- **Low supply voltages**
- **Low standby current**
- **Watchdog circuitry for microprocessor**
- **Programmable divide by 14/16 counter**
- **Programmable duty cycle**
- **Bridge 50 mA output drivers**
- **V+ glitch detector**
- **CMOS compatible inputs**

The CA2855 is a microcontroller/microprocessor interface circuit that includes microprocessor watchdog circuitry, V+ glitch detector and drive circuitry for LED and BEEPER loads from a single cell battery supply.

The microprocessor watchdog circuit monitors the operation of the micro, and re-initializes the device if it drops out of operation. In addition the CA2855 detects negative-going transients on the V+ line, and resets the microprocessor after a V+ glitch detection.

The LED output is open collector while the dual BEEP drivers provide outputs for a bridge configuration utilizing external PNPs. The BEEP output drive is controlled from programmable divide by 14/16 counter and duty cycle control circuitry. A variety of different beep tone patterns and volumes are therefore available.

Some application areas for the CA2855 include radio pagers, industrial controllers and electronic games.

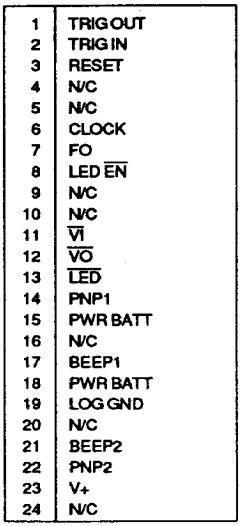

Figure 1 : PIN CONFIGURATION

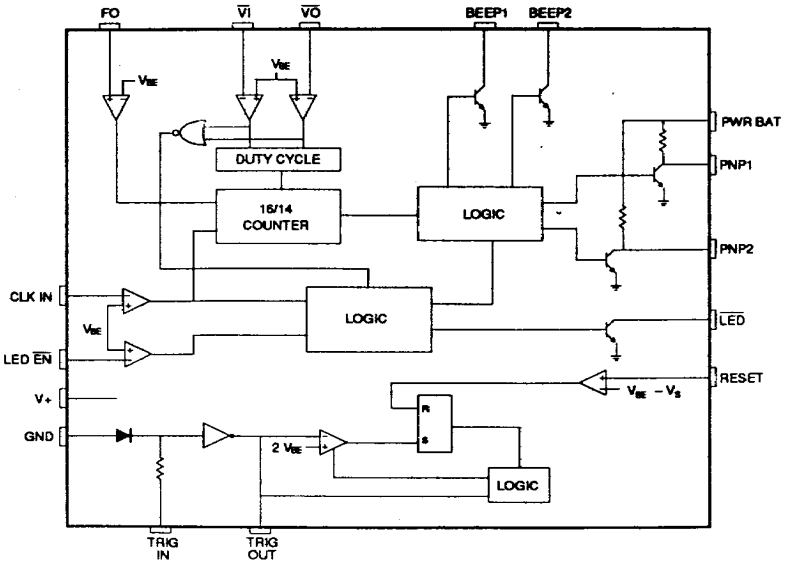

Figure 2 : CA2854 BLOCK DIAGRAM

Table 1 : ELECTRICAL CHARACTERISTICS (T_A = 25°C, V_{CC} = 3V, PWR BATT = 1.1V)

Parameter	Test Conditions	Limits			Units
		Min	Typ	Max	
V+ supply V range		2.0		6.0	V
V+ supply current	LED $\overline{EN}$ = V+ = $\overline{V1}$ = $\overline{V0}$ = 3.5V	20		50	µA
V+ supply current	LED $\overline{EN}$ = $\overline{V1}$ = $\overline{V0}$ = 0V, CLOCK = 40 KHz, V+ = 3.5V	200		900	µA
PWR BATT voltage range		1.0		6.0	V
PWR BATT current	PWR BATT = 1.6V, LED $\overline{EN}$ = 0V			15	mA
PWR BATT I_{OH} leakage current	$\overline{V1}$ = $\overline{V0}$ = V+ = LED $\overline{EN}$ = 3.5V			10	µA
FO input current	FO = 0.6V	–0.5		0.5	µA
$\overline{V1}$, $\overline{V0}$, LED $\overline{EN}$ pull-up resistors		150		350	KΩ
$\overline{V1}$, $\overline{V0}$, LED $\overline{EN}$, FO switchpoint		0.4		0.8	V
CLOCK frequency	30 mV_{PK} square wave			60	KHz
CLOCK input impedance		36	60	84	KΩ
CLOCK offset voltage				10	mV
CLOCK sensitivity	f = 40 KHz			±25	mV
BEEP and LED Driver					
BEEP 1, BEEP 2, LED V_{OL}	I = 50 mA, PWR BATT = 0.9V			0.5	V
BEEP 1, BEEP 2, clamp V	I clamp diode = –20 mA		–0.5		V
BEEP 1, BEEP 2, LED I_{OH} leakage current	BEEP 1, 2, LED = PWR BATT = 3V			10	µA
PNP1, PNP2 bias resistor		6.0	10	14	KΩ
PNP1, PNP2 base drive	Io = 50 mA	2.0			mA
Watchdog					
RESET input switchpoint		0.2		0.5	V
RESET input current	RESET = 0.2V	–0.5		0.5	µA
RESET pulldown current	RESET = 0.6V, TRIG OUT = 1.4V	50			µA
TRIG IN input current	TRIG IN = V+ = 3.5V	40		200	µA
	TRIG IN = –3V	-50		–200	µA
TRIG IN pulldown resistor		150		350	KΩ
V+ glitch detect switchpoint	V RESET – V+	0.2		0.5	V
TRIG OUT pullup I	TRIG OUT = 0.6V, TRIG IN = 0V	0.3		0.8	µA
TRIG OUT pulldown I	TRIG OUT = 0.2V, TRIG IN = 0V RESET = (V+) + 0.5V	50			µA
TRIG OUT switchpoint		0.8		1.4	V

Note: Recommended operating temperature range is: –20° to +70°C

Table 2 : ABSOLUTE MAXIMUM RATINGS

All input voltages, except FO	–0.5V to V+
FO input voltage	–0.5V to (V+) + 0.7V
Storage temperature range	–65° to +150°C

Stresses beyond those listed above may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this specification is not implied. Exposure to maximum rating conditions for extended periods may affect device reliability.

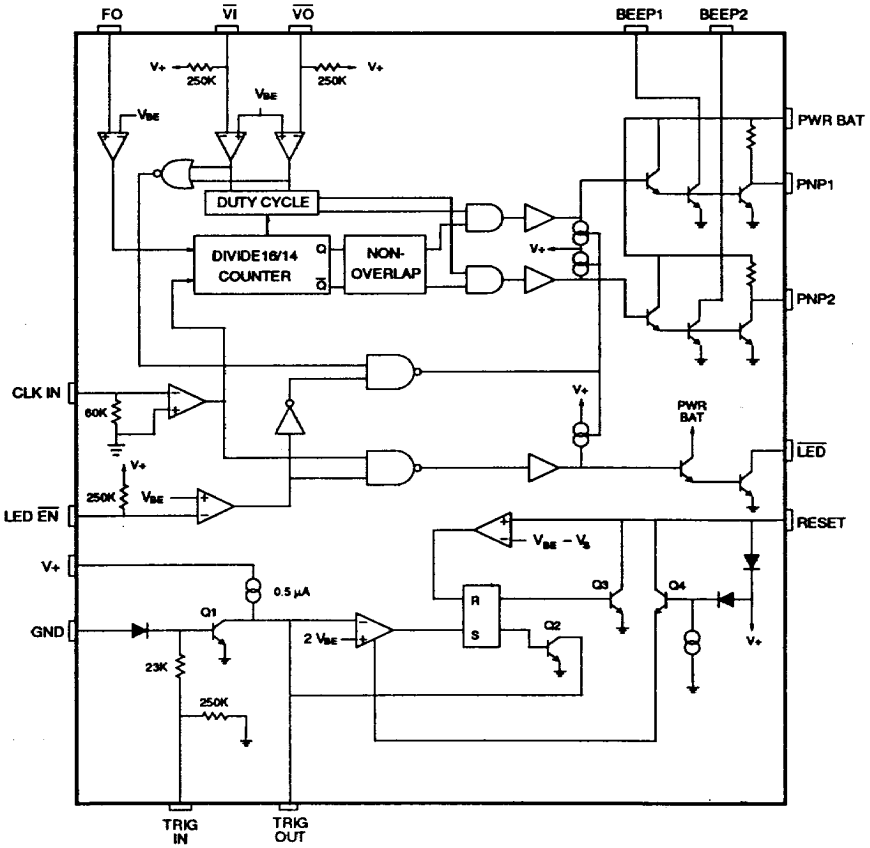

Figure 3 : CA2855 SCHEMATIC DIAGRAM

Table 3 : BEEP DUTY CYCLE

$\overline{V1}$	$\overline{V0}$	BEEP DUTY CYCLE
0	0	50%
0	1	25%
1	0	12.5%
1	1	DISABLED

Table 4 : BEEP OUTPUT

FO	BEEP
0	50%
1	25%

Table 5 : LED ENABLE

LED EN	LED
0	ON
1	DISABLED

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