

Dual Monolithic CMOS/DMOS T Configuration Analog Switch



CWB5341

FEATURES

- Ultra High OFF Isolation > 80dB @ 10MHz
- Low Channel-to-Channel Cross Talk . . . > 80dB @ 10MHz
- TTL Compatible Inputs
- Low ON Resistance < 100ohms
- Wide Bandwidth -1.0dB @ 50MHz

APPLICATIONS

- RF and Video Switching
- High Frequency Cross Points
- Video Routing
- Data Acquisition

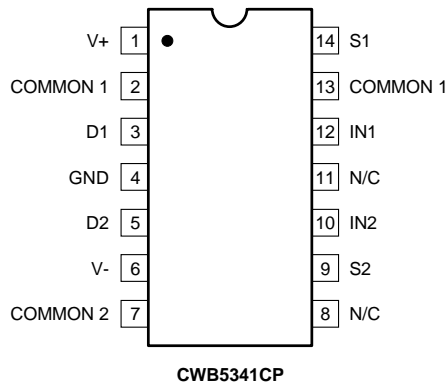
DESCRIPTION

The CWB5341 is a Dual Monolithic Analog Switch. Designed utilizing "T" switching techniques this device gives exceptionally low crosstalk and very high OFF isolation. The CWB5341 is built on the Calogic proprietary CMOS/DMOS process to achieve TTL compatibility with ultra low capacitance and superior switching performance.

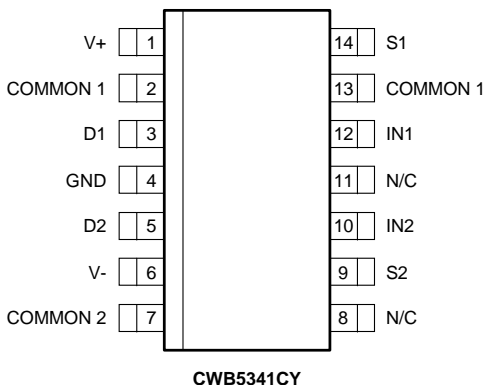
ORDERING INFORMATION

Part	Package	Temperature Range
CWB5341CP	Plastic 14-Pin Dip	0 to +85°C
CWB5341CY	Plastic SO-14 Surface Mount	0 to +85°C
XCWB5341	Sorted Chips in Carriers	0 to +85°C

PIN CONFIGURATION



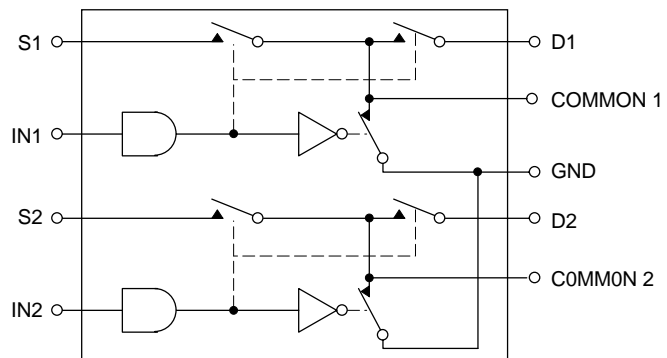
CWB5341CP



CWB5341CY

CWB

FUNCTION DIAGRAM



Two SPST 'T' Switches per Package.
Switches shown in Logic '0' Input Position.
Compensation Networks can be connected to Common 1 and Common 2.

All devices contain diodes to protect inputs against damage due to high static voltages or electric fields; however, it is advised that precautions be taken not to exceed the maximum recommended input voltages. All unused inputs must be connected to an appropriate logic level (either V_{cc} or GND).

ABSOLUTE MAXIMUM RATINGS

V-	Negative Supply Voltage	-20V
V+	Positive Supply Voltage	+20V
V _{IN}	Control Input Voltage Range	V+ +0.3V V- -0.3V
I _L	Continuous Current, any Pin except S or D	20mA
I _S	Continuous Current, S or D	30mA
I _S	Peak Pulsed Current, S or D, 80μsec, 1%, Duty Cycle	100mA
T _J	Junction Temperature Range	-55 to +125°C
T _S	Storage Temperature Range	-55 to +125°C
P _D	Power Dissipation (derate at 12mW/°C, above +85°C)	500mW

RECOMMENDED OPERATING CONDITIONS

V-	Negative Supply Voltage	-8.0 to -15V
V+	Positive Supply Voltage	+8.0 to +15V
V _{IN}	Control Input Voltage Range	0 to +5V
V _S	Analog Switch Voltage Range	-10 to +10V
T _{OP}	Operating Temperature	0 to +85°C

ELECTRICAL CHARACTERISTICS (V₋ = -15V, V₊ = +15V unless otherwise noted, T_A = +25°C)

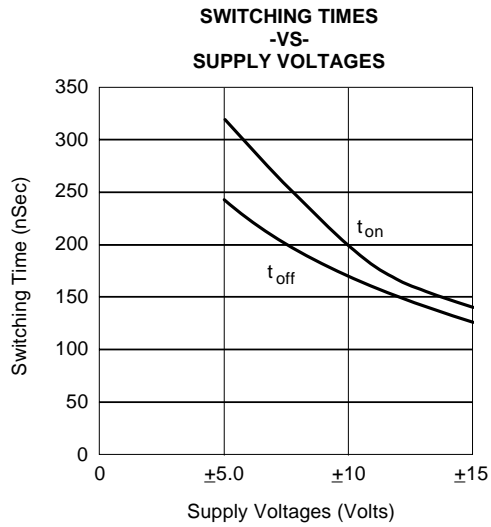
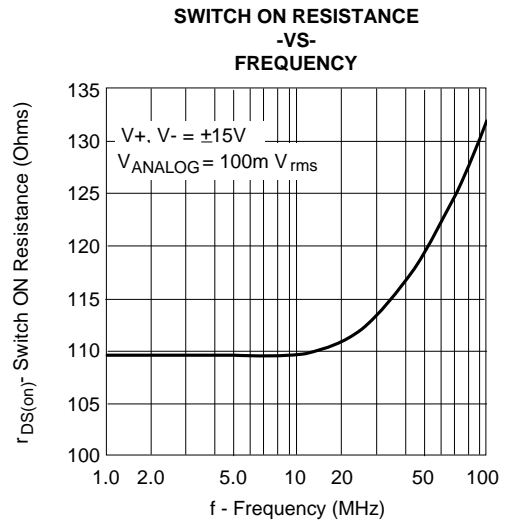
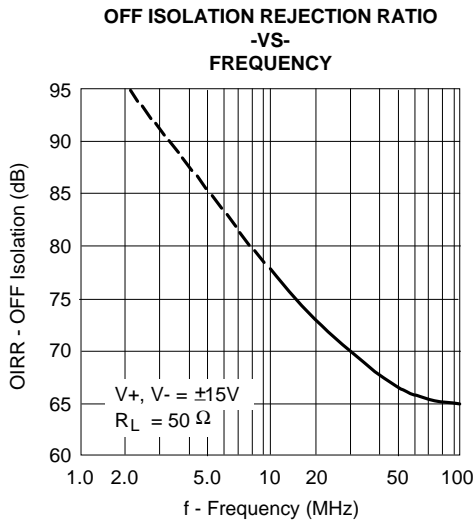
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
STATIC						
V _{ANALOG}	Analog Signal Range	-10		+10	V	
r _{DS(ON)}	Channel ON Resistance		100	160	Ω	V _S = -10V, I _S = -1.0mA
			110	160		V _S = +2.0V, I _S = +1.0mA
			200	320		V _S = +10V, I _S = +1.0mA
V _{IH}	Logic High Level Input Voltage	4.5	3.4		V	
V _{IL}	Logic Low Level Input Voltage			1.0		
I _{IN}	Logic Input Leakage Current		0.01	0.1	μA	V _{IN} = +5.0V
			0.02	0.1		V _{IN} = +15V
I _{D(OFF)}	Switch OFF Leakage Current		0.2	5.0	nA	V _D = +10V, V _S = -10V
I _{S(OFF)}			0.4	5.0		V _S = +10V, V _D = -10V
I ₋	Negative Supply Quiescent Current		-0.1	-0.5	μA	V _{IN} = 0 or V ₊
I ₊	Positive Supply Quiescent Current		0.1	0.5		
DYNAMIC						
t _{ON}	Switch Turn-ON Time		150	250	nsec	V _{IN} = 5.0V
t _{OFF}	Switch Turn-OFF Time		120	220		
O _{IRR}		80			dB	f = 10MHz, R _L = 50Ω
C _{CRR}		80				f = 10MHz, R _L = 50Ω
	Frequency Roll-OFF (Bandwidth)		1.0	3.0		f = 50MHz, R _L = 50Ω
C _d	Drain-Node Capacitance		0.3		pF	V _D = 0
C _s	Source- Node Capacitance		3.0			V _S = 0

ELECTRICAL CHARACTERISTICS (V₋ = -15V, V₊ = +15V unless otherwise noted)

LIMITS AT TEMPERATURE EXTREMES

SYMBOL	PARAMETER	MAXIMUM @ T _A =		UNITS	TEST CONDITIONS
		+85°C			
STATIC					
V _{ANALOG}	Analog Signal Range	±10		V	
r _{DS(ON)}	Switch ON Resistance	240		Ω	V _S = -10V, I _S = +1.0mA
		240			V _S = +2.0V, I _S = +1.0mA
		480			V _S = +10V, I _S = +1.0mA
I _{IN}	Logic Input Leakage Current	1.0		μA	V _{IN} = +5.0V
		2.0			V _{IN} = +15V
I _{D(OFF)}	Switch OFF Leakage Current	100		nA	V _D = +10V, V _S = -10V
I _{S(OFF)}			100		V _S = +10V, V _D = -10V
I ₋	Supply Quiescent Current	-20		mA	V _{IN} = 0 or V ₊
I ₊		20			

TYPICAL PERFORMANCE CHARACTERISTICS ($T_A = +25^{\circ}\text{C}$ unless otherwise specified)





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