CHERRY SEMICONDUCTOR

CS-122

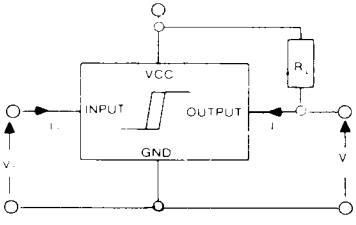
DUAL LEVEL SENSING IC with SCHMITT TRIGGER

DESCRIPTION

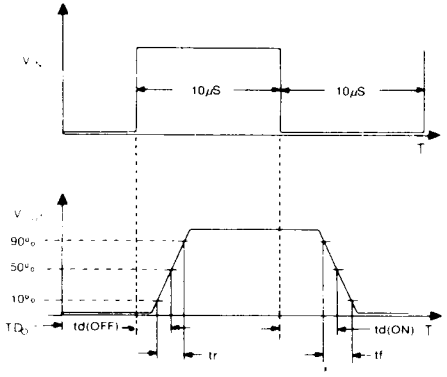
The CS-122 is a dual monolithic integrated circuit level detector with controlled hysteresis and is designed for applications requiring the function of a Schmitt trigger along with superior voltage and temperature stability.

With input sensitivity below 35 nanoamperes and an internal reference of 0.6 of the supply voltage, this IC is 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. Output Pin 3 is zener diode clamped for driving inductive loads and it can sink up to 140 mA of current.

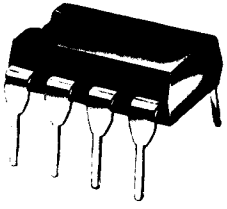
The CS-122 is designed to withstand a reverse battery condition without damage (and is particularly suited for battery powered application and low light indication.) The CS-122 is housed in a standard eight-lead dual-in-line package.



TEST CIRCUIT



SWITCHING WAVEFORMS



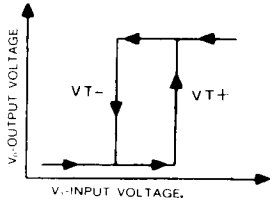
TERMINAL ASSIGNMENT

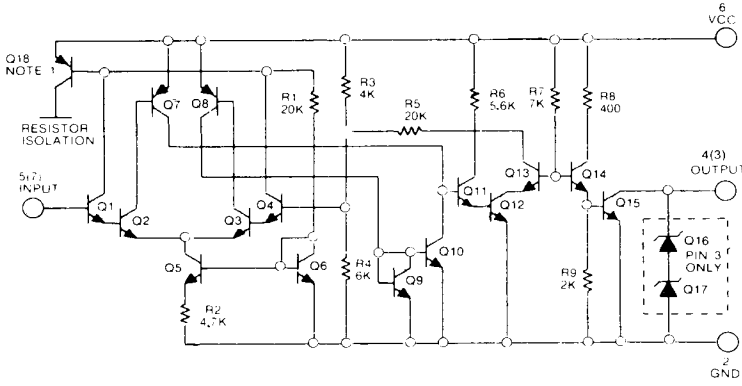
PIN 2 — GROUND
PIN 3 — OUTPUT # 1, ZENER CLAMPED
PIN 4 — OUTPUT #2
PIN 5 — INPUT #2
PIN 6 — VCC
PIN 7 — INPUT #1

ABSOLUTE MAXIMUM RATINGS

Power Supply Voltage	V6-2	9.0V
Output Current	I3	160mA
	I4	120mA
Input Voltage	V7-2, 5-2	V6-2
Output Voltage	V3-2, 4-2	12V
Storage Temperature	TS	-40°C to +150°C
Operating Temperature	TA	-20°C to +70°C

TRANSFER CHARACTERISTICS





SCHEMATIC DIAGRAM (ONE TRIGGER)

ELECTRICAL CHARACTERISTICS V_{CC}=3.5V, T_A=25°C

	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
V_{T+}/V_{CC}	Ratio of Positive-Going Threshold Voltage to Supply Voltage	V_{CC} 2.0 to 6.2V	0.53	0.60	0.66	—
V_{T-}/V_{CC}	Ratio of Negative-Going Threshold Voltage to Supply Voltage	V_{CC} 2.0 to 6.2V	0.48	0.53	0.58	—
I_I	Input Current	$V_I=V_{T+}$		5	35	nA
$V_{O(on)}$	On State Output Voltage Pin (3)	$I_{O(3)}$=140mA, $V_{I(7)}$=0		.45	.85	V
$V_{O(on)}$	On State Output Voltage Pin (4)	$I_{O(4)}$=100mA, $V_{I(5)}$=0		.40	.70	V
$I_{O(off)}$	Off State Output Current (leakage)	$V_I=V_O$=3.5V		0.001	1.0	μA
V_Z	Zener Breakdown Voltage Pin (3)	$I_{O(pin\ 3)}$=12mA	11	15	19	V
$I_{CC(on)}$	Supply Current, Outputs Off	V_I=3.5V, R_L=0, V_{CC}=6.0		5.0		mA
$I_{CC(off)}$	Supply Current, Outputs On	V_I=0, R_L=0, V_{CC}=6.0		20	40	mA
V_T	Threshold Voltage Variation Over Supply and Voltage Range			±2	±5	%
t_r, t_f	Switching Times—Rise and Fall	R_L=33Ω		0.5		μS
$t_{d(ON)}$, $t_{d(OFF)}$	Propagation Delay	R_L=33Ω		2.0		μS
I_{CC-}	Reverse Battery Protection	$V_{CC}\leq$5.0V, $R_{L(3)}\geq$35Ω, $R_{L(4)}\geq$50Ω	No Damage After Indefinite Power Reversal			

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Our Sales Representative in Your Area is