CS-102-1/-2

Level Detecting ICs with Schmitt Triggers

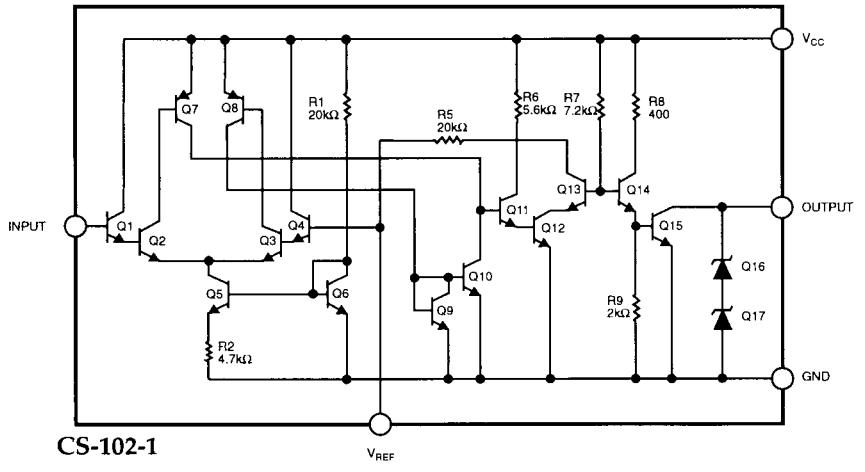
Description

The CS-102-1 and CS-102-2 are monolithic integrated circuit level detectors with controlled hysteresis and are designed for applications requiring the function of a Schmitt trigger along with superior voltage and temperature stability. With input sensitivity below 35 nanoamperes these ICs are ideally suited for use with high impedance resistance dividers or voltage inputs as well as level detection of approximately one time constant in R-C timing applications. (CS-102-2 also has an internal reference of 0.6 of the supply voltage.) The output is Zener diode clamped for driving inductive loads and it can sink up to 70mA of current. These devices are particularly suited for battery powered application and low-light indication.

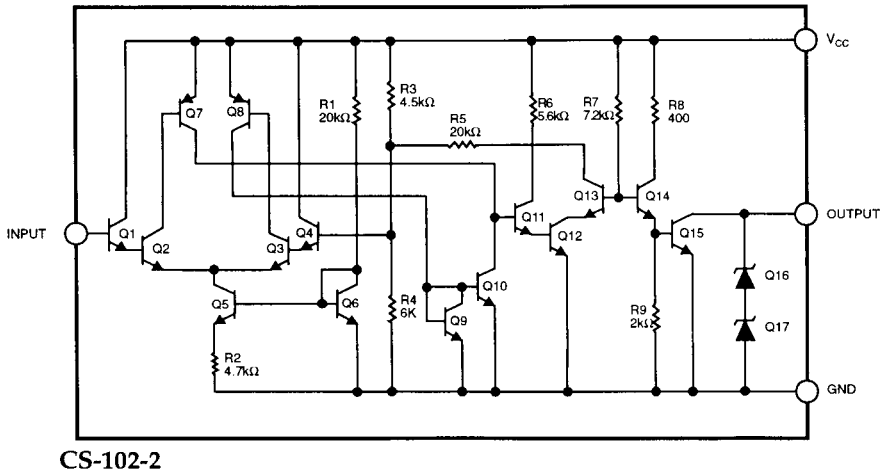
Features

- 5nA Input Current
- Zener Clamped Output
- Programmable Threshold (102-1)
- Time Constant Independent of Supply Voltage

Block Diagrams



CS-102-1

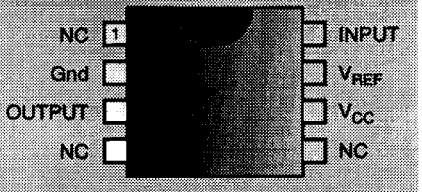


CS-102-2

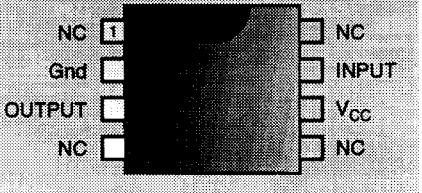
Package Options

8 Lead PDIP

CS-102-1



CS-102-2



CSC™ CHERRY SEMICONDUCTOR

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Absolute Maximum Ratings

Power Supply Voltage (V_{CC}) 9.0V
Output Current (I_0) 150mA
Input Voltage (V_1) ..... V_{CC}
Output Voltage (V_0) 12V
Storage Temperature (T_S) ..... -40°C to 150°C
Operating Temperature (T_A) ..... -20°C to 70°C

Electrical Characteristics: V_{CC} = 2.7V, T_A = 25°C

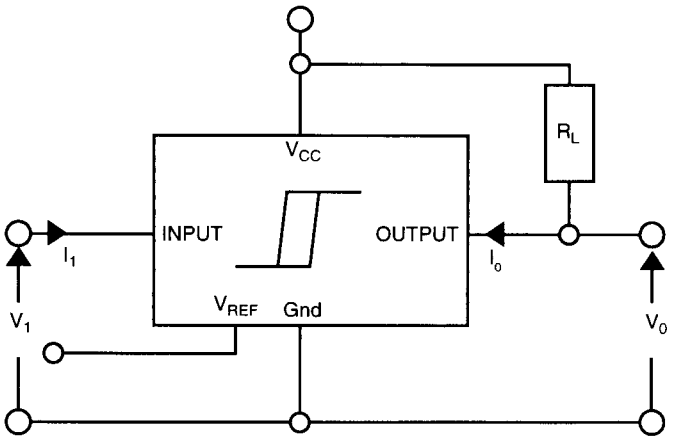
PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
■ CS-102-1 and CS-102-2					
Input Current	$V_I=V_T=(T_A=25°C$ to $70°C)$		5	35	nA
On-state Output Voltage	$V_I=0$, $I_O=70mA$		0.25	0.50	V
Off-state Output Current (leakage)	$V_I=2.7V$, $V_O=2.7V$		0.001	1.0	µA
Zener Breakdown Voltage	$I_O=12mA$	11	15	19	V
Supply Current, Output Off	$V_I=2.7V$, R_L0		1	2.5	mA
Supply Current, Output On	$V_I=0$, $R_L=0$		4	10	mA
Threshold Voltage Variation over Supply and Operating Temperature			±2	±5	%
Switching Times, Rise and Fall	$R_L=33\Omega$		0.5		µs
Propagation Delay	$R_L=33\Omega$		2.0		µs
■ CS-102-2					
Positive-going Threshold Voltage		1.43	1.62	1.78	V
Negative-going Threshold Voltage		1.30	1.43	1.57	V
Ratio of Positive-going Threshold Voltage to Supply Voltage	$V_{CC}=2.0$ to $9.0V$	0.54	0.60	0.66	
Ratio of Negative-going Threshold Voltage to Supply Voltage	$V_{CC}=2.0V$ to $9.0V$	0.48	0.53	0.58	

Package Pin Description

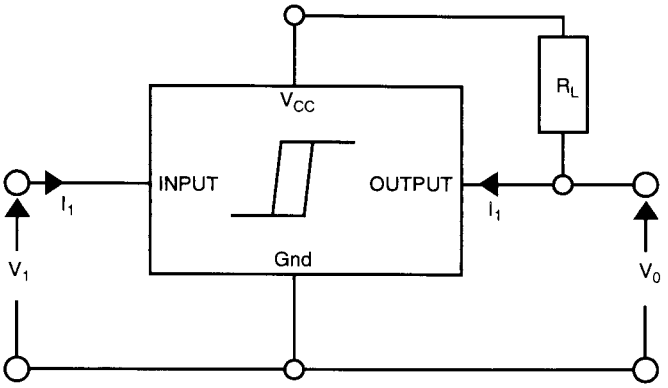
PACKAGE PIN #		PIN SYMBOL	FUNCTION
8L PDIP			
CS-102-1	CS-102-2		
1, 4, 5	1, 4, 5, 8	NC	No connection
2	2	Gnd	Ground
3	3	OUTPUT	Open collector output with 15V Zener clamp
6	6	V_{CC}	Supply voltage
7		V_{REF}	External Reference input
8	7	INPUT	Input signal

Test Circuits

CS-102-1

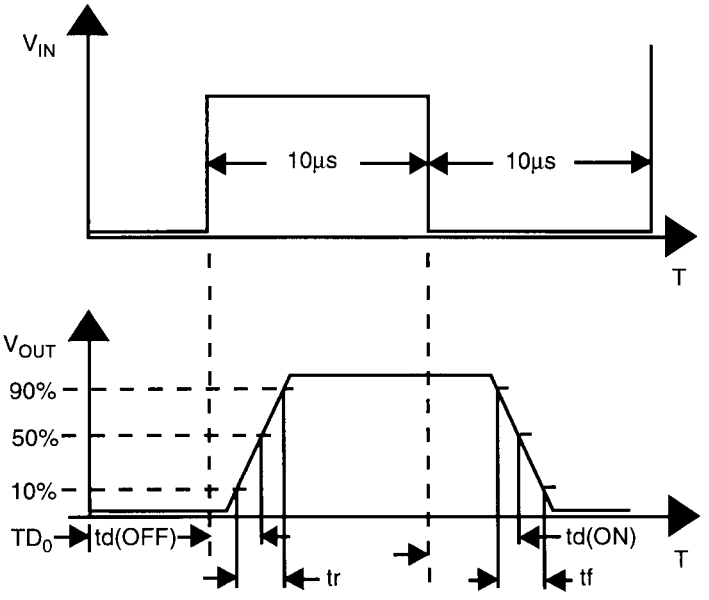


CS-102-2

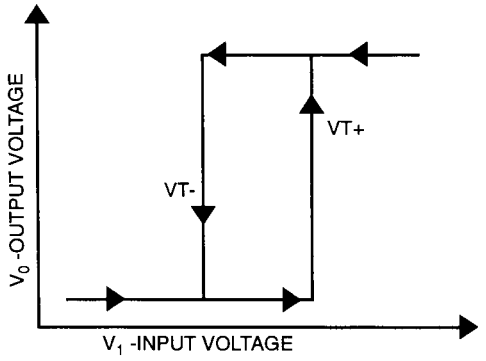


Switching Waveforms

CS-102-1, CS-102-2



Transfer Characteristics



Package Specification

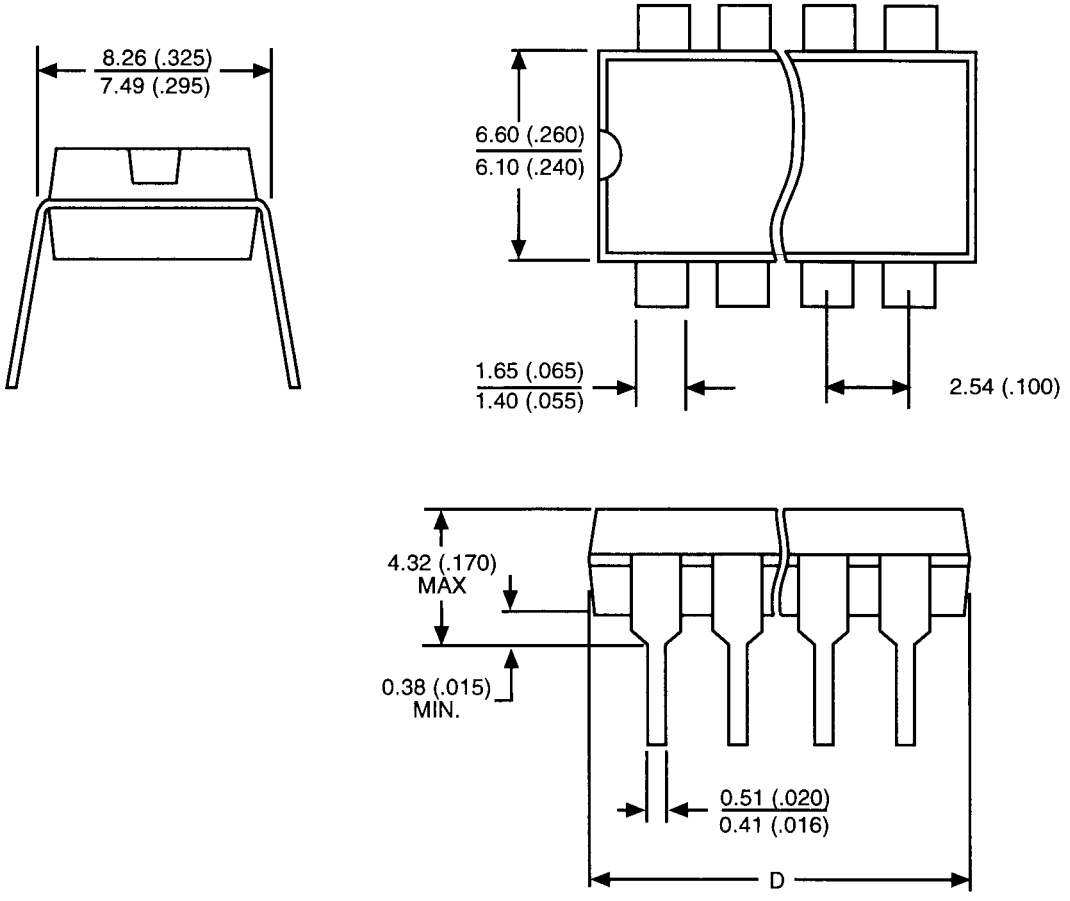
PACKAGE DIMENSIONS IN mm (INCHES)

Lead Count	D			
	Metric		English	
	Max	Min	Max	Min
8Lead PDIP	9.40	9.14	.370	.360

PACKAGE THERMAL DATA

Thermal Data		8L PDIP	
$R\Theta_{JC}$	typ	52	°C/W
$R\Theta_{JA}$	typ	100	°C/W

8L PDIP



Ordering Information

Part Number	Description
CS-102-1	8 lead PDIP
CS-102-2	8 lead PDIP

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