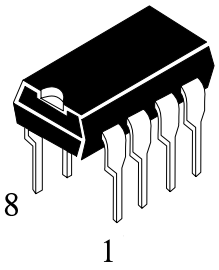
TELEPHONE TONE RINGER WITH BRIDGE DIODE.

The IL2418N is a monolithic integrated circuit telephone tone ringer diode , when coupled with an appropriate transducer, it replaces the electromechanical bell. This device is designed for use with either a piezo transducer or an inexpensive transformer coupled speaker to produce a pleasing tone composed of a high freguency ($f_{\backslash H}$) alternating with a low freguency (f_L) resulting in a warble freguency. The supply voltage is obtained from the AC ring signal and the circuit is designed so that noise on the line or variation of the ringing signal can not affect correct operation of the device..



PACKAGE

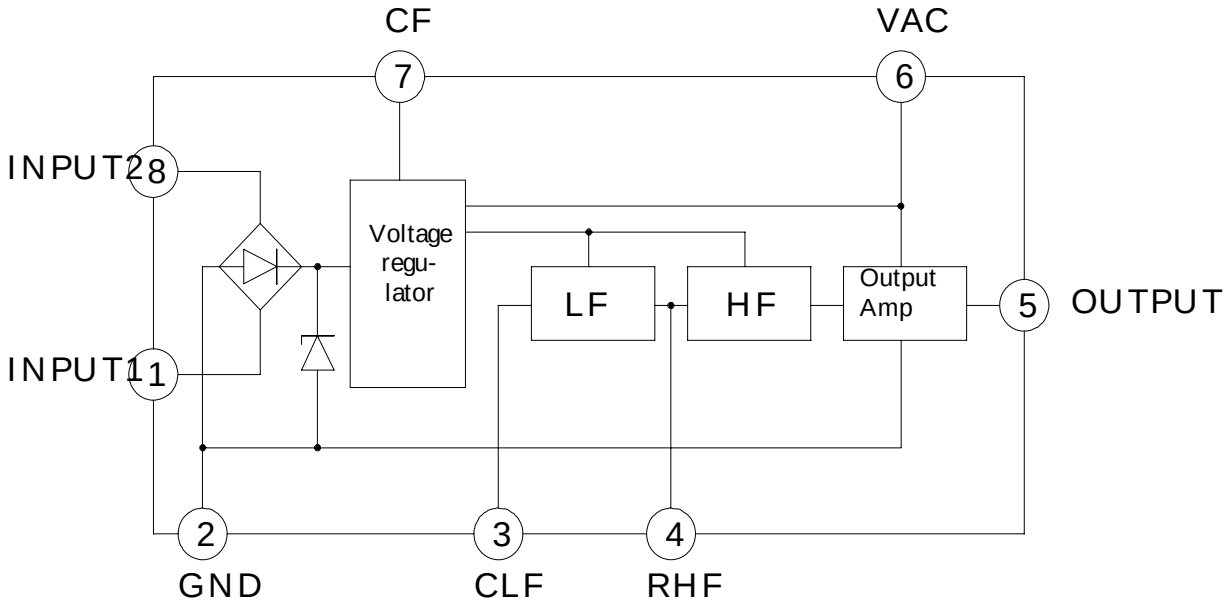
8 - DIP

T_A = -40 ... +70 ◦C

Features

- On chip high voltage full wave diode bridge rectifier
- Low current consumption, in order to allow the parallel operation of the 4 devices
- Low external component count
- Tone and switching freguencies adjustable by external components
- High noise immunity due to built-in voltage current hysteresis
- Activation voltage adjustable
- Internal zener diodes to protect against over voltages
- Ringer impedance adjustable with external components.

Block diagram



ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

Symbol	Characteristic	Value	Unit
V_{TP}	Calling Voltage (f=50Hz) Continuous	120	Vrms
V_{TP}	Calling Voltage (f=50Hz) 5 Sec ON/10 Sec OFF.	200	Vrms
I_{CC}	Supply Current.	22	mA
T_{OP}	Operating Temperature.	-40 ... +70	°C
T_{stg}	Storage and Junction Temperature.	-65 ... +150	°C

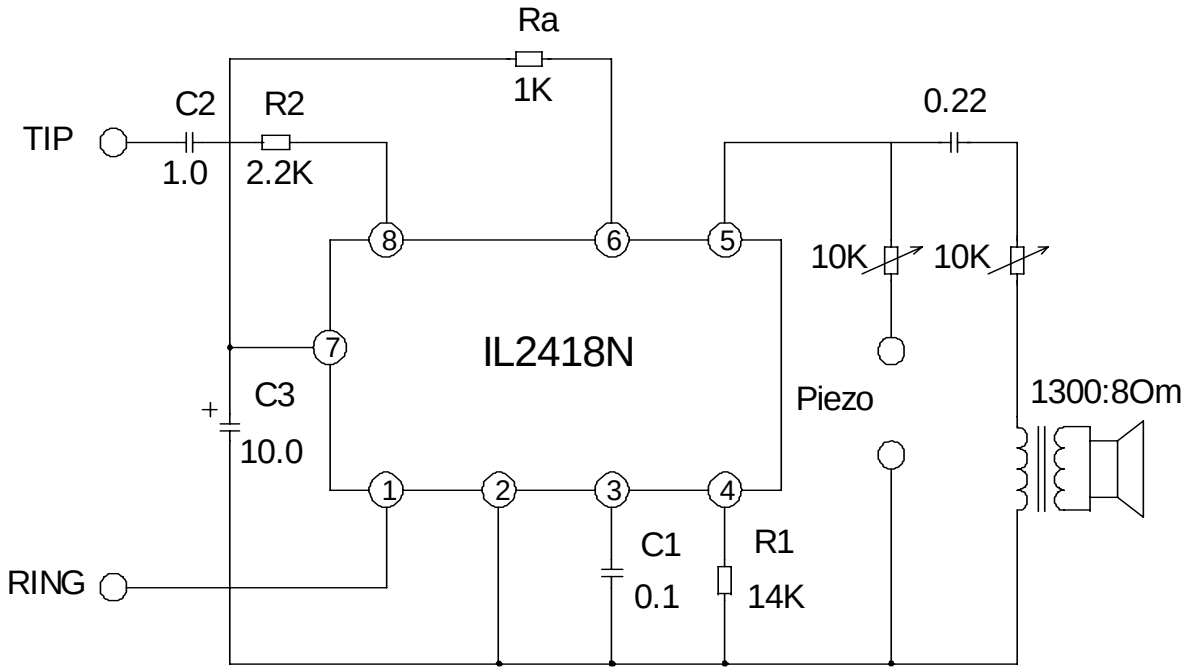
ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
V_{CC}	Supply Voltage	Pin 7 V_{CC} Pin 2 V=0V	-	-	26	V
I_{CC}	Current Consumption without Load	V_S=8.8 to 26V Pin 7 V_{CC} Pin 0 V=0V	-	1.5	1.8	mA
V_{ON}	Activation Voltage	Pin 7 V_{ON} Pin 2 V=0V	12.2		13	V
V_{ONR}	Activation Voltage Range	R_A = 1 êΩ (Pin 7 V_{ONR} Pin 2 V=0V)	8		10	V
V_{SUS}	Sustaining Voltage	Pin 7 V_{SUS} Pin 2 V=0V	8		8.8	V
R_D	Differential Resistance in Off Condition	(Pin 1 , 8)	6.4			kΩ
V_{OUT}	Output Voltage Swing	(Pin 5) Pin 7 V_{CC}=26V Pin 2 V=0V		Vcc-3		V
I_{OUT}	Short Circuit Current	(Pin 5) Pin 7 V_{CC}= 26V Pin 2 V=0V		35		mA

AC OPERATION

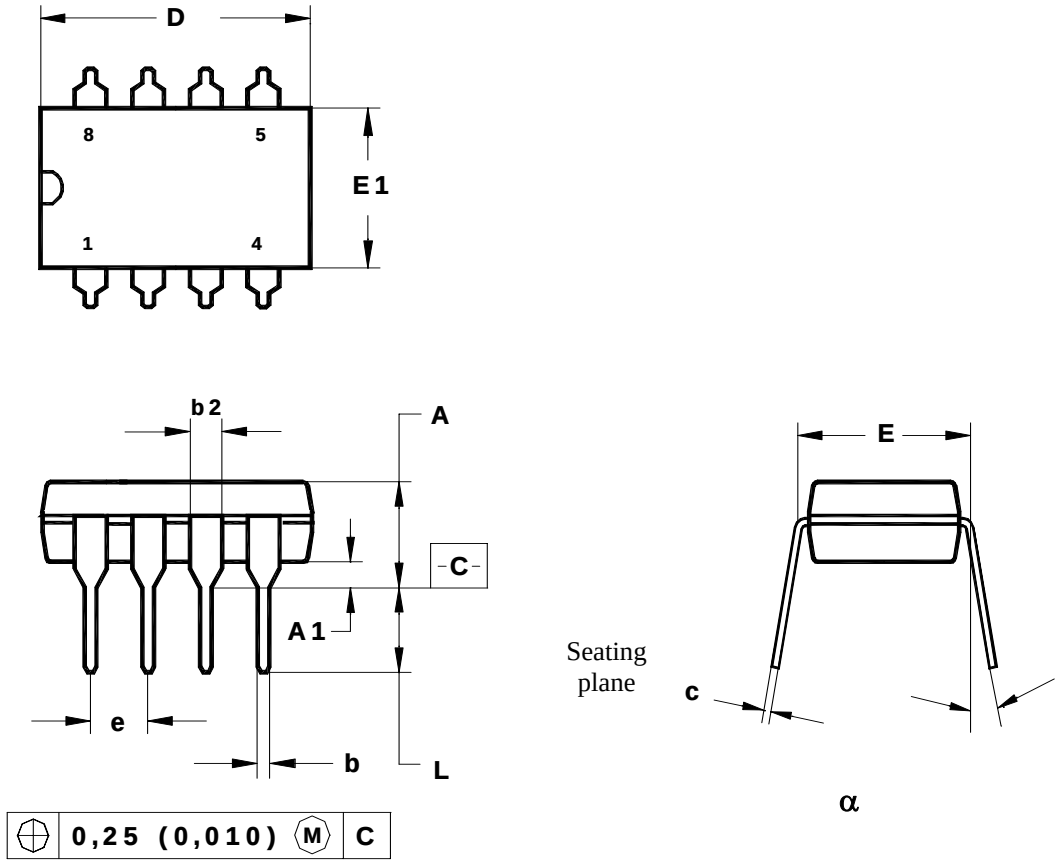
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Output Frequencies		Pin 7 V_{CC} =26V Pin 2 V=0V, R1=14êΩ,				
f_{H1}	f_{H1}	V_{CC}=0V,		2300		Hz
f_{H2}	f_{H2}	V_{CC}=6V		1700		Hz
f_{H1} Range		R1=27KΩ to 1.7 KΩ	0.1		15	KHz
Sweep Frequency	f_L	Pin 7 V_{CC} =26V Pin 2 V=0V, R_1=14êΩ C_1=100nF		10		Hz

TEST AND APPLICATION CIRCUT



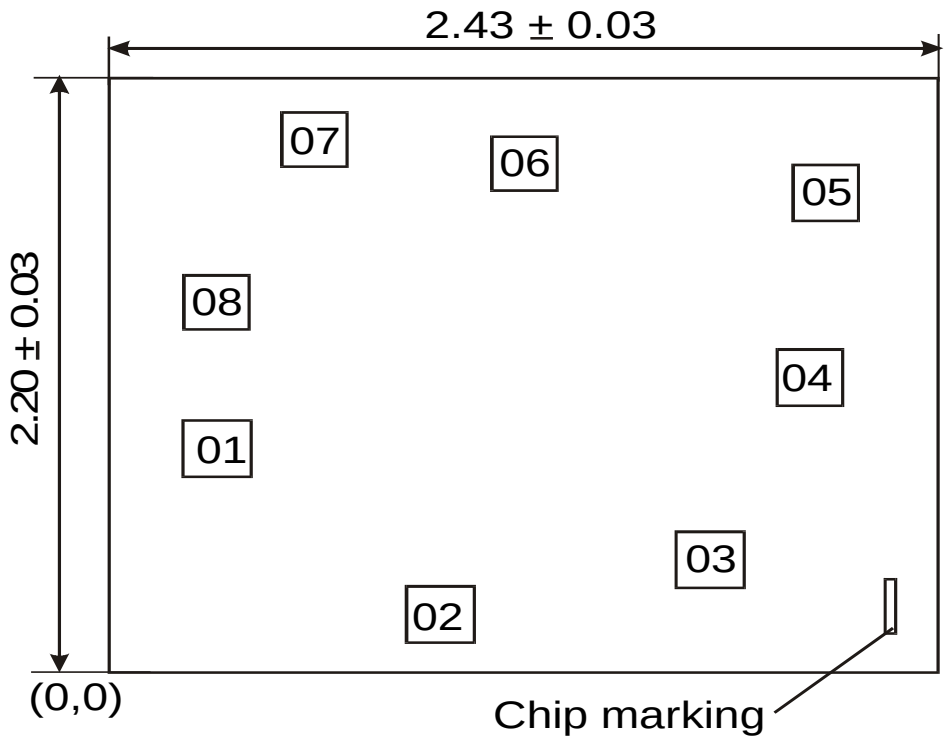
f_{H1}=3.22x10^4/R1(kΩ)
f_{H2}=(5/7)xf_{H1}
f_L=1000/C1(nF)

Plastic DIP-8 outlines (MS-001BA)



	D	E1	A	b	b2	e	α	L	E	c	A1
mm											
min	9.02	6.07	—	0.36	1.14		0°	2.93	7.62	0.20	0.38
max	10.16	7.11	5.33	0.56	1.78	2.54	15°	3.81	8.26	0.36	—
inches											
min	0.355	0.240	—	0.014	0.045		0°	0.115	0.300	0.008	0.015
max	0.400	0.280	0.210	0.022	0.070	0.1	15°	0.150	0.325	0.014	—

Chip layout diagram



Chip making (X=2,283, Y=0,165) **20**

Contact pad size: 0.12 x 0.12 mm

Contact pad location

Pad No	Symbol	X	Y
01	RING	0.220	0.590
02	GND	0.920	0.100
03	SPC	1.630	0.230
04	OFR	2.075	0.810
05	OUT	2.090	1.620
06	AVA	1.150	1.820
07	RC	0.519	1.890
08	TIP	0.220	1.310