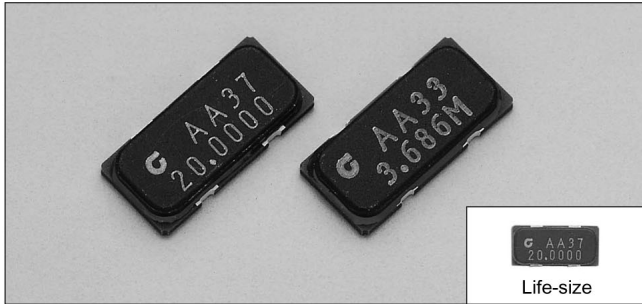


# AT-CUT CRYSTAL UNIT (SMD • Ceramic Package)

RoHS Compliant Standard

## CS20

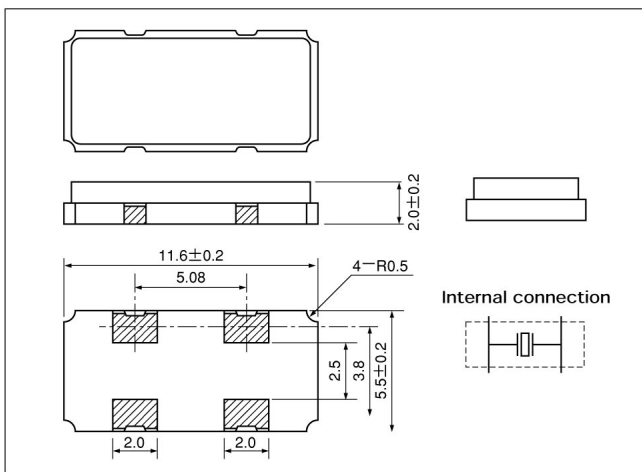
2000pcs/reel



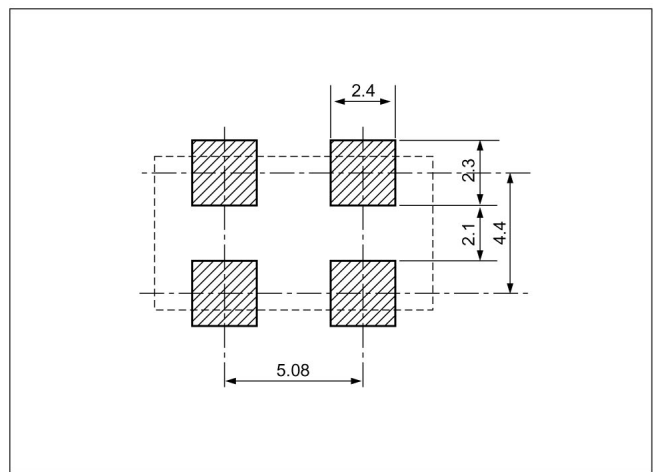
### FEATURES

- Reliable ceramic package and excellent environmental characteristics.
- Available for wide range of frequency.
- Suitable for various applications such as communication devices, AV devices, automotive devices and measuring instruments.

### DIMENSION [mm]



### SOLDER PAD LAYOUT [mm]



### STANDARD SPECIFICATIONS

Item	Model	CS20	Conditions
Nominal Frequency	$f_0$	3.5MHz~30.0MHz (Fundamental)	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	$T_{\text{OPR}}$	-40°C ~ +85°C	
Storage Temperature Range	$T_{\text{STR}}$	-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	$C_0$	7.0pF Max.	
Level of drive	DL	100 $\mu$ W.	
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	$3.5\text{MHz} \leq f_0 < 4.0\text{MHz}$	$4.0\text{MHz} \leq f_0 < 6.0\text{MHz}$	$6.0\text{MHz} \leq f_0 < 10\text{MHz}$	$10\text{MHz} \leq f_0 < 14\text{MHz}$	$14\text{MHz} \leq f_0 \leq 30\text{MHz}$
$R_1$	200 $\Omega$ Max.	150 $\Omega$ Max.	100 $\Omega$ Max.	80 $\Omega$ Max.	50 $\Omega$ Max.