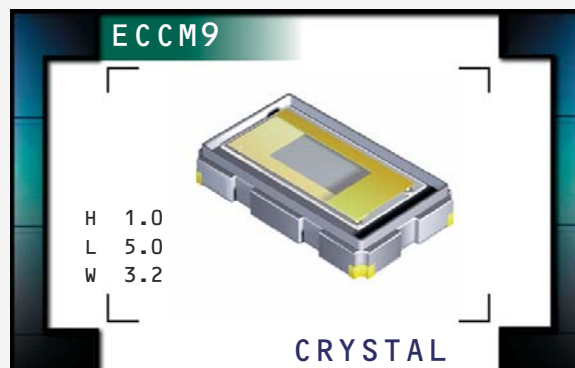


ECCM9 Series

- RoHS Compliant (Pb-Free)
- Miniature four pad ceramic surface mount package
- Standard frequencies up to 53.125MHz
- AT Cut
- Tape and reel available



ECLIPTEK
CORPORATION



NOTES

ELECTRICAL SPECIFICATIONS

Nominal Frequency (MHz)	10.000, 11.059, 11.0592, 11.2896, 11.700, 12.000, 12.1875, 12.272715, 12.288, 12.800, 13.000, 13.125, 13.225, 13.2256, 13.400, 13.480, 13.500, 13.560, 13.5652, 13.568, 13.5705, 13.57375, 13.589, 13.824, 14.000, 14.318, 14.31818, 14.3228, 14.400, 14.478, 14.47826, 14.484, 14.4844, 14.660, 14.745, 14.7456, 15.360, 16.000, 16.367, 16.368, 16.384, 16.800, 16.934, 16.9344, 17.000, 18.432, 19.200, 19.3125, 19.440, 19.500, 19.660, 19.6608, 19.680, 19.800, 20.000, 20.480, 21.250, 22.000, 23.104, 24.000, 24.545, 24.545451, 24.553, 24.576, 25.000, 25.140, 26.000, 27.000, 27.134, 28.375, 28.636, 28.6363, 28.63636, 29.491, 30.000, 32.000, 32.110, 33.000, 35.328, 36.000, 38.400, 39.062, 40.000, 40.283, 44.000, 45.000, 45.1584, 48.000, 48.600, 53.125MHz
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)	Series Resonant 10pF Parallel Resonant to 50pF Parallel Resonant
Shunt Capacitance	7pF Maximum
Mode of Operation	Fundamental
Crystal Cut	AT-Cut
Aging (at 25°C)	±3ppm / year Maximum
Drive Level	100µWatts Maximum, 10µWatts Correlation
Storage Temperature Range	-40°C to +125°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 10.000MHz to 14.999MHz 60 Ohms Maximum from 15.000MHz to 19.999MHz 50 Ohms Maximum from 20.000MHz to 34.999MHz 40 Ohms Maximum from 35.000MHz to 53.125MHz

MANUFACTURER
ECLIPTEK CORP.

CATEGORY
CRYSTAL

SERIES
ECCM9

PACKAGE
CERAMIC

CLASS
CR56

REV. DATE
07/08

PART NUMBERING GUIDE

ECCM9 A A 10 - 32.000M 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

PACKAGING OPTIONS

Blank=Bulk, TR=Tape and Reel

FREQUENCY

LOAD CAPACITANCE

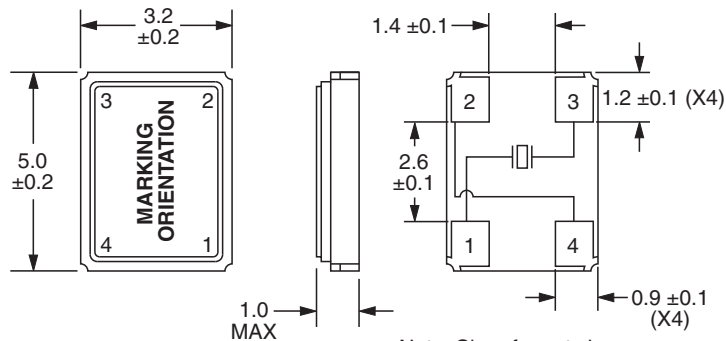
S=Series Resonant
 XX=10pF Parallel Resonant to 50pF Parallel Resonant

MODE OF OPERATION

A=AT-Cut Fundamental

MECHANICAL DIMENSIONS

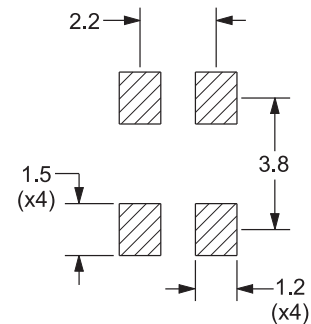
ALL DIMENSIONS IN MILLIMETERS



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

SUGGESTED SOLDER PAD LAYOUT

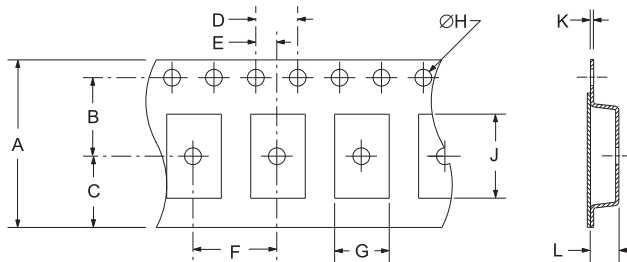
ALL DIMENSIONS IN MILLIMETERS



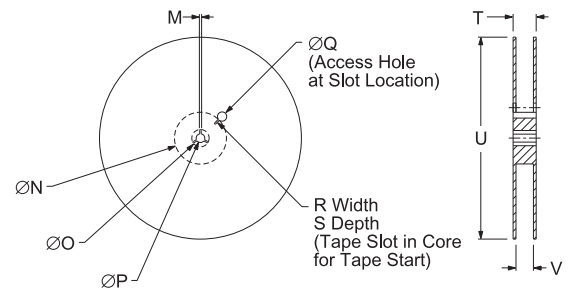
Tolerance = ±0.2

TAPE AND REEL DIMENSIONS

ALL DIMENSIONS IN MILLIMETERS



TAPE	A	B	C	D	E
	16±.3	7.5±.2	6.75±.2	4±.2	2±.2
F	G	H	J	K	L
8±.2	B0*	1.5±.1	A0*	.3±.05	K0*



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	22.4 MAX	360 MAX	16.4+2-0	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
Flammability	UL94-V0
Gross Leak Test	MIL-STD-883, Method 1014, Condition C
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.XX
 Frequency in MHz
 (4 Digits Maximum + Decimal)

Line 2: XXXXX
 Eclipsetek Manufacturing Identifier

MANUFACTURER
 ECLIPTEK CORP.

CATEGORY
 CRYSTAL

SERIES
 ECCM9

PACKAGE
 CERAMIC

CLASS
 CR56

REV. DATE
 07/08