

### CERAMIC RESONATOR UNIT IN CERAMIC SMD PACKAGE, SIZE 3.7 X 3.1MM.

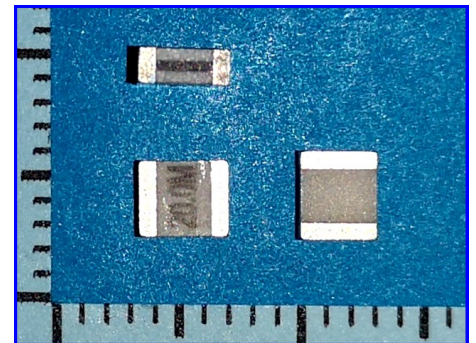
## ZTACV

#### PRODUCT FEATURES

- CERAMIC SMD CASE IN SIZE 3.7 X 3.1 X 1.5MM WITH 2 SOLDER PADS.
- INBUILT LOAD CAPACITORS, CIRCUIT DOES NOT REQUIRE EXTERNAL CAPACITORS.
- INDUSTRIAL OPERATING TEMPERATURE RANGE -40 TO +85°C AVAILABLE.

#### APPLICATIONS

- MICROPROCESSOR
- REMOTE CONTROL DEVICES
- PORTABLE DEVICES



#### PRODUCT SPECIFICATIONS

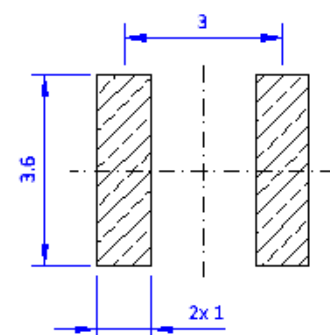
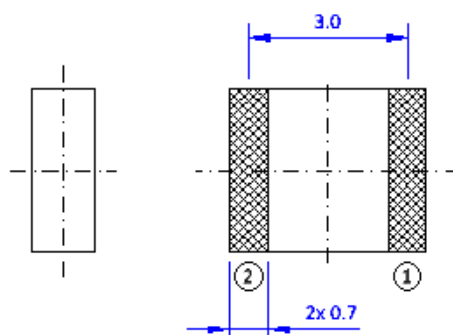
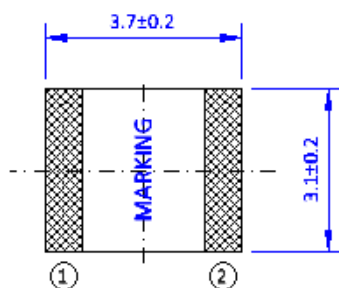
PARAMETER	SYMBOL	SPECIFICATIONS	REMARKS
FREQUENCY RANGE	$F_N$	<b>8.00 ~ 50.00MHZ</b>	NOTE 1
OSCILLATION MODE	—	EXTENSIONAL FUNDAMENTAL EXTENSIONAL OVERTONE	ZTTCV_._MT — 8.00 ~ 13.00MHZ ZTTCV_._MX — 13.01 ~ 50.00MHZ
FREQUENCY TOLERANCE	$\Delta f/F_N$	$\pm 0.5\%$ OR $\pm 0.3\%$	STANDARD / OPTION
STABILITY OVER OPERATING TEMP.	$T_C$	$\pm 0.3\%$ OR $\pm 0.4\%$	DEPENDENT ON OPERATING TEMP. RANGE
OPERATING TEMPERATURE RANGE	$T_{OP}$	-25°C ~+85°C OR -40°C ~+85°C	—
AGING RATE OVER 10 YEARS	$\Delta f/y_{10}$	$\pm 0.3\%$	@+25°C
RESONANCE RESISTANCE	$R_O$	30Ω MAX 60Ω MAX 40Ω MAX	ZTTCV_._MT — 8.00 ~ 13.00MHZ ZTTCV_._MX — 13.01 ~ 16.00MHZ ZTTCV_._MX — 16.01 ~ 50.00MHZ
LOAD CAPACITORS (EXTERNAL)	C1 & C2	30pF (10; 15; 22; 33; 35; 39pF) 30pF (5; 10; 15; 22pF) 15pF (5; 10pF) 5pF (10; 15pF)	ZTTCV_._MT — 8.0 ~ 13MHZ, NOTE 2 ZTTCV_._MX — 13.01 ~ 20.00MHZ ZTTCV_._MX — 20.01 ~ 25.99MHZ ZTTCV_._MX — 26.00 ~ 50.00MHZ
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, 11.06, 12.0, 14.32, 14.74, 16.0, 16.93, 18.43, 20.0, 24.0, 25.0, 33.86, 40.0, 48.0, 50.0MHZ.

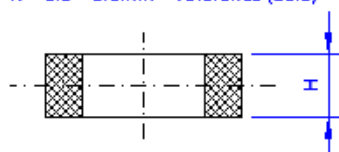
NOTE 2: THE LOAD CAPACITORS C1 AND C2 ARE TO BE ADDED ONTO PCB, SHOWN IS THE RECOMMENDED CAPACITOR VALUE, THE VALUES IN BRACKETS SHOW AVAILABLE OPTIONS FOR WHICH THE RESONATOR CAN BE TUNED FOR (SETUP IN MANUFACTURING READY). OTHER VALUES PLEASE REQUEST.

#### MECHANICAL DIMENSIONS

#### RECOMMENDED LAND PATTERN



Height is depending on frequency:  
H = 1.2 ~ 1.6mm + Tolerance (±0.2)



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

Ceramic resonator package  
3.7x3.1mm with 2 pads

**CCR33-P2** B 2019-06

No scale Unit: mm

### CERAMIC RESONATOR UNIT IN CERAMIC SMD PACKAGE, SIZE 3.7 X 3.1MM.

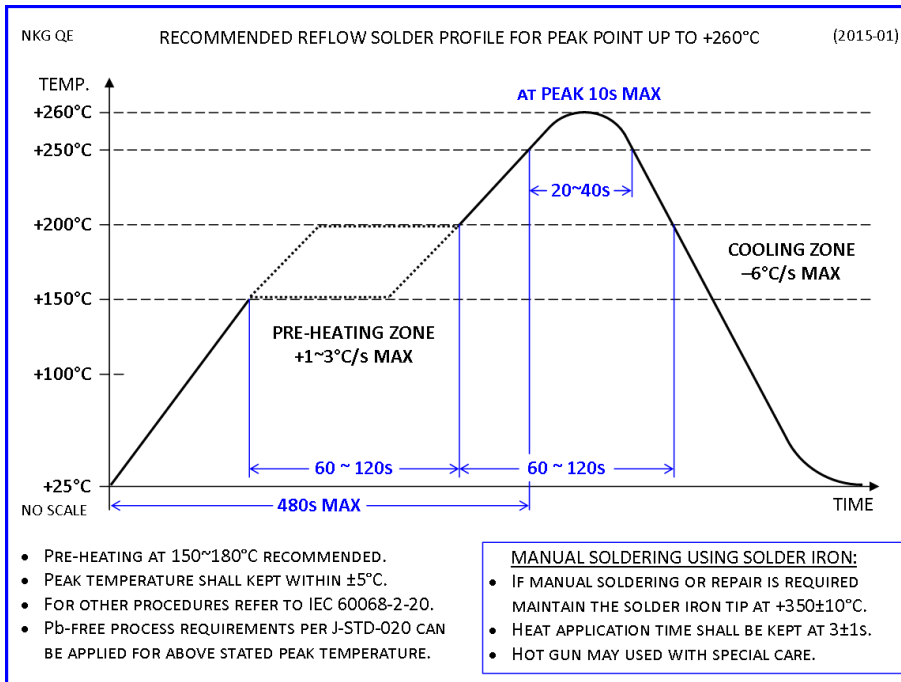
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#### ENVIRONMENTAL COMPLIANCE INFORMATION

- ROHS 5/6 COMPLIANT (DIRECTIVE 2011/65/EC).
- COMPLIANT TO ROHS 2 (DIRECTIVE 2015/863) (ALSO CALLED ROHS 10).
- HALOGEN-FREE PER DEFINITION OF IEC 61249-2-21 2033.
- COMPLIANCE TO THE LISTED SVHCs BY REACH IS NOT GIVEN ANYMORE SINCE LEAD AND LEAD COMPOUNDS HAD BEEN ADDED TO THE LIST OF SVHCs.
- 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.

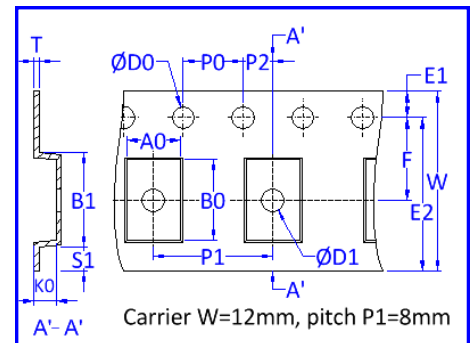


#### SOLDERING RECOMMENDATIONS



#### PACKAGING INFORMATION

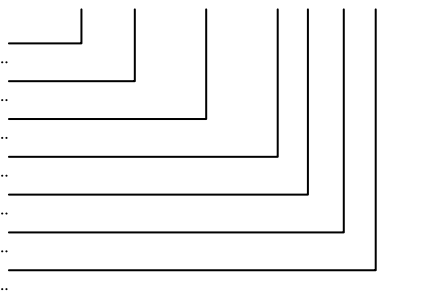
- PACKAGING IN TAPE & REEL IN COMPLIANCE TO EIA-481.
- QTY PER REEL: 1,000PCS
- REEL DIA A=180MM.
- EMBOSSED CARRIER TAPE WIDTH W = 12MM.
- COMPONENT PITCH P1 = 8MM.



#### 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)

### ZTACV 8.00M T 22 M T -EXT



FOR MORE INFORMATION PLEASE CONTACT US.

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