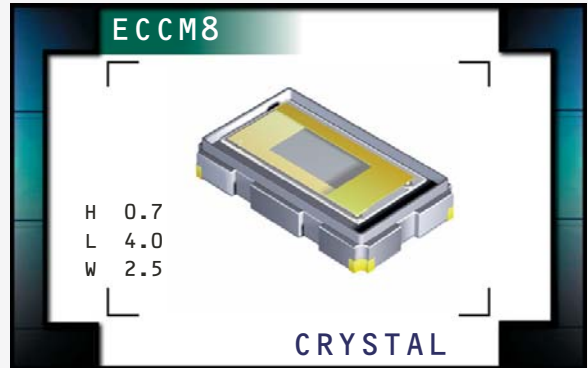


ECCM8 Series



ECLIPTEK[®]
CORPORATION

- RoHS Compliant (Pb-Free)
- Miniature four pad ceramic surface mount package
- Standard frequencies up to 32.000MHz
- AT Cut
- Tape and reel available



NOTES

ELECTRICAL SPECIFICATIONS

Nominal Frequency	12MHz, 13MHz, 13.56MHz, 14.4MHz, 15.36MHz, 16MHz, 16.384MHz, 19.5MHz, 20MHz, 24MHz, 24.576MHz, 25MHz, 26MHz, 27MHz, 30MHz, 32MHz
Frequency Tolerance / Stability	±50ppm / ±100ppm, ±30ppm / ±50ppm, ±15ppm / ±30ppm, ±15ppm / ±20ppm, or
Over Operating Temperature Range	±10ppm / ±15ppm
Operating Temperature Range	0°C to +70°C, -20°C to +70°C, or -40°C to +85°C
Load Capacitance (C_L)	10pF Parallel Resonant 12pF Parallel Resonant (Only available over Nominal Frequency range of 20MHz to 32MHz) 16pF Parallel Resonant (Only available over Nominal Frequency range of 20MHz to 32MHz)
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	70 Ohms Maximum from 12.000MHz to 15.999MHz 80 Ohms Maximum from 16.000MHz to 18.999MHz 60 Ohms Maximum from 19.000MHz to 32.000MHz

MANUFACTURER
ECLIPTEK CORP.

CATEGORY
CRYSTAL

SERIES
ECCM8

PACKAGE
CERAMIC

CLASS
CR46

REV. DATE
03/08

PART NUMBERING GUIDE

ECCM8 A - 16 - 32.00M TR

FREQUENCY TOLERANCE/STABILITY

A=±50ppm at 25°C, ±100ppm over 0°C to 70°C
 B=±50ppm at 25°C, ±100ppm over -20°C to 70°C
 C=±50ppm at 25°C, ±100ppm over -40°C to 85°C
 D=±30ppm at 25°C, ±50ppm over 0°C to 70°C
 E=±30ppm at 25°C, ±50ppm over -20°C to 70°C
 F=±30ppm at 25°C, ±50ppm over -40°C to 85°C
 G=±15ppm at 25°C, ±30ppm over 0°C to 70°C
 H=±15ppm at 25°C, ±30ppm over -20°C to 70°C
 J=±15ppm at 25°C, ±30ppm over -40°C to 85°C
 K=±15ppm at 25°C, ±20ppm over 0°C to 70°C
 L=±15ppm at 25°C, ±20ppm over -20°C to 70°C
 M=±15ppm at 25°C, ±20ppm over -40°C to 85°C
 N=±10ppm at 25°C, ±15ppm over 0°C to 70°C
 P=±10ppm at 25°C, ±15ppm over -20°C to 70°C

PACKAGING OPTIONS

Blank=Bulk, TR=Tape and Reel

FREQUENCY

LOAD CAPACITANCE

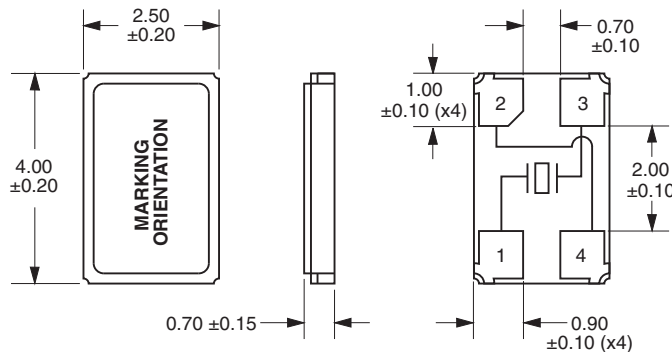
10=10pF Parallel Resonant
 12=12pF Parallel Resonant
 16=16PF Parallel Resonant

MODE OF OPERATION

A=Fundamental

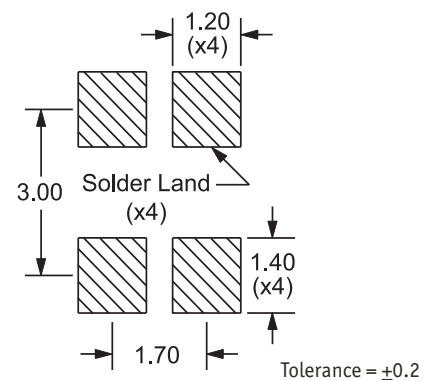
MECHANICAL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



SUGGESTED SOLDER PAD LAYOUT

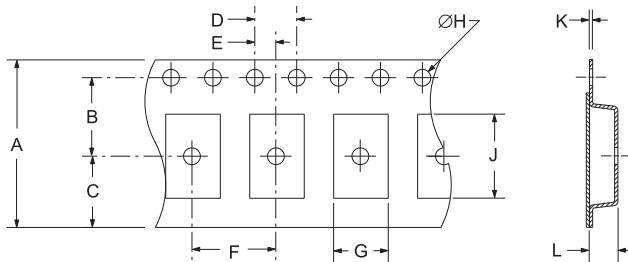
ALL DIMENSIONS IN MILLIMETERS



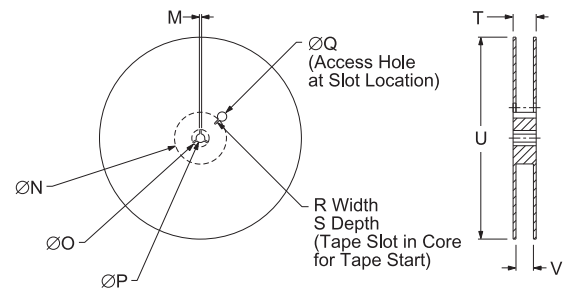
Pad 1: Crystal
 Pad 2: Cover/Ground
 Pad 3: Crystal
 Pad 4: Cover/Ground

TAPE AND REEL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



TAPE	A	B	C	D	E
	12±.3	5.5±.1	4.75±.1	4±.1	2±.1
F	G	H	J	K	L
4±.1	2.9±.1	1.5±.1	4.4±.1	.3±.05	1±.1



REEL	M	N	O	P	Q
	1.5 MIN	50 MIN	20.2 MIN	13±.5	40 MIN
R	S	T	U	V	QTY/REEL
2.5 MIN	10 MIN	18.4 MAX	180 MAX	12.4+2-0	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: E XX.X
 Frequency in MHz
 (3 Digits Maximum + Decimal)

Line 2: XXXXX
 Ecliptek Manufacturing Identifier

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