

# CMR310T/CMR309T

(1,000pcs/reel)



## ■ FEATURES:

- The units are high-performance, miniature crystal units manufactured with Citizen's ultrahigh-precision processing technology.
- Ideal for low cost SMD applications.
- Provided in Tape and Reel.

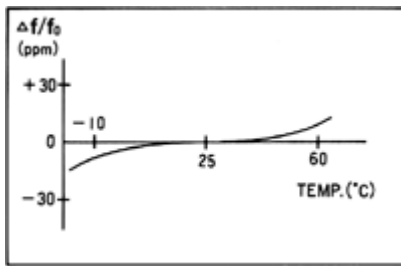
## ■ APPLICATIONS:

- Can be used for a wide range of applications including use in AV equipment, OA equipment, communication equipment and measuring instruments.

## ■ STANDARD SPECIFICATIONS

Item		CMR310T	CMR309T	Conditions
Nominal frequency	$f_0$	3.5MHz to 4.000MHz	4.001MHz to 32MHz (fund) 30MHz to 70MHz (3rd OT)	Please contact us for changes in frequency.
Frequency tolerance	$\Delta f/f_0$	$\pm 30\text{ppm}$ or $\pm 50\text{ppm}$		At 25°C
Frequency vs. Temperature Characteristics	$\Delta f/f_0$	$\pm 50\text{ppm}$ ( $\pm 30\text{ppm}$ )		-10°C to +60°C
Operating temperature range	$T_{opr}$	-40°C to + 85°C		
Storage temperature range	$T_{stg}$	-55°C to +125°C		
Equivalent series resistance	$R_1$	See drawing		At 25°C
Load capacitance	$C_L$	16.0pF TYP.		Please specify
Shunt capacitance	$C_0$	5.0pF MAX.		
Drive level	DL	50 $\mu\text{W}$ to 100 $\mu\text{W}$		
Insulation resistance	IR	500M ohm MIN.		DC100V $\pm$ 15V
Aging (First year)	$\Delta f/f_0$	$\pm 5\text{ppm}$ MAX.		25°C $\pm$ 3°C
Sealing		1 x 10 <sup>-2</sup> $\mu\text{Pa}\cdot\text{m}^3$ /s MAX.		
Shock resistance		$\pm 5\text{ppm}$ MAX. Drop test of 3 times on a hard board from 75cm height or shock test of 3000G x 0.3ms x 1/2sin wave x 3 directions		Conditions will vary depending on the frequency.

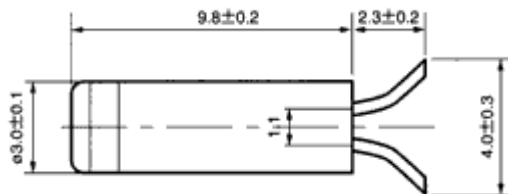
## ■ FREQUENCY vs TEMPERATURE CURVE



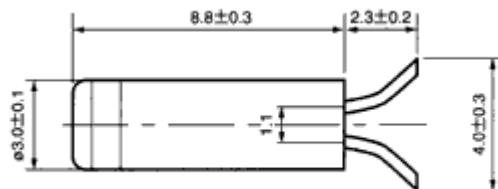
**■ EQUIVALENTSERIES RESISTANCE (ESR, R1)(Ohm MAX.)**

Frequency	Equivalent series resistance	Mode
3.5MHz < (=) f <sub>0</sub> < 4MHz	200	Fundamental
4MHz < (=) f <sub>0</sub> < 6MHz	150	
6MHz < (=) f <sub>0</sub> < 10MHz	100	
10MHz < (=) f <sub>0</sub> < (=) 32MHz	50	
30MHz < f <sub>0</sub> < 36MHz	100	3rd OT
36MHz < (=) f <sub>0</sub> < 70MHz	80	

**■ DIMENSIONS: (UNIT=mm)**

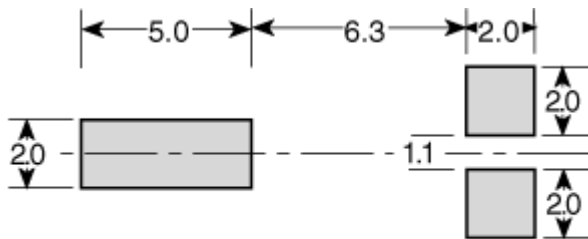


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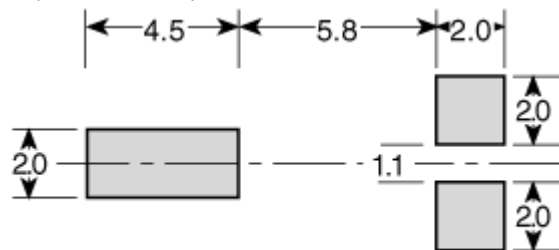


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**■ RECOMENDED SOLDERING PATTERN: (UNIT=mm)**



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