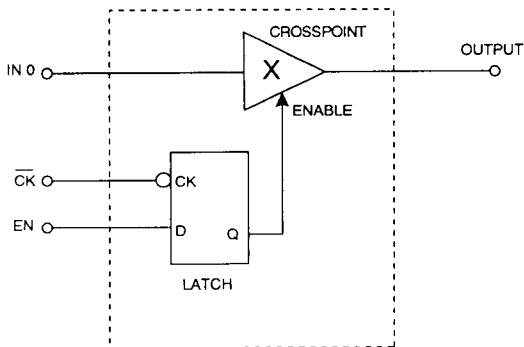




FEATURES

- 100 MHz bandwidth (-3 dB)
- insertion loss 0.03dB at 100 kHz
- gain spread $\pm 0.075\text{dB}$ at 8 MHz
- differential gain at 3.58 MHz 0.04% (max)
- differential phase at 3.58 MHz 0.02° (max)
- TTL and 5 V CMOS compatible logic inputs
- compatible with all popular video standards
- 7 pin single-in-line package
- built-in enable latch allows synchronous selection

FUNCTIONAL BLOCK DIAGRAM



ORDERING INFORMATION

Part Number	Package Type	Temperature Range
GX401-CSN	7 Pin SIP	0° to 70°C

CIRCUIT DESCRIPTION

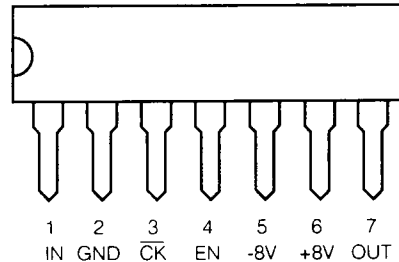
The GX401 is a low cost monolithic 1x1 video crosspoint switch plus on-board latch, designed primarily for use in video switching applications where 1 out of N channel selection function is required. Unlike similar devices using MOS bilateral switching elements, the GX401 represents a fully buffered unilateral transmission path when enabled, and offers better than 90 dB of off-isolation at 10 MHz when disabled.

In addition, the GX401 offers wide bandwidth and superior differential gain and phase performance.

Power supply requirements are ± 8 volts. Logic inputs are TTL and 5V CMOS compatible.

2-1

PIN CONNECTIONS



ABSOLUTE MAXIMUM RATINGS

PARAMETER	VALUE
Supply Voltage	$\pm 10.0\text{ V}$
Operating Temperature Range	$0^\circ\text{ C} \leq T_A \leq 70^\circ\text{ C}$
Storage Temperature Range	$-65^\circ\text{ C} \leq T_S \leq 150^\circ\text{ C}$
Lead Temperature (Soldering, 10 Sec)	260° C
Analog Input Voltage	$-4\text{ V} \leq V_{IN} \leq 2.4\text{ V}$
Logic Input Voltage	$-4\text{ V} \leq V_L \leq 5.25\text{ V}$

NOTE: Output is not short circuit protected.

ELECTRICAL CHARACTERISTICS ($V_S = \pm 8V$ DC, $0^\circ C < T_A < 70^\circ C$, $R_L = 10k\Omega$, $C_L = 30pF$. Typical values are at $T_A = 25^\circ C$)

	PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
DC SUPPLY	Supply Voltage	$V_{S\pm}$		7.5	8.0	8.5	V
	Supply Current	I+	Chip selected (EN=1)	-	15	18	mA
			Chip not selected (EN=0)	-	0.7	0.9	mA
		I-	Chip selected (EN=1)	-	14	17	mA
Chip not selected (EN=0)			-	0.63	0.85	mA	
STATIC	Analog Output Voltage Swing	V_{OUT}	Extremes before clipping occurs	-1.2	-	+2.0	V
	Output Offset Voltage	V_{OS}	75 Ω resistor on each input to gnd	5	15	25	mV
	Output Offset Voltage Drift-	$\Delta V_{OS} / \Delta T$		-	50	200	$\mu V/^\circ C$
LOGIC	Crosspoint Turn-On Time	t_{ON}	Control input to appearance of signal at output.	300	400	500	ns
	Crosspoint Turn-Off Time	t_{OFF}	Control input to disappearance of signal at output.	900	1200	1600	ns
	Clock input Pulse width	t_{CK}	Control input to appearance of signal at output.	350	-	-	ns
	Logic Input Thresholds	V_{IH}	1	2.0	-	-	V
		V_{IL}	0	-	-	0.8	V
	Enable Bias Current	$I_{BIAS(EN)}$	EN = 1	-	-	2.0	μA
EN = 0			-	-	-0.1	μA	
DYNAMIC	Insertion Loss	I.L.	1V p-p sine or sq. wave at 100 kHz	0.02	0.03	0.05	dB
	Bandwidth (-3dB)	B.W.		100	-	-	MHz
	Gain Spread at 8 MHz			-	-	± 0.075	dB
	Input Resistance	R_{IN}	Chip selected (EN = 1)	900	-	-	k Ω
	Input Capacitance	C_{IN}	Chip selected (EN = 1)	-	2.0	-	pF
			Chip not selected (EN = 0)	-	2.2	-	pF
	Output Resistance	R_{OUT}	Chip selected (EN = 1)	-	12	-	Ω
	Output Capacitance	C_{OUT}	Chip not selected (EN = 0)	-	7	-	pF
	Differential Gain	dg	$f = 3.58$ or 4.43 MHz	-	0.03	0.04	%
	Differential Phase	dp	$V_{IN} = 40$ IRE	-	0.01	0.02	degrees
Off Isolation		Crosspoint on output to gnd. $f = 10$ MHz	90	-	-	dB	

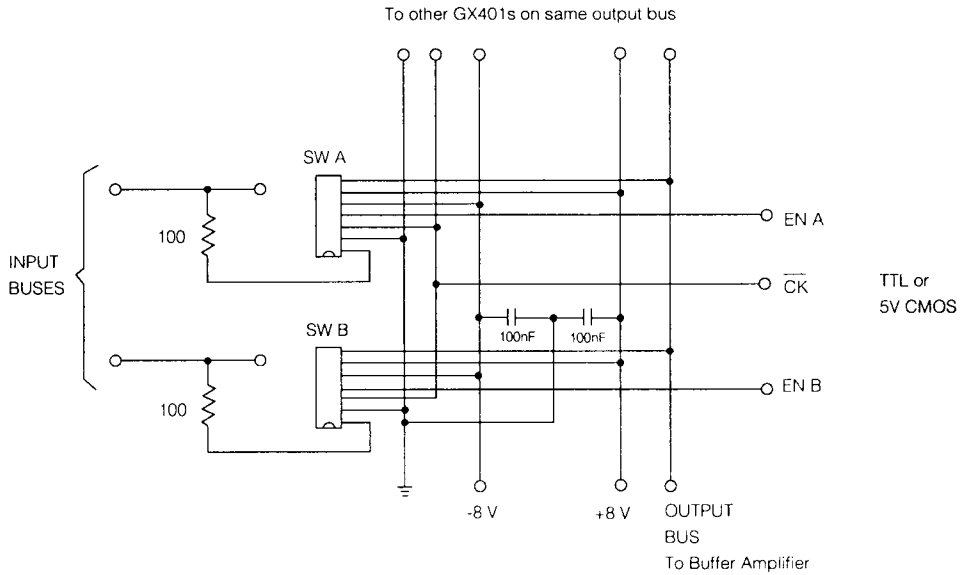
AVAILABLE PACKAGING

7 pin SIP

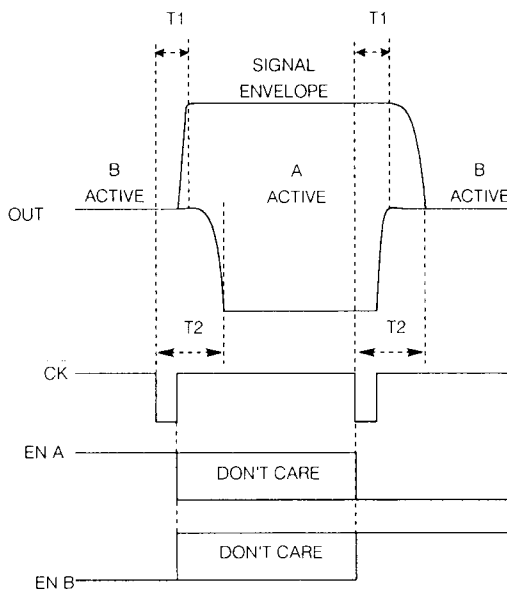
CAUTION

ELECTROSTATIC SENSITIVE DEVICES
DO NOT OPEN PACKAGES OR HANDLE EXCEPT AT A STATIC-FREE WORKSTATION





TYPICAL GX401 APPLICATION CIRCUIT



CONDITIONS:
 Input B: grounded via 75Ω
 Input A: 1V p-p sinewave
 T1 = 400 ns
 T2 = 1.2 μs

NOTE:
 Clock is level triggered

TYPICAL CROSSPOINT SELECTION TIMING DIAGRAM