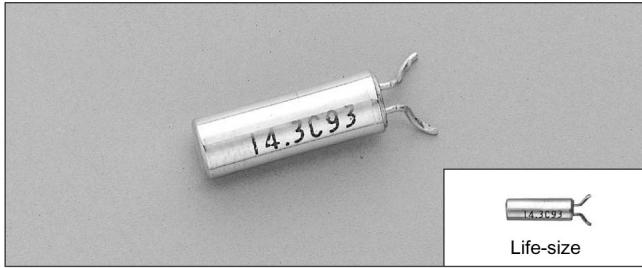


# AT-CUT CRYSTAL UNITS (SMD • Cylinder Type)

RoHS Compliant Optional **CMR310T • CMR309T**

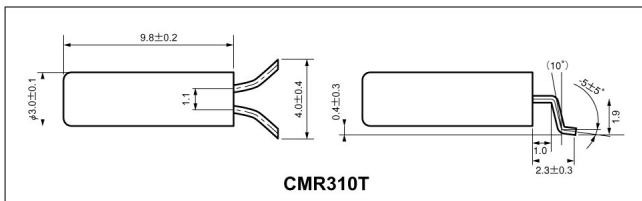
1000pcs/reel



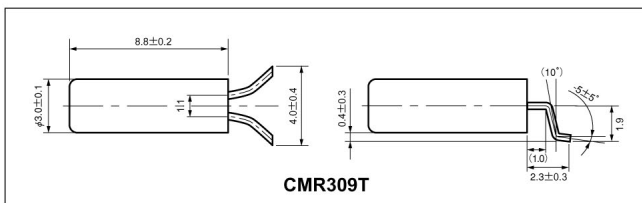
## FEATURES

- High performance miniature crystal units with Citizen's ultra-precise processing technology.
- High-stability assured with tight vacuum sealing.
- Lead forming SMD type with embossed tape. Automatic mounting and reflowable Type.

## DIMENSION [mm]

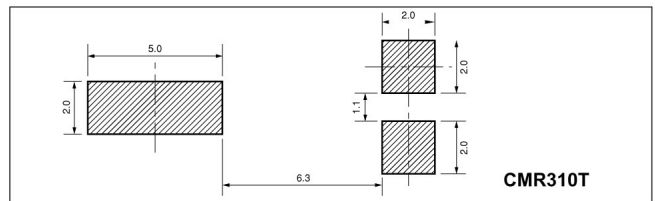


CMR310T

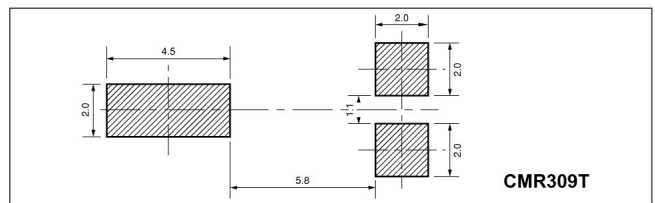


CMR309T

## SOLDER PAD LAYOUT [mm]



CMR310T



CMR309T

## STANDARD SPECIFICATIONS

Item	Model	CMR310T	CMR309T	Conditions
Nominal Frequency	$f_0$	3.5MHz ~ 4.0MHz	4.001MHz ~ 30.0MHz (Fundamental) 30.001MHz ~ 70.0MHz (3rd Overtone)	Need to contact us for the available frequency
Frequency Tolerance	$\Delta f/f_0$	$\pm 30\text{ppm}$		at 25°C
Frequency Tolerance over Operating Temperature Range	$\Delta f/f_0$	$\pm 50\text{ppm}$		-10°C ~ +60°C
Operating Temperature Range	$T_{OPR}$	-40°C ~ +85°C		
Storage Temperature Range	$T_{STR}$	-55°C ~ +125°C		
Motional (series) resistance	$R_1$	Refer to the following table		at 25°C
Load capacitance	$C_L$	18.0pF		Need to specify your requirement
Shunt capacitance	$C_0$	5.0pF Max.		
Level of drive	DL	100 $\mu$ W Max.		
Insulation Resistance	$I_R$	500M $\Omega$ Min.		DC100V $\pm$ 15V
Aging (first year)	$\Delta f/f_0$	$\pm 5\text{ppm}$ Max.		25°C $\pm$ 3°C

## MOTIONAL (SERIES) RESISTANCE ( $R_1$ )

Frequency Range	$3.5\text{MHz} \leq f_0 < 4.0\text{MHz}$	$4.0\text{MHz} \leq f_0 < 6.0\text{MHz}$	$6.0\text{MHz} \leq f_0 < 10\text{MHz}$	$10\text{MHz} \leq f_0 < 27\text{MHz}$	$27\text{MHz} \leq f_0 < 36\text{MHz}$	$36\text{MHz} \leq f_0 \leq 70\text{MHz}$
Mode	Fundamental	Fundamental	Fundamental	Fundamental	Fundamental	3rd Overtone
$R_1$	200 $\Omega$ Max.	150 $\Omega$ Max.	100 $\Omega$ Max.	50 $\Omega$ Max.	50 $\Omega$ Max.	100 $\Omega$ Max. 80 $\Omega$ Max.