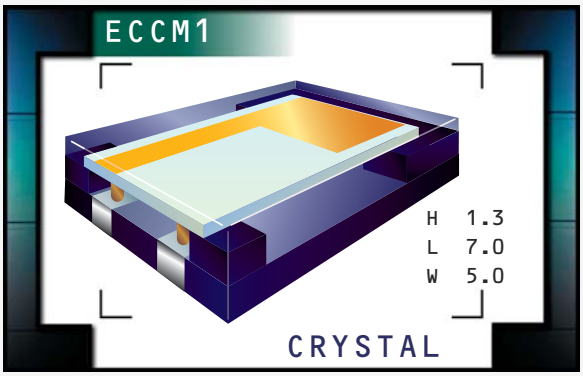
ECCM1 Series

- Four pad ceramic surface mount package
- AT cut
- Tight tolerance/stability
- Frequencies to 70.000MHz available
- Tape and reel available



NOTES

ELECTRICAL SPECIFICATIONS

Frequency Range	8.000MHz to 70.000MHz
Frequency Tolerance / Stability	±50ppm / ±100ppm (Standard), ±30ppm / ±50ppm,
Over Operating Temperature Range	or ±15ppm / ±30ppm
Operating Temperature Range	0°C to 70°C (Standard), -20°C to 70°C, or -40°C to 85°C
Aging (at 25°C)	±3ppm / year Maximum
Spurious Response	-3dB Minimum; F_0 to F_0 +5000ppm
Storage Temperature Range	-40°C to 85°C
Shunt Capacitance	7pF Maximum
Insulation Resistance	500 Megaohms Minimum at $100V_{DC}$
Drive Level	50 µWatts Maximum, 50 µWatts Correlation
Load Capacitance (C_L)	18pF (Standard), Custom $C_L \geq 12$pF, or Series Resonant

EQUIVALENT SERIES RESISTANCE (ESR), MODE OF OPERATION (MODE), AND CUT

Frequency Range	ESR (Ω)	Mode / Cut	Frequency Range	ESR (Ω)	Mode / Cut
8.000MHz to 9.999MHz	90 Max	Fundamental / AT	16.000MHz to 24.999MHz	30 Max	Fundamental / AT
10.000MHz to 10.999MHz	60 Max	Fundamental / AT	25.000MHz to 35.999MHz	30 Max	Fundamental / AT
11.000MHz to 13.999MHz	50 Max	Fundamental / AT	36.000MHz to 39.999MHz	100 Max	Third Overtone / AT
14.000MHz to 15.999MHz	40 Max	Fundamental / AT	40.000MHz to 70.000MHz	80 Max	Third Overtone / AT

MANUFACTURER	CATEGORY	SERIES	PACKAGE	CLASS	REV. DATE
ECLIPTEK CORP.	CRYSTAL	ECCM1	CERAMIC	CR08	04/02

PART NUMBERING GUIDE

ECCM1 C T - 20 - 40.000M TR

FREQUENCY TOLERANCE / STABILITY
Blank=±50ppm at 25°C, ±100ppm from 0°C to 70°C
A=±50ppm at 25°C, ±100ppm from -20°C to 70°C
B=±50ppm at 25°C, ±100ppm from -40°C to 85°C
C=±30ppm at 25°C, ±50ppm from 0°C to 70°C
D=±30ppm at 25°C, ±50ppm from -20°C to 70°C
E=±30ppm at 25°C, ±50ppm from -40°C to 85°C
F=±15ppm at 25°C, ±30ppm from 0°C to 70°C
G=±15ppm at 25°C, ±30ppm from -20°C to 70°C
H=±15ppm at 25°C, ±30ppm from -40°C to 85°C

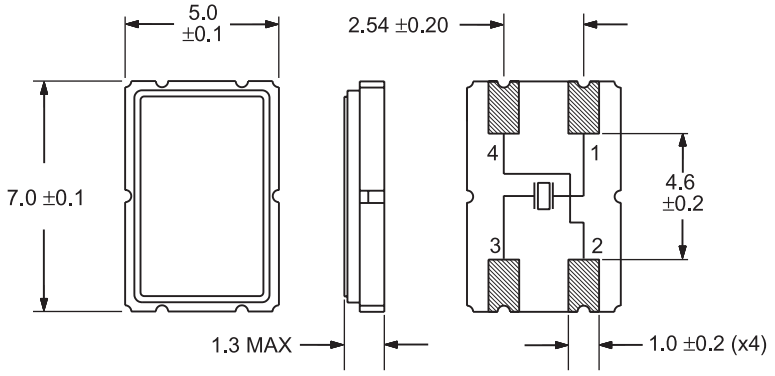
PACKAGING OPTIONS
Blank=Bulk, TR=Tape and Reel

FREQUENCY

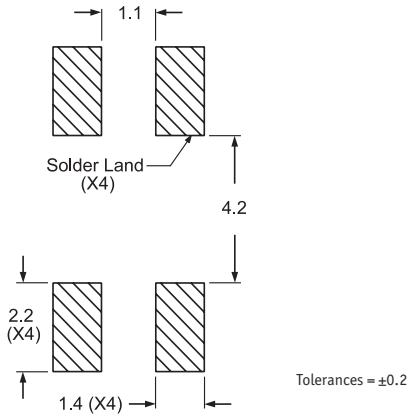
LOAD CAPACITANCE
Blank=18pF (Standard)
S=Series, XX=XXpF (Custom)

MODE OF OPERATION / CRYSTAL CUT
Blank=Fundamental / AT, T=Third Overtone / AT

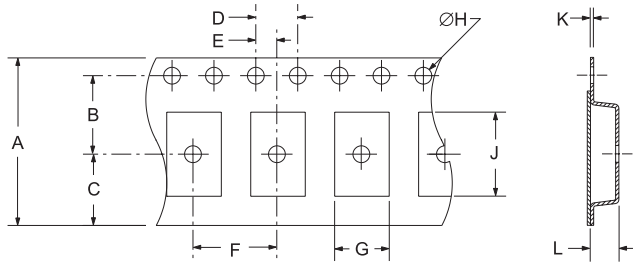
MECHANICAL DIMENSIONS
ALL DIMENSIONS IN MILLIMETERS

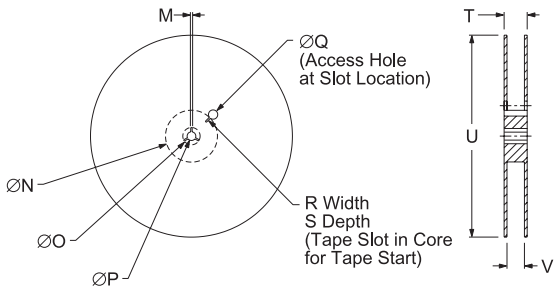


SUGGESTED SOLDER PAD LAYOUT
ALL DIMENSIONS IN MILLIMETERS



TAPE AND REEL DIMENSIONS
ALL DIMENSIONS IN MILLIMETERS





TAPE	A	B	C	D	E
	16±.3	7.5 ±.2	6.75±.2	4 ±.2	2±.2
F	G	H	J	K	L
8±.2	5.4±.1	1.5 +.1	7.9±.1	.3 ±.05	1.7±.1

REEL	M	N	O	P	Q
	1.5 MIN	50 MIN	20.2 MIN	13±.2	40 MIN
R	S	T	U	V	QTY/REEL
2.5 MIN	10 MIN	22.4 MAX	360 MAX	16.4+2-0	3,000

*Compliant to EIA-481A

ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

PARAMETER	SPECIFICATION
Seal Integrity	Bubble test in Perfluorocarbon at +125°C ±5°C for 60 seconds minimum.
Solderability	Sn63 Solder dip at +230°C ±5°C for 5 seconds/95% coverage.
Marking Permanency	10 Strokes with brush after 1 minute soak in solvent, 3 times.
Shock	Random drop on hard wooden plate 3 times from a height of 50cm.
Vibration	Frequency with an amplitude of 1.5mm sweeping between 10Hz to 55Hz within 1 minute (approximately) for 2 hours minimum on each axis (X,Y and Z) for a total of 6 hours.

MARKING SPECIFICATIONS

Line 1: E XX.XX
- Frequency in MHz (4 Digits Maximum + Decimal)

Line2: XX Y ZZ
- Week of Year
- Last Digit of Year
- Ecliptek Manufacturing Identifier

MANUFACTURER	CATEGORY	SERIES	PACKAGE	CLASS	REV. DATE
ECLIPTEK CORP.	CRYSTAL	ECCM1	CERAMIC	CR08	04/02