

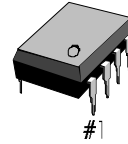
## INTRODUCTION

The S1T2418G01/D02 is a monolithic integrated circuit telephone tone ringer with bridge diode. When coupled with an appropriate transducer, it replaces the electro-mechanical 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 high frequencies ( $f_{H1}$ ,  $f_{H2}$ ) alternating with a low frequency ( $f_S$ ) resulting in a warble frequency.

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 cannot affect correct operation of the device.

8-DIP-300



## FEATURES

- Built-in full wave bridge diode rectifier
- Low current consumption, in order to allow the parallel operation of 4 devices
- Few external components
- Tone and adjustable switching frequencies by external components
- High noise immunity to current hysteresis due to built-in voltage
- Adjustable activation voltage
- Internal zener diodes to protect against over-voltages
- Adjustable ringer impedance with external components

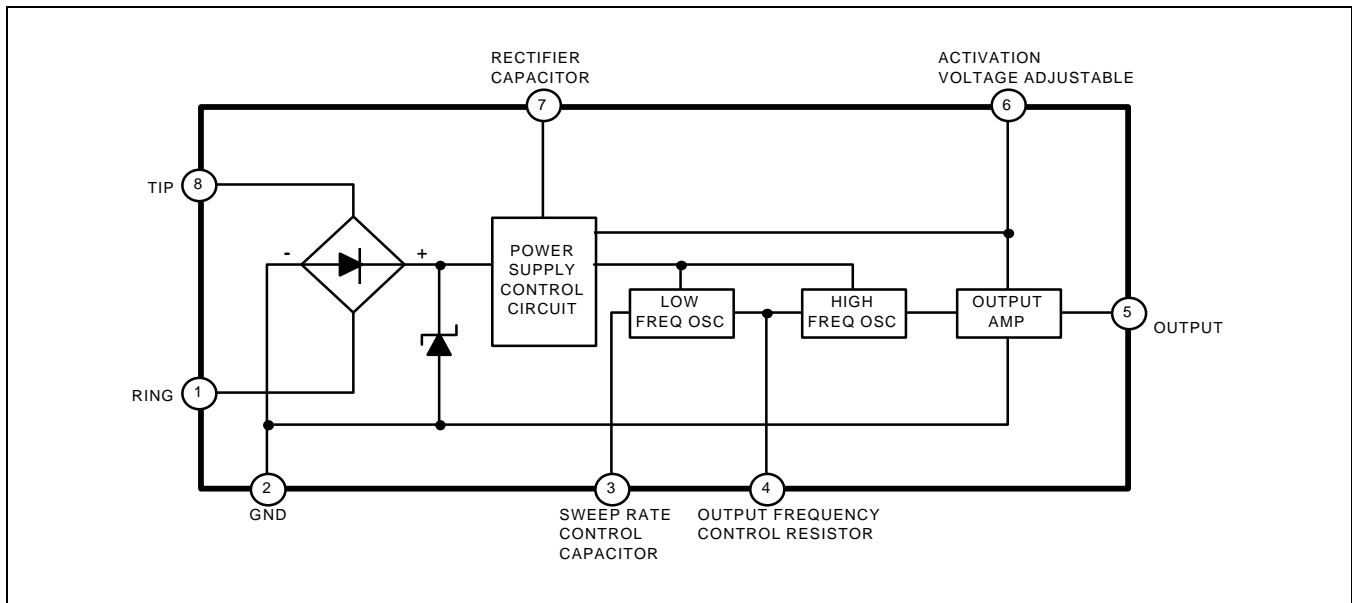
## APPLICATIONS

- Electronic telephone ringers
- Extension ringers

## ORDERING INFORMATION

Device	Package	Operating Temperature
S1T2418G01-D0B0	8-DIP-300	-20°C to +70°C
S1T2418D02-D0B0		

## BLOCK DIAGRAM



## ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Calling Voltage (f = 50Hz) Continuous Calling Voltage (f = 50Hz)	$V_C$	120	Vrms
5 sec ON / 10 sec OFF	$V_{C(ON-OFF)}$	200	Vrms
Supply Current	$I_{CC}$	22	mA
Operating Temperature	$T_{ORR}$	-20 — + 70	°C
Storage and Junction Temperature	$T_{STG}$	-65 — + 150	°C

**NOTE:** Absolute maximum ratings are those values beyond which permanent damage to the device may occur. These are stress ratings only and functional operation of the device at or beyond them is not implied. Long exposure to these conditions may affect device reliability.

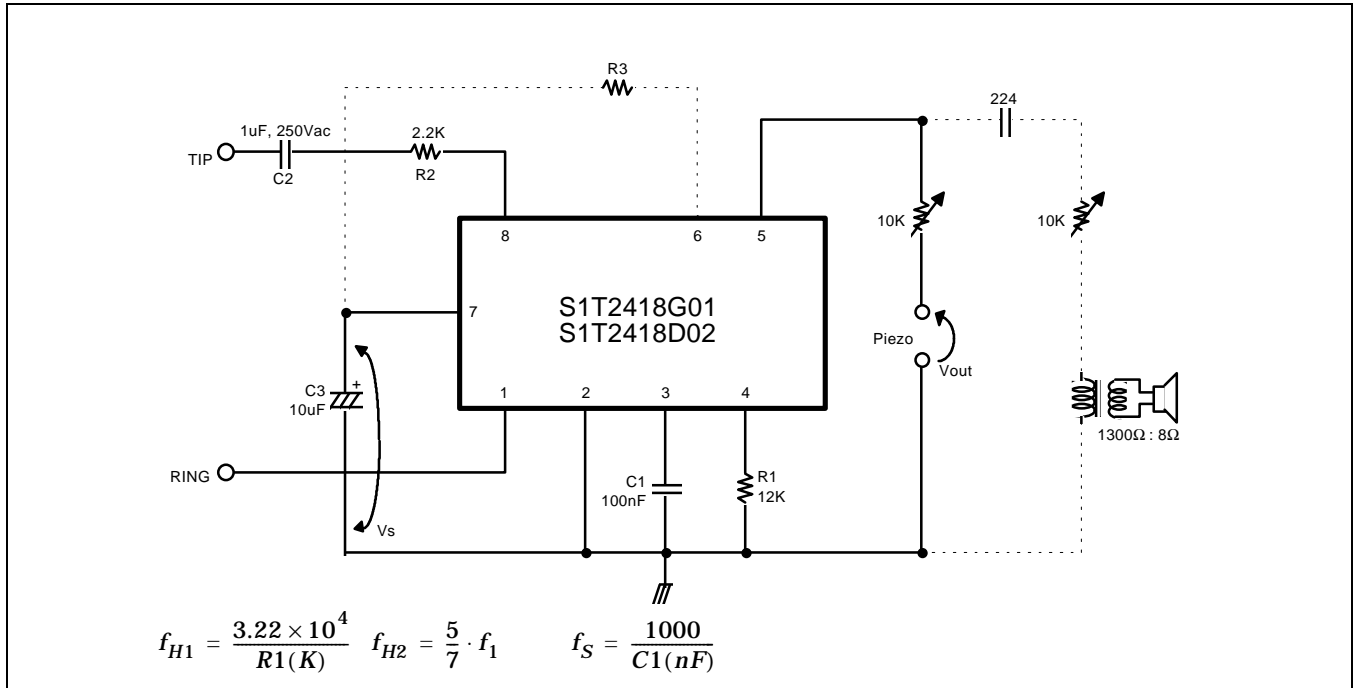
## DC ELECTRICAL CHARACTERISTICS (Ta = 25°C)

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Operating Voltage	V <sub>CC</sub>	–	–	–	26	V
Current Consumption without Load	I <sub>CC</sub>	V <sub>S</sub> = 8.8 to 26V	–	1.5	1.8	mA
Activation Voltage	V <sub>ON</sub>	–	12.2	–	13	V
Activation Voltage Range	V <sub>ONR</sub>	R <sub>A</sub> = 1KΩ	8	–	10	V
Sustaining Voltage	V <sub>SUS</sub>	–	8	–	8.8	V
Differential Resistance in Off Condition	R <sub>D(OFF)</sub>	–	6.4	–	–	KW
Output Voltage Swing	V <sub>O(P-P)</sub>	–	–	V <sub>CC</sub> -3	–	V
Short Circuit Current	I <sub>SC</sub>	V <sub>S</sub> = 26V	–	35	–	mA

## AC ELECTRICAL CHARACTERISTICS (Ta = 25°C)

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Output Frequencies (S1T2418G01)	f <sub>H1</sub>	V <sub>CC</sub> = 26V, R1 = 14KΩ V <sub>3</sub> = 0V V <sub>3</sub> = 6	–	2300	–	Hz
	f <sub>H2</sub>		–	1700	–	Hz
Output Frequencies (S1T2418D02)	f <sub>H1</sub>	V <sub>CC</sub> = 26V, R1 = 14KΩ V <sub>3</sub> = 0V V <sub>3</sub> = 6V	–	1900	–	Hz
	f <sub>H2</sub>		–	1300	–	Hz
f <sub>H1</sub> Range	f <sub>H1R</sub>	R1 = 27kΩ to 1.7kΩ	0.1	–	15	kHz
Sweep Frequency	f <sub>S</sub>	R1 = 14kΩ, C1 = 100nF	–	10	–	kHz

APPLICATION CIRCUIT



Device	S1T2418G01	S1T2418D02
Function		
$f_{H1}$	$\frac{3.22 \times 10^4}{R1(K)}$	$\frac{2.66 \times 10^4}{R1(K)}$
$f_{H1}$ (R1 = 14kΩ)	2300 + 300 (Hz)	1900 + 100 (Hz)
$f_{H2}$ (R1 = 14kΩ)	1700 + 300 (Hz)	1300 + 100 (Hz)