



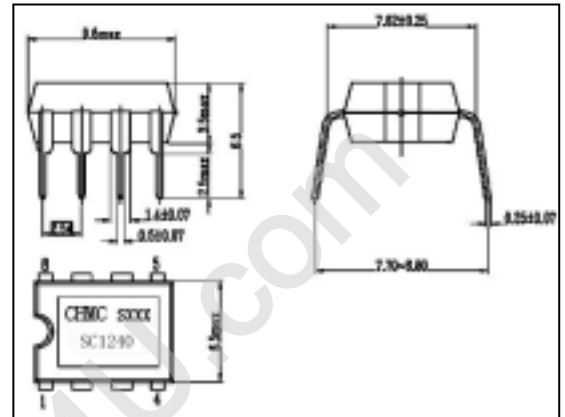
# ELECTRONIC TWO-TONE RINGER SC1240

## DESCRIPTION

The SC1240 are monolithic integrated circuits designed to replace the mechanical bell in telephone sets in connection with an electro-acoustical converter. The devices can drive directly a piezoceramic converter (buzzer).

The two tone frequencies generated are switched by an internal oscillator in a fast sequence and made audible across an output amplifier in the loudspeaker, both tone frequencies and the switching frequency can be externally adjusted. The signal and the circuit is designed so that noise on the line or variations of the ringing signal cannot affect correct operation of the device.

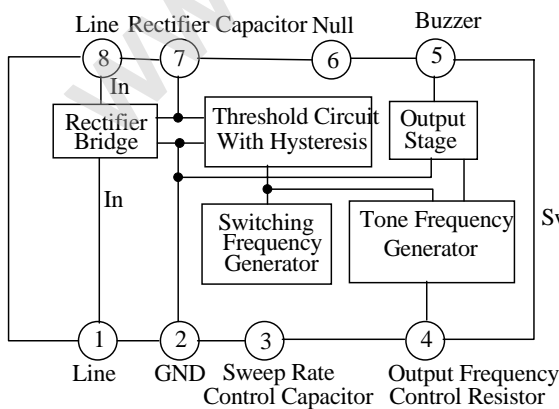
Outline Drawing



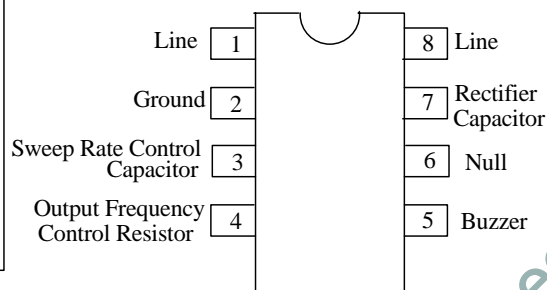
## FEATURE

- Low current consumption, in order to allow the parallel operation of 4 devices.
- Integrated rectifier bridge with zener diodes to protect against over voltage.
- Integrated voltage and current hysteresis
- Little external circuitry.
- Tone and switching frequencies adjustable by external components.

## BLOCK DIAGRAM



## PIN CONNECTION



## ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

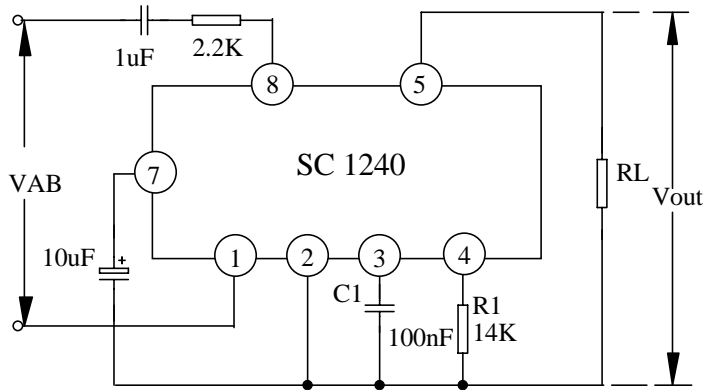
Characteristic	Symbol	Value	Unit
Calling Voltage (f=50Hz) continuous	VAB	120	Vrms
Calling Voltage (f=50Hz) 5s ON/10s OFF	VAB	200	Vrms
Supply Current	IDC	30	mA
Operating Temperature	Topr	-20~+70	
Storage Temperature	Tstg	-65~+150	
Thermal Resistance Junction-Ambient	Rth-amb	200	/W

## ELECTRICAL CHARACTERISTICS

(unless otherwise specified: Ta=25°C, Vs=applied between pins 7-2)

Characteristics	Test conditions	Symbol	Min.	Typ.	Max.	Unit	
Supply Voltage	-	Vs	-	-	26	V	
Current Consumption without load	Vs=9.0~25.0V	IB	-	1.5	1.8	mA	
Actination Voltage	-	VON	12.2	-	13.2	V	
Sustaining Voltage	-	VOFF	8	-	9.3	V	
Differential Resistance in OFF condition	-	RD	6.4	-	-	k	
Output Voltage swing	-	VOUT	-	Vs-5	-	V	
Short Circuit Current	Vs=20V , RL=250	IOUT	-	70	-	mA	
AC Operation							
Output Frequency	Vs=26V , Ri=14k	Vs=0V	fout1	1.74	1.95	2.14	kHz
		Vs=3V	fout2	1.22	1.40	1.6	
fout1/fout2			1.33		1.43		
Programming Resistor Range			8		5.6	k	
Sweep Frequency	Ri=14k C1=100nF	fsweep	5.25	7.5	9.75	Hz	

## TEST CIRCUIT



$$f1 = 27200/R1(k) \quad f2 = 0.72511f1 \quad f(\text{Sweep}) = 750/C1(nF)$$

## APPLICATION CIRCUIT

