

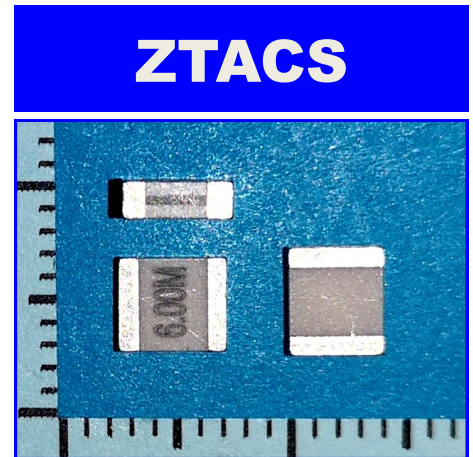
### CERAMIC RESONATOR UNIT IN CERAMIC SMD PACKAGE, SIZE 4.7 X 4.1MM.

#### PRODUCT FEATURES

- CERAMIC SMD CASE IN SIZE 4.7 X 4.1 X 1.8MM WITH 2 SOLDER PADS.
- INDUSTRIAL OPERATING TEMPERATURE RANGE -40 TO +85°C AVAILABLE.

#### APPLICATIONS

- MICROPROCESSOR
- REMOTE CONTROL DEVICES
- PORTABLE DEVICES



#### PRODUCT SPECIFICATIONS

PARAMETER	SYMBOL	SPECIFICATIONS	REMARKS
FREQUENCY RANGE	$F_N$	6.0 ~ 60.0MHz	NOTE 1
OSCILLATION MODE	—	EXTENSIONAL FUNDAMENTAL EXTENSIONAL OVERTONE	ZTTCS_._MT — 6.00 ~ 13.00MHz ZTTCS_._MX — 13.01 ~ 60.00MHz
FREQUENCY TOLERANCE	$\Delta f/F_N$	±0.5% OR ±0.3%	STANDARD / OPTION
STABILITY OVER OPERATING TEMP.	$T_C$	±0.3% OR ±0.4%	DEPENDENT ON OPERATING TEMP. RANGE
OPERATING TEMPERATURE RANGE	$T_{OP}$	-25°C ~ +85°C OR -40°C ~ +85°C	—
AGING RATE OVER 10 YEARS	$\Delta f/y_{10}$	±0.3%	@+25°C
RESONANCE RESISTANCE	$R_O$	30Ω MAX 40Ω MAX	ZTTCS_._MT — 6.00 ~ 13.00MHz ZTTCS_._MX — 13.01 ~ 60.00MHz
LOAD CAPACITORS (EXTERNAL)	C1 & C2	30pF (10; 15; 22; 33; 35; 39pF) 30pF (5; 10; 15; 22pF) 15pF (5; 10pF) 5pF (10; 15pF)	ZTTCS_._MT — 6.0 ~ 13MHz, NOTE 2 ZTTCS_._MX — 13.01 ~ 20.00MHz ZTTCS_._MX — 20.01 ~ 25.99MHz ZTTCS_._MX — 26.00 ~ 60.00MHz
RATED VOLTAGE	$U_R$	6.0V <sub>DC</sub> OR 15.0V <sub>PP</sub>	MAXIMUM DC OR AC OPERATING VOLTAGE
WITHSTANDING VOLTAGE	$U_W$	50.0V <sub>DC</sub>	FOR 1 MINUTE MAXIMAL

NOTE 1: TYPICAL FREQUENCIES: 8.0, 10.0, 11.059, 12.0, 14.32, 14.74, 16.0, 18.43, 20.0, 24.0, 25.0, 33.86, 40.0, 48.0, 50.0MHz.

NOTE 2: THE LOAD CAPACITORS C1 AND C2 ARE TO BE ADDED ONTO PCB, SHOWN IS THE RECOMMENDED CAPACITOR VALUE, THE VALUES IN BRACKETS SHOW AVAILABLE OPTIONS FOR WHICH THE RESONATOR CAN BE TUNED FOR (SETUP IN MANUFACTURING READY). OTHER VALUES PLEASE REQUEST.

#### MECHANICAL DIMENSIONS

Height is depending on frequency:  
 $H = 1.2 \sim 1.8\text{mm} + \text{Tolerance } (\pm 0.2)$

PAD	FUNCTION
1	INPUT / OUTPUT [IN / OUT]
2	OUTPUT / INPUT [OUT / IN]

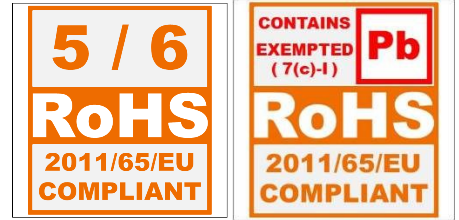
Ceramic resonator package  
 4.7x4.1mm with 2 pads  
**CCR44-P2**      B 2019-06  
 No scale    Unit: mm

### CERAMIC RESONATOR UNIT IN CERAMIC SMD PACKAGE, SIZE 4.7 X 4.1MM.

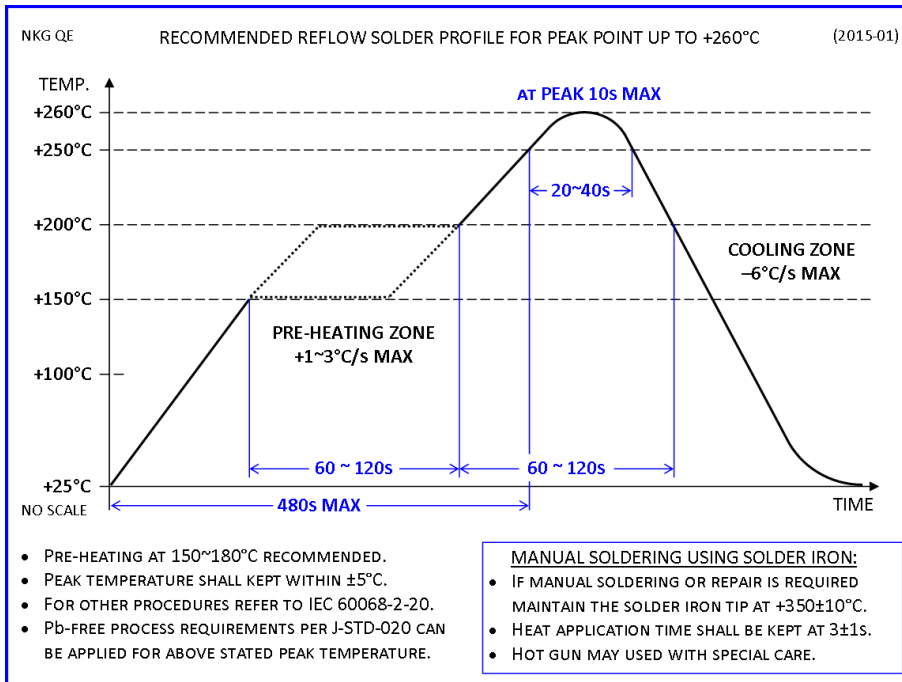
# ZTACS

#### ENVIRONMENTAL COMPLIANCE INFORMATION

- ROHS 5/6 COMPLIANT (DIRECTIVE 2011/65/EC) BY FALLING UNDER EXEMPTION 7(c)-I FOR CONTAINING LEAD (Pb) IN PIEZOELECTRIC CERAMIC (PZT) .
- COMPLIANT TO ROHS 2/3 (DIRECTIVE 2015/863) (ALSO CALLED ROHS 10).
- HALOGEN-FREE PER DEFINITION OF IEC 61249-2-21 2033.
- THE PRODUCT CONTAINS A SVHC PER REACH DUE TO THE INTENTIONAL USE OF PZT (CAS 12626-81-2), INFORMATION FOR IMPORTERS INTO THE EU CAN BE PROVIDED IN ORDER TO OBTAIN A SCIP ID AT THE ECHA PORTAL.
- PRODUCT DOES NOT CONTAIN ANY PHTHALATES (PHS).
- PRODUCT DOES NOT CONTAIN PVC (POLYVINYL CHLORIDE).
- PRODUCT DOES NOT CONTAIN PFOS/PFOA NOR BEING SAME USED TO MANUFACTURE THE COMPONENTS OF THIS PRODUCT.
- MOISTURE SENSITIVITY LEVEL (MSL) 1 PER J-STD-020C.

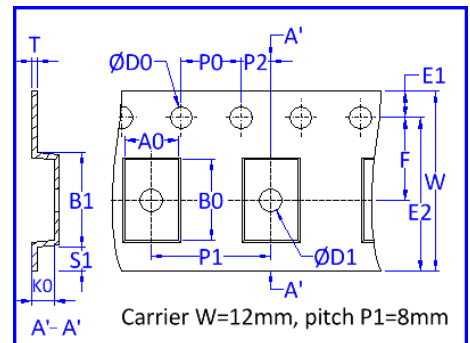


#### SOLDERING RECOMMENDATIONS



#### PACKAGING INFORMATION

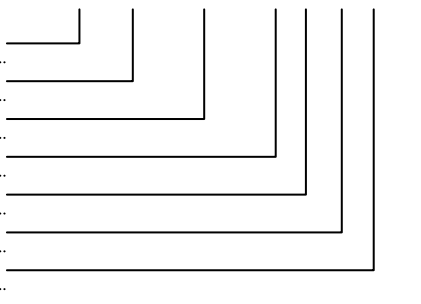
- PACKAGING IN TAPE & REEL IN COMPLIANCE TO EIA-481.
- QTY PER REEL: 1,000PCS
- REEL DIA A=180MM.
- EMBOSSED CARRIER TAPE WIDTH W = 12MM.
- COMPONENT PITCH P1 = 8MM.



#### PART NUMBER SYNTAX

- ..... PART NUMBER FAMILY (GROUP INDICATOR FOR CERAMIC RESONATOR WITH INBUILT LOAD CAPACITORS)
- ..... PART NUMBER FAMILY (MODEL INDICATOR REPRESENTING PACKAGE TYPE AND SIZE)
- ..... NOMINAL FREQUENCY (IN MHZ WITH AT LEAST TWO DIGITS AFTER DECIMAL POINT FOLLOWED BY "M")
- ..... VIBRATION MODE CODE (G = THICKNESS SHEAR FUND, T = EXTENSION FUND, X = EXTENSION OVERT.)
- ..... LOAD CAPACITOR VALUE (NUMERICAL VALUE OF INBUILT LOAD CAPACITORS C1 AND C2 IN pF)
- ..... OPERATING TEMPERATURE RANGE CODE (NO CODE= -25~85°C, M= -40~85°C, Z = -40~125°C)
- ..... FREQUENCY TOLERANCE CODE (OPTIONALLY USE FOR NONE-STANDARD TOLERANCE)
- ..... PART NUMBER EXTENSION (ONLY FOR NONE-STANDARD OR CUSTOMIZED PARTS)

#### ZTACS 8.00M T 22 MT -EXT



FOR MORE INFORMATION PLEASE CONTACT US.

HONG KONG:  
NAKAGAWA ELECTRONICS LIMITED  
☎ +852 2389 9201 ✉ sales@nkg.com.hk  
☎ +852 2341 0001 🌐 www.nkg.com.hk

China Shenzhen office:  
深圳中川晶体电子有限公司  
☎ +86(0)755 2598 2648 ✉ sales\_sz@nkg.cn  
☎ +86(0)755 2598 2390 🌐 www.nkg.com.hk

China Suzhou office:  
中川电子(苏州)有限公司  
☎ +86(0)512 8818 7890 ✉ sales\_nm@nkg.cn  
☎ 🌐 www.nkg.com.hk