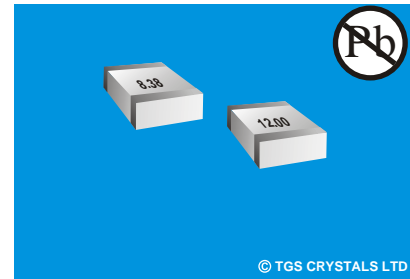


FEATURES

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

APPLICATIONS

- Consumer Electronics
- Communications



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 _{DD} :	+5.0V	▲
Applicable IC:	1/6TC4069UBP	△
Design Mode:	See Table 1	△ Specify
Package:	Tape/Reel	△ T
Other Values:	Lead Free	△ LF

▲ 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 91 for detail dimensions

STANDARD FREQUENCIES

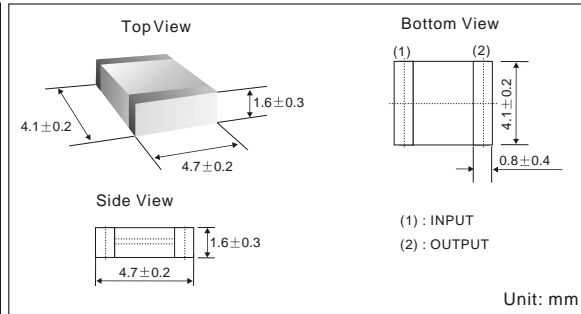
Frequency in MHz			
8.000000	10.00000	16.93000	24.00000
8.180000	12.00000	18.00000	27.00000
8.380000	14.74000	18.43000	33.86000
9.000000	14.76000	20.00000	
9.600000	16.00000		

PART NUMBER GUIDE

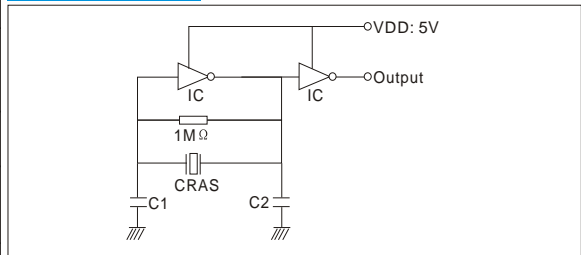
TGS	CR	A	S	12.0M	T	T
Mark	Ceramic Resonator	Without built-in capacitance	Dimensions	Freq. Range	Design Mode	Package

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

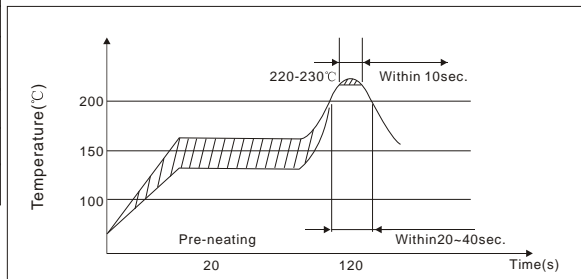
DIMENSIONS



TEST CIRCUIT



RECOMMENDED REFLOW SOLDERING STANDARD CONDITIONS



RECOMMENDED LAND PATTERN

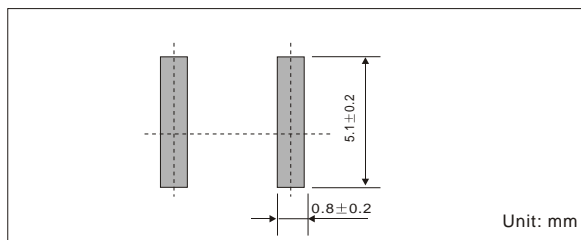


Table 1

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