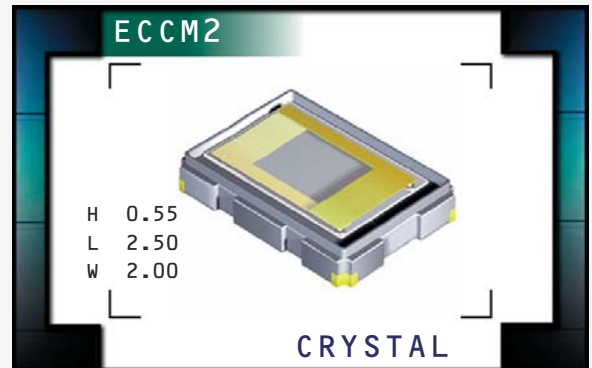


# ECCM2 Series



ECLIPTEK<sup>®</sup>  
CORPORATION

- RoHS Compliant (Pb-Free)
- Miniature four pad ceramic surface mount package
- Standard frequencies up to 50.000MHz
- AT Cut
- Tape and reel available



## NOTES

### ELECTRICAL SPECIFICATIONS

**Nominal Frequency (MHz)** 16.000, 19.660, 20.000, 24.000, 24.576, 25.000, 26.000, 27.000, 29.4912, 29.939, 30.000, 30.720, 32.000, 34.400, 40.000, 44.000, 48.000, and 50.000MHz

#### Frequency Tolerance / Stability

**Over Operating Temperature Range**  $\pm 10\text{ppm} / \pm 10\text{ppm}$  or  $\pm 10\text{ppm} / \pm 15\text{ppm}$

**Operating Temperature Range**  $-10^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  or  $-30^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

**Load Capacitance ( $C_L$ )** 8pF Parallel Resonant  
12pF Parallel Resonant

**Shunt Capacitance** 5pF Maximum

**Mode of Operation** Fundamental

**Crystal Cut** AT-Cut

**Aging (at  $25^{\circ}\text{C}$ )**  $\pm 3\text{ppm} / \text{year}$  Maximum

**Drive Level** 100  $\mu\text{Watts}$  Maximum

**Storage Temperature Range**  $-40^{\circ}\text{C}$  to  $90^{\circ}\text{C}$

**Insulation Resistance** 500 Megaohms Minimum at  $100V_{DC}$

**Spurious Response**  $-3\text{dB}$  Minimum;  $F_0$  to  $F_0 + 5000\text{ppm}$

**Equivalent Series Resistance**  
100 Ohms Maximum from 16.000MHz to 19.999999MHz  
80 Ohms Maximum from 20.000MHz to 29.999999MHz  
60 Ohms Maximum from 30.000MHz to 39.999999MHz  
50 Ohms Maximum from 40.000MHz to 50.000MHz

MANUFACTURER  
ECLIPTEK CORP.

CATEGORY  
CRYSTAL

SERIES  
ECCM2

PACKAGE  
CERAMIC

CLASS  
CR58

REV. DATE  
04/09

## PART NUMBERING GUIDE

### ECCM2 Q A 12 - 20.000M TR

#### FREQUENCY TOLERANCE/STABILITY

Q=±10ppm at 25°C, ±15ppm over -30°C to +85°C  
 R=±10ppm at 25°C, ±10ppm over -10°C to +60°C

#### MODE OF OPERATION

A=Fundamental

#### PACKAGING OPTIONS

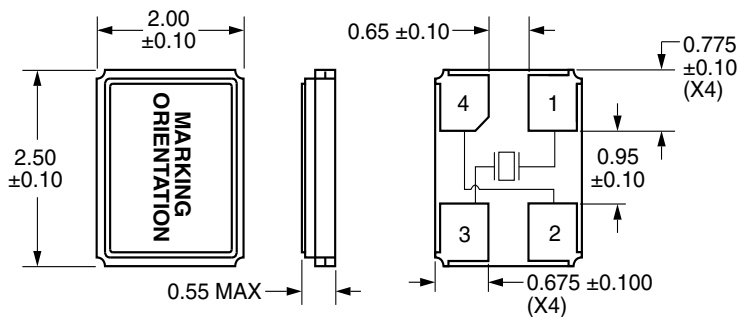
Blank=Bulk, TR=Tape and Reel

#### FREQUENCY

#### LOAD CAPACITANCE

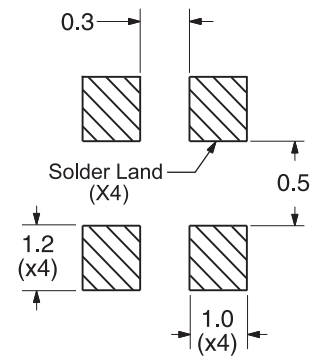
08=8pF Parallel Resonant  
 12=12pF Parallel Resonant

#### MECHANICAL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



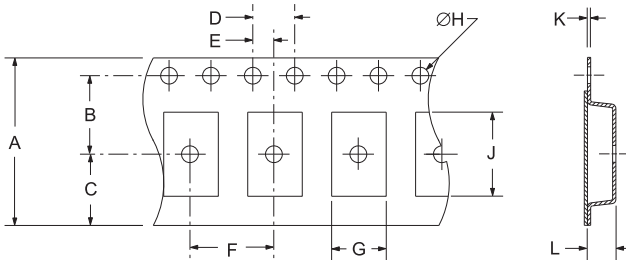
Pad 1: Input/Output  
 Pad 2: Cover/Ground  
 Pad 3: Input/Output  
 Pad 4: Cover/Ground

#### SUGGESTED SOLDER PAD LAYOUT ALL DIMENSIONS IN MILLIMETERS

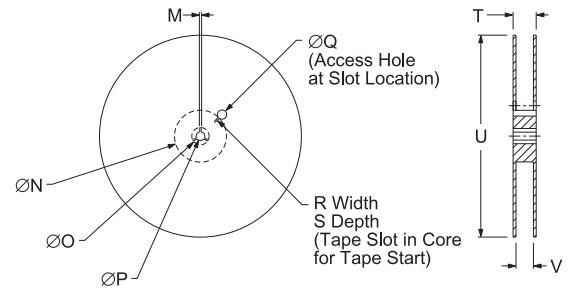


Tolerance = ±0.2

#### TAPE AND REEL DIMENSIONS ALL DIMENSIONS IN MILLIMETERS



TAPE	A	B	C	D	E
	8±.2	3.5±.1	2.75±.1	4±.1	2±.05
F	G	H	J	K	L
4±.1	2.25±.05	1.55±.05	2.7±.1	.25±.05	.65±.05



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	13.0 MAX	180 MAX	8.4+1.5-0	1,000

#### ENVIRONMENTAL/MECHANICAL SPECIFICATIONS

PARAMETER	SPECIFICATION
ESD Susceptibility	MIL-STD-883, Method 3015, Class 1, HBM: 1500V
Fine Leak Test	MIL-STD-883, Method 1014, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C
Flammability	UL94-V0
Mechanical Shock	MIL-STD-883, Method 2002, Condition B
Moisture Resistance	MIL-STD-883, Method 1004
Moisture Sensitivity	J-STD-020, MSL 1
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K
Resistance to Solvents	MIL-STD-202, Method 215
Solderability	MIL-STD-883, Method 2003
Temperature Cycling	MIL-STD-883, Method 1010, Condition B
Vibration	MIL-STD-883, Method 2007, Condition A

#### MARKING SPECIFICATIONS

\*Compliant to EIA-481A

Line 1: **XX.X**  
 Frequency in MHz  
 (3 Digits Maximum + Decimal)

Line 2: **XXX**  
 Ecliptek Manufacturing Identifier

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