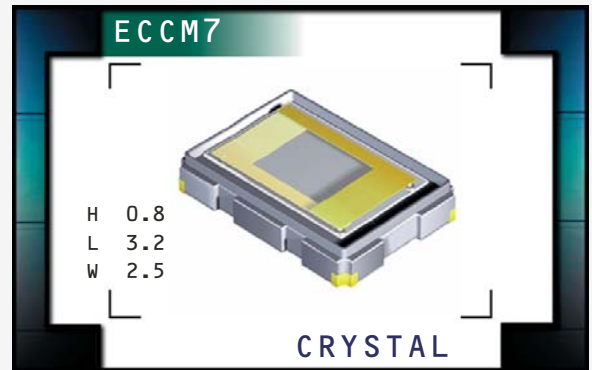


ECCM7 Series



ECLIPTEK[®]
CORPORATION

- RoHS Compliant (Pb-Free)
- Miniature four pad ceramic surface mount package
- Standard frequencies up to 54.000MHz
- AT Cut
- Tape and reel available



NOTES

ELECTRICAL SPECIFICATIONS

Nominal Frequency (MHz)	12.000, 13.000, 13.560, 13.824, 14.318, 14.31818, 14.7456, 16.000, 16.384, 16.9344, 17.734475, 18.432, 19.000, 19.200, 20.000, 20.480, 22.1184, 22.5792, 24.000, 24.576, 25.000, 26.000, 27.000, 28.6363, 29.4912, 30.000, 32.000, 32.768, 33.000, 33.333, 33.8688, 34.368, 35.000, 35.328, 36.000, 36.864, 38.400, 38.880, 39.000, 40.000, 44.736, 48.000, 50.000, and 54.000MHz
Frequency Tolerance / Stability	±10ppm / ±10ppm, ±10ppm / ±15ppm, ±15ppm / ±20ppm, ±15ppm / ±30ppm,
Over Operating Temperature Range	±30ppm / ±50ppm or ±50ppm / ±50ppm
Operating Temperature Range	-10°C to +60°C, -20°C to +70°C, or -30°C to +85°C
Load Capacitance (C_L)	10pF Parallel Resonant 12pF Parallel Resonant 16pF Parallel Resonant Series Resonant
Shunt Capacitance	5pF Maximum
Mode of Operation	Fundamental
Crystal Cut	AT-Cut
Aging (at 25°C)	±3ppm / year Maximum
Drive Level	100 µWatts Maximum
Storage Temperature Range	-40°C to 85°C
Insulation Resistance	500 Megaohms Minimum at 100V _{DC}
Spurious Response	-3dB Minimum; F ₀ to F ₀ +5000ppm
Equivalent Series Resistance	100 Ohms Maximum from 12.000MHz to 18.999999MHz 80 Ohms Maximum from 19.000MHz to 29.999999MHz 60 Ohms Maximum from 30.000MHz to 54.000MHz

MANUFACTURER
ECLIPTEK CORP.

CATEGORY
CRYSTAL

SERIES
ECCM7

PACKAGE
CERAMIC

CLASS
CR38

REV. DATE
03/09

PART NUMBERING GUIDE

ECCM7 A A 16 - 32.000M TR

FREQUENCY TOLERANCE/STABILITY

A=±50ppm at 25°C, ±50ppm over -10°C to +60°C
 B=±50ppm at 25°C, ±50ppm over -20°C to +70°C
 D=±30ppm at 25°C, ±50ppm over -10°C to +60°C
 E=±30ppm at 25°C, ±50ppm over -20°C to +70°C
 F=±30ppm at 25°C, ±50ppm over -30°C to +85°C
 G=±15ppm at 25°C, ±30ppm over -10°C to +60°C
 H=±15ppm at 25°C, ±30ppm over -20°C to +70°C
 J=±15ppm at 25°C, ±30ppm over -30°C to +85°C
 K=±15ppm at 25°C, ±20ppm over -10°C to +60°C
 L=±15ppm at 25°C, ±20ppm over -20°C to +70°C
 M=±15ppm at 25°C, ±20ppm over -30°C to +85°C
 N=±10ppm at 25°C, ±15ppm over -10°C to +60°C
 P=±10ppm at 25°C, ±15ppm over -20°C to +70°C
 Q=±10ppm at 25°C, ±15ppm over -30°C to +85°C
 R=±10ppm at 25°C, ±10ppm over -10°C to +60°C

PACKAGING OPTIONS

Blank=Bulk, TR=Tape and Reel

FREQUENCY

LOAD CAPACITANCE

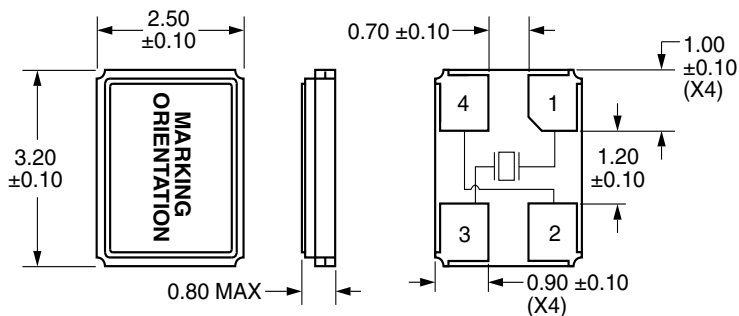
10=10pF Parallel Resonant
 12=12pF Parallel Resonant
 16=16PF Parallel Resonant
 S=Series Resonant

MODE OF OPERATION

A=Fundamental

MECHANICAL DIMENSIONS

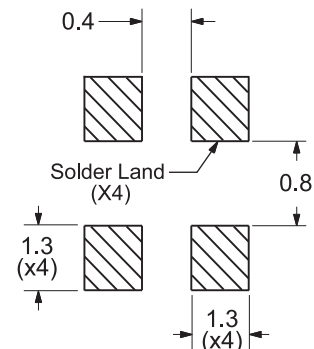
ALL DIMENSIONS IN MILLIMETERS



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

SUGGESTED SOLDER PAD LAYOUT

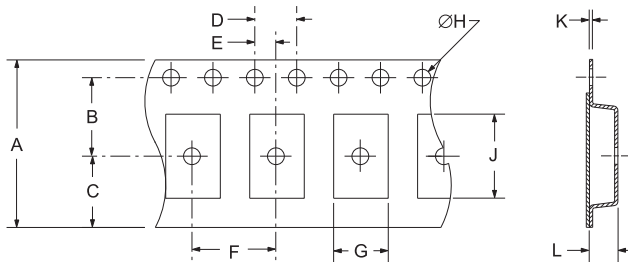
ALL DIMENSIONS IN MILLIMETERS



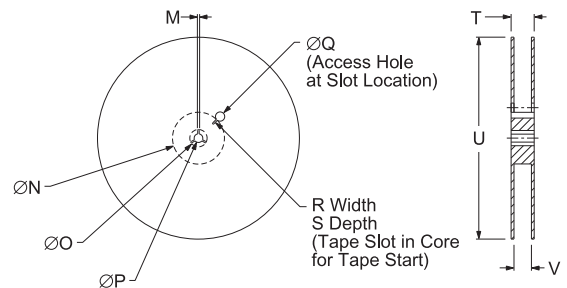
Tolerance = ±0.2

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	2.9±.1	1.5±.2	3.6±.1	.2±.05	1.0±.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	13.0 MAX	180 MAX	8.4+1.5-0	3,000

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: E XX.X
 Frequency in MHz
 (3 Digits Maximum + Decimal)

Line 2: XXXXX
 Ecliptek Manufacturing Identifier

MANUFACTURER
 ECLIPTEK CORP.

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