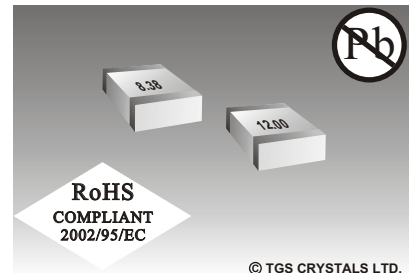


FEATURES

- Low Cost
- MHz Ceramic Resonators in SMD Type 4.7X4.1X1.6mm

APPLICATIONS

- Consumer Electronics
- Communications



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SPECIFICATION \*

Parameters	Product	Option Code
	ZTA	CRA
Dimensions:	4.7X4.1X1.6mm	△ S
Frequency Range:	8.00~50.00MHz	△ Specify
Frequency Accuracy :	±0.5%	▲
Temp. Stability At -20°C~80°C:	±0.3%	▲
Load Capacitance C1,C2:	MT: 30pF MX: 30pF (13.01~19.99MHz) 15pF (20.00~25.99MHz) 5pF (26.00~50.00MHz)	▲ ▲ ▲ ▲
Operating Temp. Range:	-20°C~+80°C	▲
Storage Temp. Range:	-40°C~+85°C	▲
Equivalent Series Resistance (ESR):	25 ohm Max. 8.00 ~ 13.00MHz 40 ohm Max. 13.01 ~ 50.00MHz	▲ ▲
Withstanding Voltage:	50V DC 1minute	▲
Rating Voltage:	D. C. Voltage: 6V. D. C. A. C. Voltage: 15Vpp	▲ ▲
Insulation Resistance:	100M ohm Min.(at 10V DC)	▲
Aging (Over 10 years):	±0.5%ppm	▲
Supply Voltage V <sub>DD</sub> :	+5.0V	▲
Applicable IC:	1/6TC4069UBP	△
Design Mode:	See Table 1	△ Specify
Package:	Tape/Reel	△ T

▲ Standard \* Specifications Subject to Change Without Notice  
△ Optional: please specify required code when inquiring or ordering

PACKAGE

- Standard package in T/R: 4000pcs/Reel, 2 Reel/inner box, 5 box/carton  
See page 123 for detail dimensions

STANDARD FREQUENCIES

Frequency in MHz			
8.000000	10.00000	16.93000	24.00000
8.180000	12.00000	18.00000	27.00000
8.380000	14.74000	18.43000	33.86000
9.000000	14.76000	20.00000	
9.600000	16.00000		

Table 1

Design Mode	Freq. Range	Option Code
Thickness Expander Mode	8.000 ~ 13.0MHz	T
Thickness Expander Mode (3rd Overtone)	13.01 ~ 50.0MHz	X

PART NUMBER GUIDE

TGS	CR	A	S	12.0M	T	T
Mark	Ceramic Resonator	Without built-in capacitance	Dimensions	Freq. Range	Design Mode	Package

e.g. Full P/N.: TGS CRAS 12.0M T T

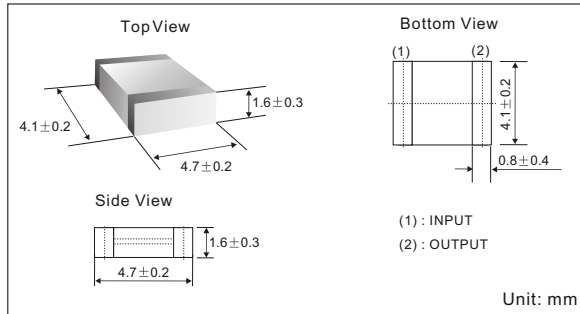
Updated on Oct.2009

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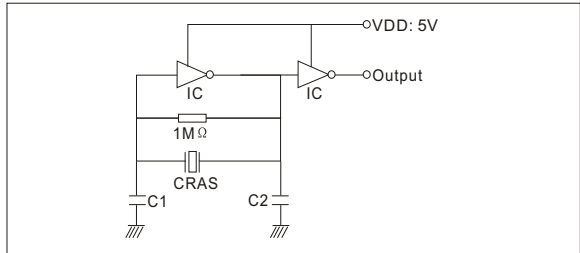
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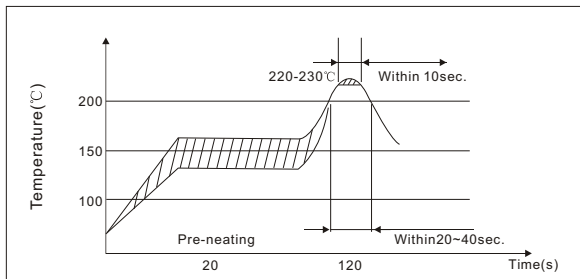
DIMENSIONS



TEST CIRCUIT



RECOMMENDED REFLOW SOLDERING STANDARD CONDITIONS



RECOMMENDED LAND PATTERN

