CHERRY SEMICONDUCTOR

CS-102
CS-102-1

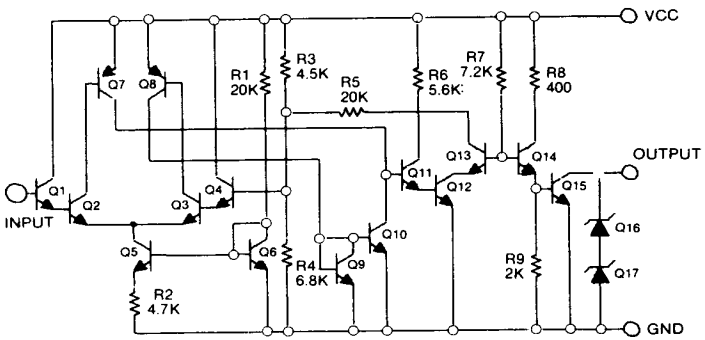
LEVEL DETECTING ICs with SCHMITT TRIGGERS

DESCRIPTION:

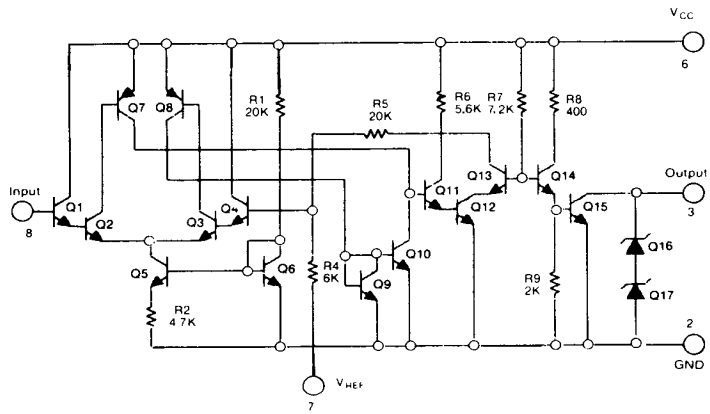
The CS-102 and CS-102-1 are monolithic integrated circuit level detectors with controlled hysteresis and are designed for applications requiring the function of a Schmitt trigger along with superior voltage and temperature stability. With input sensitivity below 35 namoamperes these ICs are ideally suited 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 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.

The CS-102 is housed in a four-lead miniature package mounted on 35mm Kapton film for handling or in a standard 8-lead miniDIP plastic package.

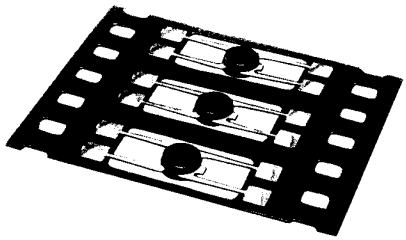
The CS-102-1 is housed in a standard 8-lead miniDIP package. This device differs from CS-102 in that the trigger threshold is adjustable at pin 7.



SCHEMATIC DIAGRAM—CS-102

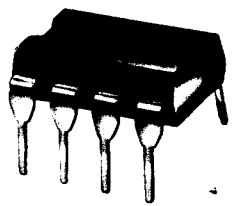


SCHEMATIC DIAGRAM—CS-102-1



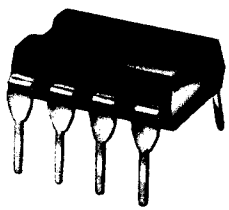
TERMINAL ASSIGNMENTS CS-102-P4

PIN 1 = INPUT
PIN 2 = GND
PIN 3 = OUTPUT
PIN 4 = VCC



TERMINAL ASSIGNMENTS CS-102-1

PIN 1 — N.C.
PIN 2 — GND
PIN 3 — OUTPUT
PIN 4 — N.C.
PIN 5 — N.C.
PIN 6 — VCC
PIN 7 — VREF
PIN 8 — INPUT

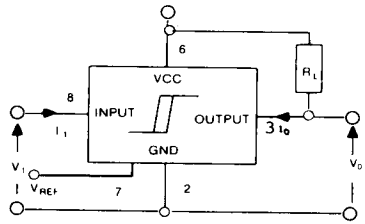


TERMINAL ASSIGNMENTS CS-102-D8

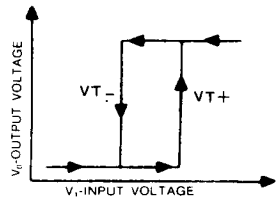
PIN 2 GND
PIN 3 OUTPUT
PIN 6 VCC
PIN 7 INPUT

ABSOLUTE MAXIMUM RATINGS CS-102 & CS-102-1

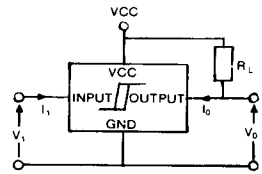
Power Supply Voltage	VCC	9.0V
Output Current	IO	150mA
Input Voltage	VI	VCC
Output Voltage	VO	12V
Storage Temperature	TS	-40°C to 150°C
Operating Temperature	TA	-20°C to 70°C



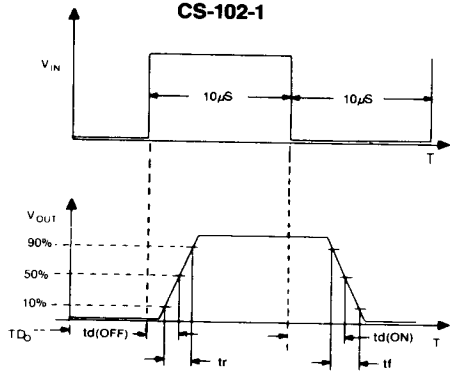
TEST CIRCUIT
CS-102-1



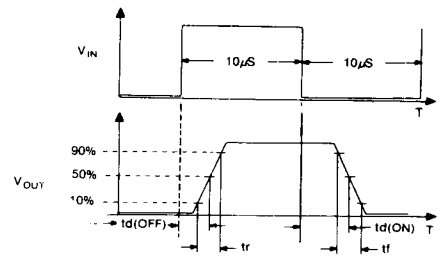
TRANSFER CHARACTERISTICS
CS-102 & CS-102-1



TEST CIRCUIT
CS-102



SWITCHING WAVEFORMS CS-102-1



SWITCHING WAVEFORMS , CS-102

ELECTRICAL CHARACTERISTIC V_{CC}=2.7V, T_A=25°C

CS-102

	PARAMETER	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
VT+	Positive-going threshold voltage		1.43	1.62	1.78	V
VT−	Negative-going threshold voltage		1.30	1.43	1.57	V
VT+/VCC	Ratio of positive-going threshold voltage to supply voltage	VCC = 2.0 to 9.0 V	0.54	0.60	0.66	—
VT−/VCC	Ratio of negative-going threshold voltage to supply voltage	VCC = 2.0 to 9.0V	0.48	0.53	0.58	—

CS-102 & CS-102-1

II	Input Current	VI = VT+ (Ta = 25°C to 70°C*)		5	35*	nA
VO(on)	On-state output voltage	VI = 0 IO = 70mA		0.25	0.50	V
IO(off)	Off-state output current (leakage)	VI = 2.7V VO = 2.7V		0.001	1.0	μA
VZ	Zener breakdown voltage	IO = 12mA	11	15	19	V
ICC(off)	Supply Current, output off	VI = 2.7V RL = 0		1	2.5	mA
ICC(on)	Supply Current, output on	VI = 0 RL = 0		4	7*	mA
VT	Threshold voltage variation over supply and operating temperature			±2	±5	%
tr, tf	Switching times, rise and fall	RL = 33Ω		0.5		μS
td(ON), td(OFF)	Propagation delay	RL = 33Ω		2.0		μS

*CS-102 only

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Our Sales Representative in Your Area is: