

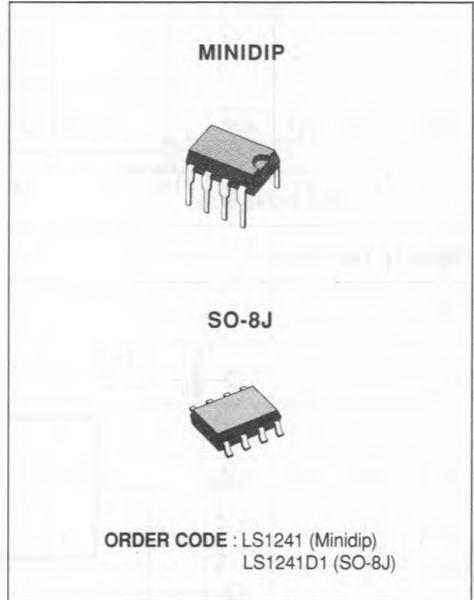
ELECTRONIC TWO - TONE RINGER

- LOW CURRENT CONSUMPTION, IN ORDER TO ALLOW THE PARALLEL OPERATION OF A DEVICE
- INTEGRATED RECTIFIER BRIDGE WITH ZENER DIODES TO PROTECT AGAINST OVER VOLTAGES
- LITTLE EXTERNAL CIRCUITRY
- TONE AND SWITCHING FREQUENCIES ADJUSTABLE BY EXTERNAL COMPONENTS
- INTEGRATED VOLTAGE AND CURRENT HYSTERESIS

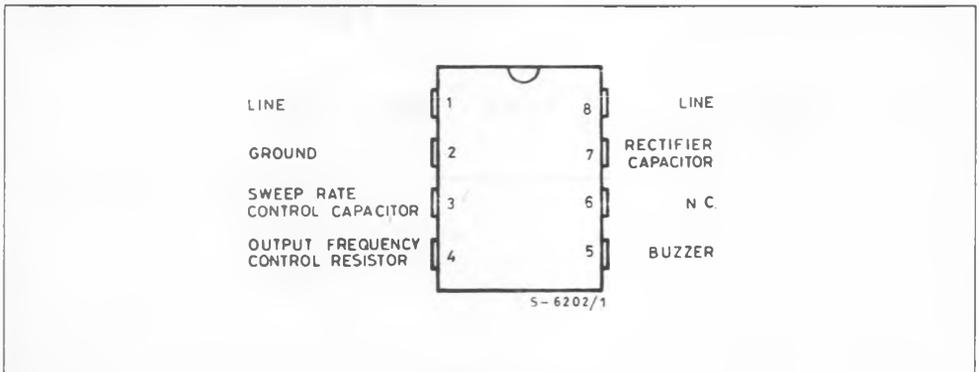
The supply voltage is obtained from the AC ring signal and the circuit is designed so that noise on the line or variations of the ringing signal cannot affect correct operation of the device.

DESCRIPTION

LS1241 is a monolithic integrated circuit designed to replace the mechanical bell in telephone sets, in connection with an electro acoustical converter. The device can drive either directly a piezo ceramic converter (buzzer) or a small loudspeaker. In this case a transformer is needed. The two tone frequencies generated are switched by an output amplifier in the loudspeaker ; both tone frequencies and the switching frequency can be externally adjusted.



PIN CONNECTION (top view)



BLOCK DIAGRAM

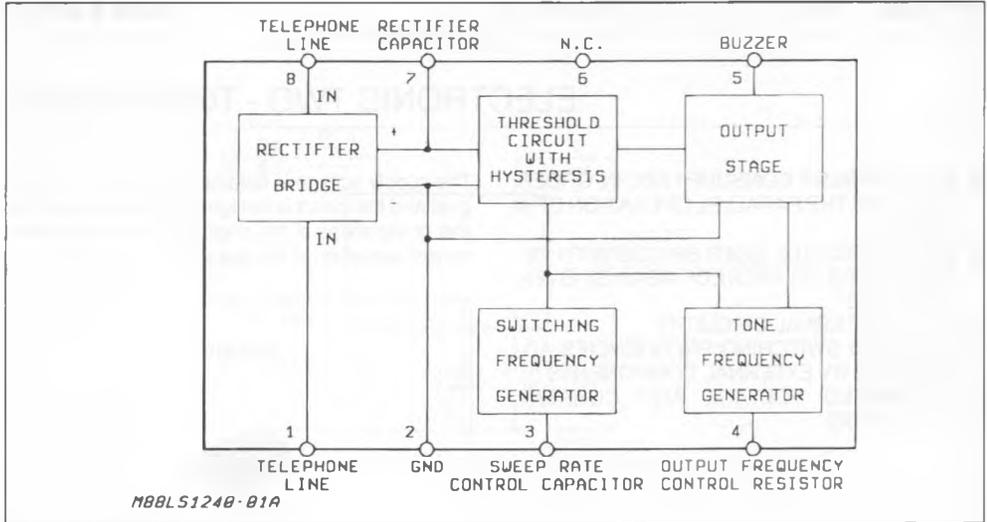
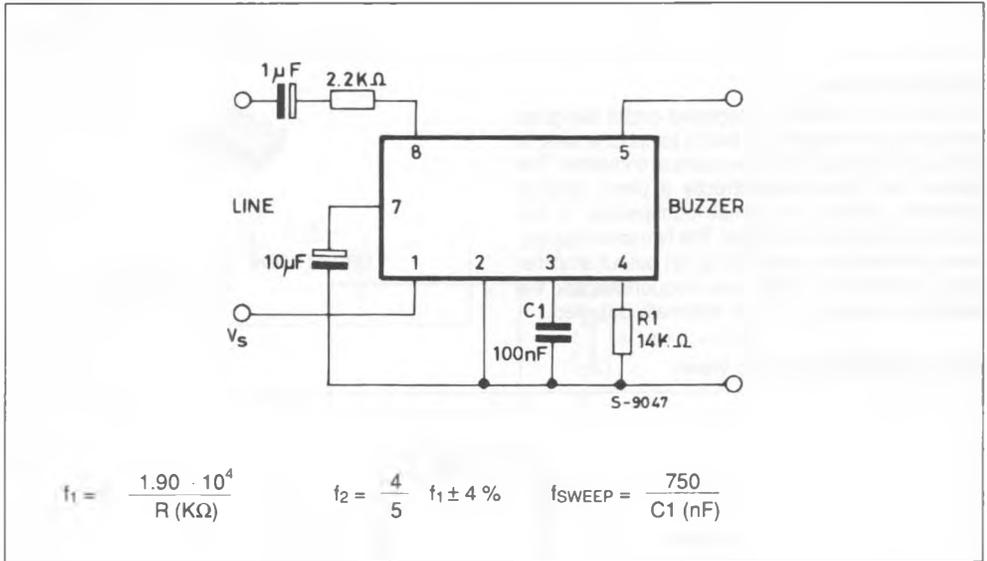


Figure 1 : Test Circuit.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{AB}^*	Calling Voltage (f = 50 Hz) Continuous	120	V_{rms}
V_{AB}^*	Calling Voltage (f = 50 Hz) 1.8s ON/3.6s OFF	200	V_{rms}
DC	Supply Current	30	mA
T_{op}	Operating Temperature	- 20 to + 70	°C
T_{stg}	Storage and Junction Temperature	- 65 to + 150	°C

* See test circuit of figure 1.

THERMAL DATA

$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	100	°C/W
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ELECTRICAL CHARACTERISTICS

(T_{amb} = 25 °C; V_s = applied between pins 7-2 unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V _s	Supply Voltage				26	V
I _B	Current Consumption without Load (pins 8-1)	V _s = 9 to 25 V		1.5	1.8	mA
V _{ON}	Activation Voltage		12.2		13.2	V
V _{OFF}	Sustaining Voltage		8		9	V
R _D	Differential Resistance in OFF Condition (pins 8-1)		6.4			KΩ
V _{OUT}	Output Voltage Swing			V _s - 5		V
I _{OUT}	Short Circuit Current (pins 5-2)	V _s = 20 V		35		mA

AC OPERATION

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
f ₁	Output Frequencies	V _s = 26 V R ₁ = 14 KΩ				
f ₂	f _{out1} f _{out2}	V ₃ = 0 V V ₃ = 6 V	1.21 0.93		1.5 1.25	KHz
	f _{out1} f _{out2}		1.2		1.3	
	Programming Resistor Range		5		50	KΩ
F _{SWEEP}	Sweep Frequency	R ₁ = 14 KΩ C ₁ = 100 nF	5.25	7.5	9.75	Hz