

CRYSTAL

Epoxy Base Package *EC3SM* & *EC4SM* Series



PART NUMBERING GUIDE

EC3SM A - T - 20 - 30.000M TR

PAD LAYOUT

3 or 4 (See Mechanical Dimensions Below for Pad Layout)

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 (pg. L1)

FREQUENCY

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

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

ELECTRICAL SPECIFICATIONS

Marking Specifications See pg. G1, Group C

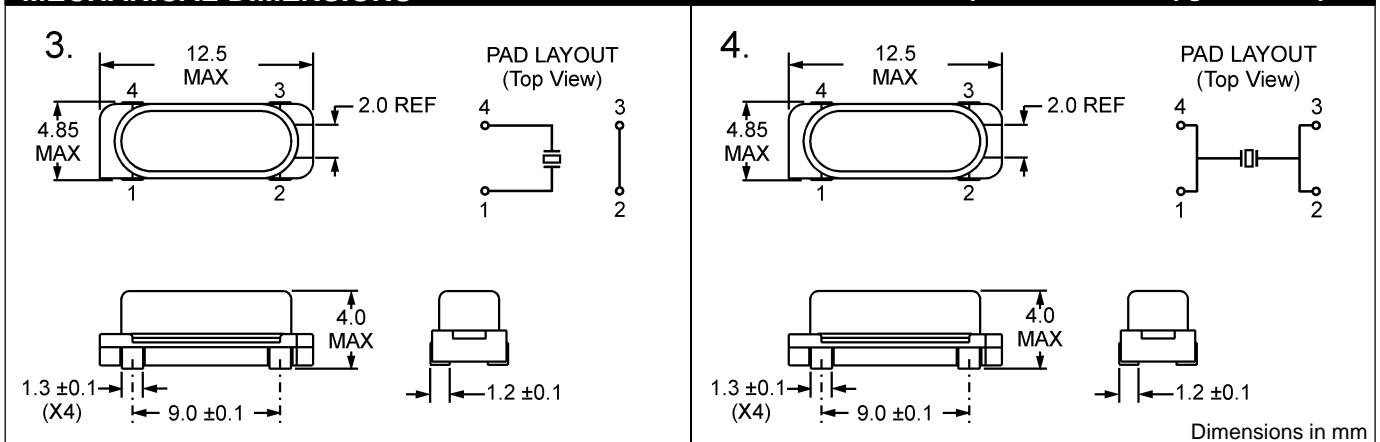
Frequency Range	3.579545MHz to 60.000MHz
Frequency Tolerance / Stability	±50ppm / ±100ppm (Standard),
Over Operating Temperature Range	±30ppm / ±50ppm (AT- Cut Only), or ±15ppm / ±30ppm (AT- Cut Only)
Operating Temperature Range	0°C to 70°C (Standard), -20°C to 70°C (AT- Cut Only), or -40°C to 85°C (AT -Cut Only)
Aging (at 25°C)	±5ppm / year Maximum
Storage Temperature Range	-40°C to 85°C
Shunt Capacitance	7pF Maximum
Insulation Resistance	500 Megaohms Minimum at 100V _{DC}
Drive Level	1 mWatt Maximum
Load Capacitance (C _L)	18pF (Standard), Custom C _L ≥10pF, 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
3.579545MHz to 4.999MHz	200 Max	Fundamental / AT	15.000MHz to 15.999MHz	60 Max	Fundamental / AT
5.000MHz to 5.999MHz	150 Max	Fundamental / AT	16.000MHz to 23.999MHz	50 Max	Fundamental / AT
6.000MHz to 7.999MHz	120 Max	Fundamental / AT	24.000MHz to 30.000MHz	40 Max	Fundamental / AT
8.000MHz to 8.999MHz	90 Max	Fundamental / AT	24.000MHz to 48.000MHz	40 Max	Fundamental / BT
9.000MHz to 9.999MHz	80 Max	Fundamental / AT	24.576MHz to 29.999MHz	150 Max	Third Overtone / AT
10.000MHz to 14.999MHz	70 Max	Fundamental / AT	30.000MHz to 60.000MHz	100 Max	Third Overtone / AT

MECHANICAL DIMENSIONS

Environmental / Mechanical Specifications See pg. H1, Group B



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Specifications subject to change without notice. • Contact factory for latest revision • 1/99 • (CR32) (CR33)