

# CMR310T/CMR309T



## ■ 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.

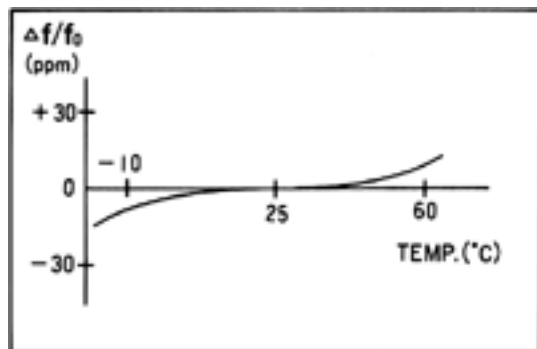
## ■ APPLICATIONS:

- 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 <sub>0</sub>	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 <sub>0</sub>	±30ppm or ±50ppm		At 25°C
Frequency vs.Temperature Characteristics	delta f/f <sub>0</sub>	±50ppm (±30ppm)		-10°C to +60°C
Operating temperature range	T <sub>opr</sub>	-40°C to + 85°C		
Storage temperature range	T <sub>stg</sub>	-55°C to +125°C		
Equivalent series resistance	R <sub>1</sub>	See drawing		At 25°C
Load capacitance	C <sub>L</sub>	16.0pF TYP.		Please specify
Shunt capacitance	C <sub>0</sub>	5.0pF MAX.		
Drive level	DL	50 μW to 100μW		
Insulation resistance	IR	500M ohm MIN.		DC100V ± 15V
Aging (First year)	delta f/f <sub>0</sub>	± 5ppm MAX.		25°C ± 3°C
Sealing		1 x 10-2 μ Pa·m3 /s MAX.		
Shock resistance	±5ppm 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.

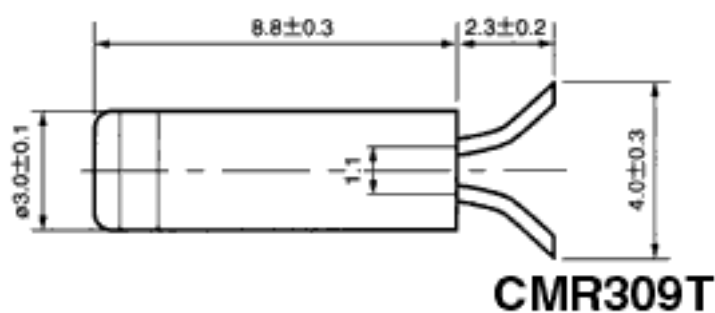
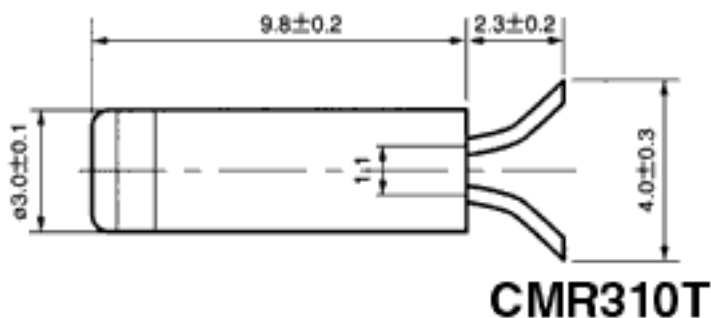
## ■ FREQUENCY vs TEMPERATURE CURVE



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

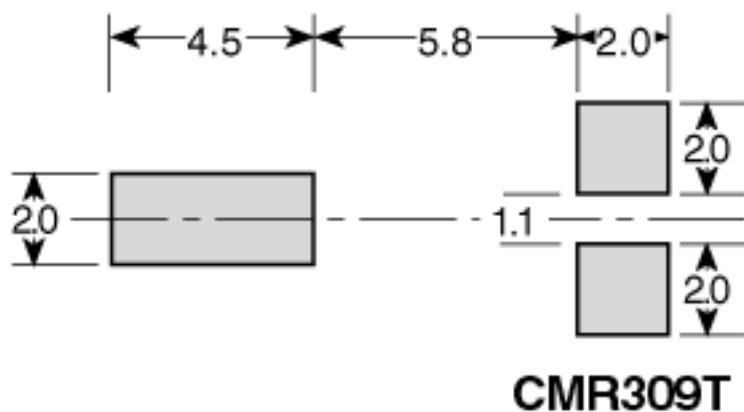
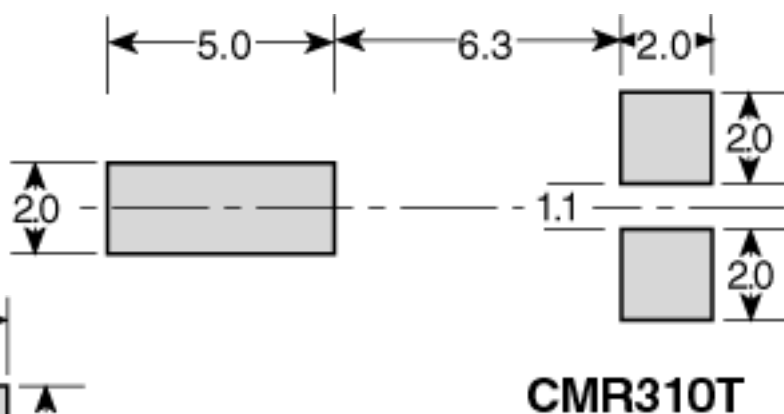
Frequency	Equivalent series resistance	Mode
3.5MHz < (=) f <sub>0</sub> < 4MHz	200	Fundamental
4MHz < (=) f <sub>0</sub> < 6MHz	150	
6MHz < (=) f <sub>0</sub> < 10MHz	100	
10MHz < (=) f <sub>0</sub> < (=) 32MHz	50	
30MHz < f <sub>0</sub> < 36MHz	100	3rd OT
36MHz < (=) f <sub>0</sub> < 70MHz	80	

## ■ DIMENSIONS: (UNIT=mm)



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

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