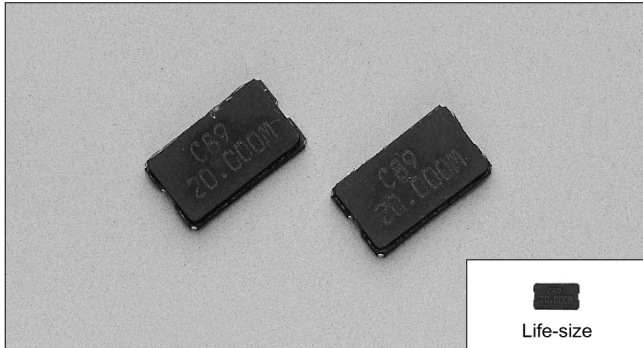


AT-CUT CRYSTAL UNIT (SMD • Ceramic Package)

RoHS Compliant Standard

CS10

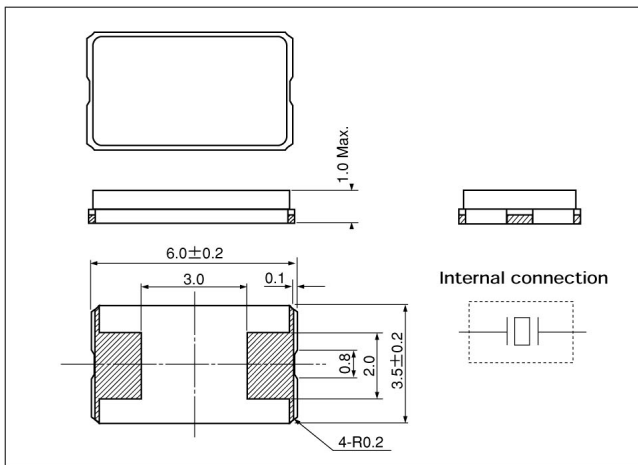
2000pcs/reel



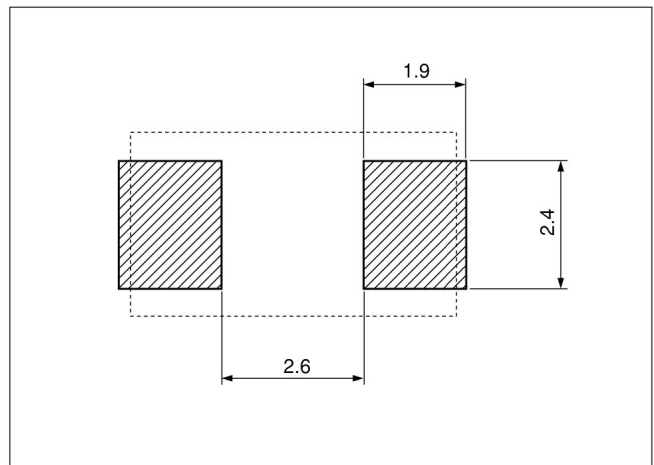
FEATURES

- High-density SMD type.
- Reliable ceramic package and excellent environmental characteristics.
- Suitable for various applications such as communication devices, AV devices and other equipment.

DIMENSION [mm]



SOLDER PAD LAYOUT [mm]



STANDARD SPECIFICATIONS

Item	Model	CS10	Conditions
Nominal Frequency	f_0	12.0MHz~50.0MHz (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_{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	7.0pF Max.	
Level of drive	D_L	50 μW	
Insulation Resistance	I_R	500M Ω 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	12.0MHz $\leq f_0 < 14.0$ MHz	14.0MHz $\leq f_0 \leq 50.0$ MHz
R_1	70 Ω Max.	50 Ω Max.

MHz CRYSTAL Part Numbering System

Example Part Number:

CM309S 25.000M A B J -UT

Product Family

For example:

- CSA310
- CSA309
- CMR309T
- CMR310T
- HC49US
- HCM49
- CM309S
- CS20
- CS10
- CS325
- CS325H

Frequency

Numerical Value, maximum characters as follows:

XX.XXXXXX
followed by "M" for MHz

Packaging method

- UT RoHS Compliant Tape & Reel
- UB RoHS Compliant Bulk

Load Capacitance

A Series	L 22.0pF	T 14.0pF
E 12.0pF	M 25.0pF	U 17.0pF
F 12.5pF	N 30.0pF	V 8.0pF
G 13.0pF	O 32.0pF	
H 15.0pF	P 33.0pF	
I 16.0pF	Q 10.0pF	
J 18.0pF (Std)	R 50.0pF	
K 20.0pF	S 11.0pF	

...others to be assigned

Frequency Stability [over Listed Temp.]

A ±30ppm (-10 to +60°C) •	K ±150ppm (-40 to +85°C) •
B ±50ppm (-10 to +60°C) (Standard)	L ±200ppm (-40 to +85°C) •
C ±100ppm (-10 to +60°C) •	M ±60ppm (-40 to +85°C) •
D ±20ppm (-10 to +60°C) •	N ±80ppm (-40 to +85°C) •
E ±10ppm (-10 to +60°C) (CS325H)	O ±30ppm (-20 to +70°C) •
F ±30ppm (-40 to +85°C) •	P ±40ppm (-20 to +70°C) •
G ±50ppm (-40 to +85°C) •	Q ±50ppm (-20 to +70°C) •
H ±100ppm (-40 to +85°C) •	R ±60ppm (-20 to +70°C) •
I ±20ppm (-40 to +85°C) •	S ±70ppm (-20 to +70°C) •
J ±10ppm (-40 to +85°C) •	T ±80ppm (-20 to +70°C) •

Frequency Tolerance [at 25C]

- A ±30ppm (Standard)**
- B ±50ppm •
- C ±100ppm •
- D ±20ppm •
- E ±10ppm (CS325H)**
- F ±15ppm •
- G ±25ppm •
- H ±5ppm •

•Consult Citizen