rakon Xpress

QESM49H2 / H32

HC49 SMD Crystal – SMD packaged

Frequency and Electrical Characteristics

Parameter	Min.	Typ.	Max.	Unit	Test condition / Description
Nominal frequency (Fn)	3		100.00	MHz	
Calibration tolerance			±10 to ±50	ppm	Frequency at 25°C ± 2°C and specified load capacitance
Operating temperature range		-20 to +70	-40 to +85	°C	Refer to ordering information
Storage temperature range	-40		+85	°C	
Frequency stability over temperature			±10 to ±50	ppm	Referenced to frequency reading at 25°C and the specified load capacitance
Long-term stability (Aging)			±3	ppm	Frequency drift over 1 year at 25°C
Shunt capacitance (CO)			7.0	pF	
Load capacitance (CL)	6		32 or series	pF	Refer to ordering information
Drive level		100	500	µW	
Equivalent series resistance (ESR)					Mode of vibration:
3.00 to 3.49Mhz			150		Fundamental (AT-cut)
3.50 to 3.99Mhz			120		Fundamental (AT-cut)
4.00 to 4.99Mhz			100		Fundamental (AT-cut)
5.00 to 6.99Mhz			80		Fundamental (AT-cut)
7.00 to 7.99Mhz			70		Fundamental (AT-cut)
8.00 to 8.99Mhz			60	Ω	Fundamental (AT-cut)
9.00 to 9.99Mhz			50		Fundamental (AT-cut)
10.00 to 10.99Mhz			40		Fundamental (AT-cut)
11.00 to 19.99Mhz			30		Fundamental (AT-cut)
20.00 to 40.00Mhz			25		Fundamental (AT-cut)
27.00 to 29.99Mhz			100		3rd Overtone (AT-cut)
30.00 to 44.99Mhz			80		3rd Overtone (AT-cut)
45.00 to 80.00Mhz			60		3rd Overtone (AT-cut)
Insulation resistance (IR)	500			MΩ	100 V ±15 V at 25°C

## Environmental Specifications

Parameter	Test condition / Description
Mechanical vibration	10g, Frequency: 10Hz ~ 2KHz according to standard CEI 68-2-63
Shock	100g, 6ms according to standard CEI 68-2-27

Order Part Example – QESM49H2.1.30.HQ.50.20 / 25.000MHZ

Parameter	Package type	Vibration mode	Frenquency tolerance	Operating temperature range	Frenquency stability	Load capacitance	Nominal Frenquency (MHz)
Code	QESM04	1	30	HQ	50	20	25.000MHZ
Decode	QESM = SMD Crystal 49 = HC49 SMD	1 = Fundamental 3 = 3rd overtone	10 = ±10ppm 30 = ±30ppm 50 = ±50ppm	D = -40°C F = -30°C H = -20°C J = -10°C L = 0°C M = +50°C N = +55°C O = +60°C Q = +70°C T = +85°C	10 = ±10ppm 30 = ±20ppm 50 = ±30ppm	20 = ±20pF	Please enter the nominal frequency

Model Outline, Recommended Pad Layout and Marking

TOP VIEW

4.5±0.2

11.4±0.2

Marking		Example: QESM49.1.10.HQ.10.16 / 25MHz
Line 1	Frequency in MHz (6 digits on the top)	25.000

Heights (mm)	
49H2	H = 4.0 max
49H32	H = 3.2 max

NOTE:
Dimensions are in inch and millimetre.

FRONT VIEW

10.3 max

H

0.55

0.25 max

BOTTOM VIEW

3.95±0.25

4.88±0.2

0.8±0.2

12.7±0.2

RECOMMENDED PAD LAYOUT

3.0

2.0

5.5

Reflow Soldering Profile and Packaging

Referred to JEDEC J-STD-020E
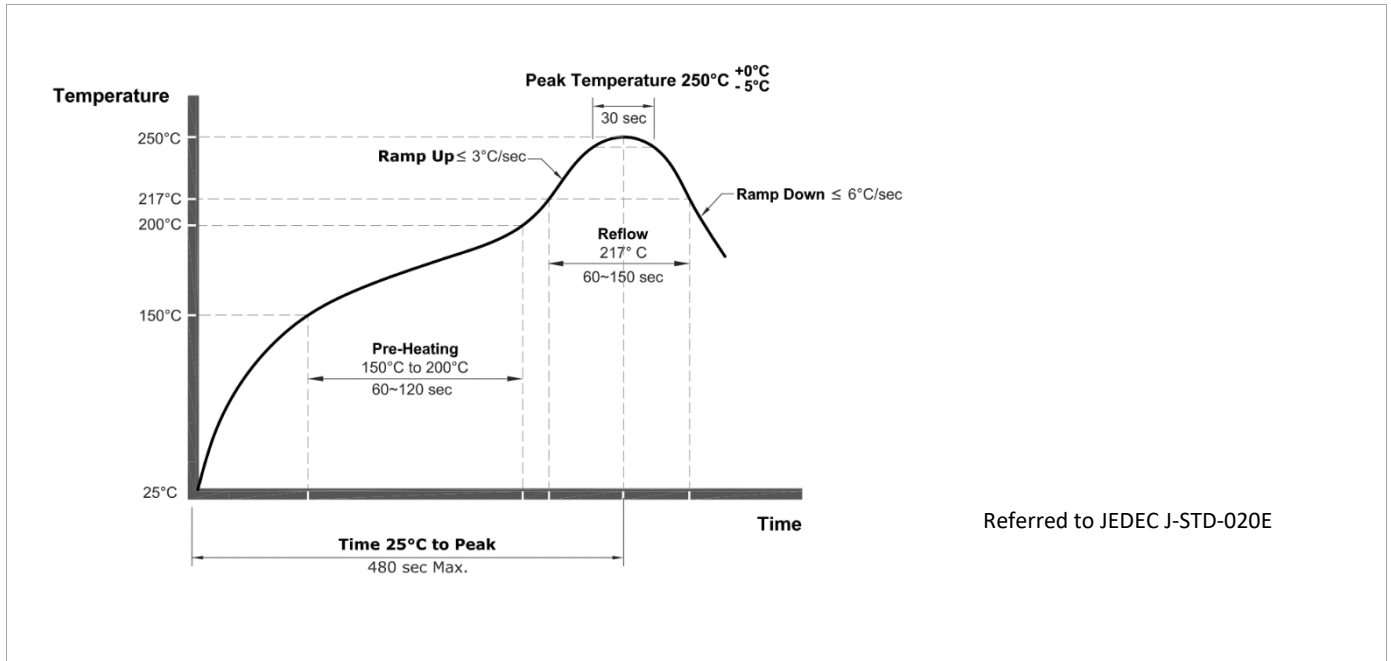
TAPE DETAILS:
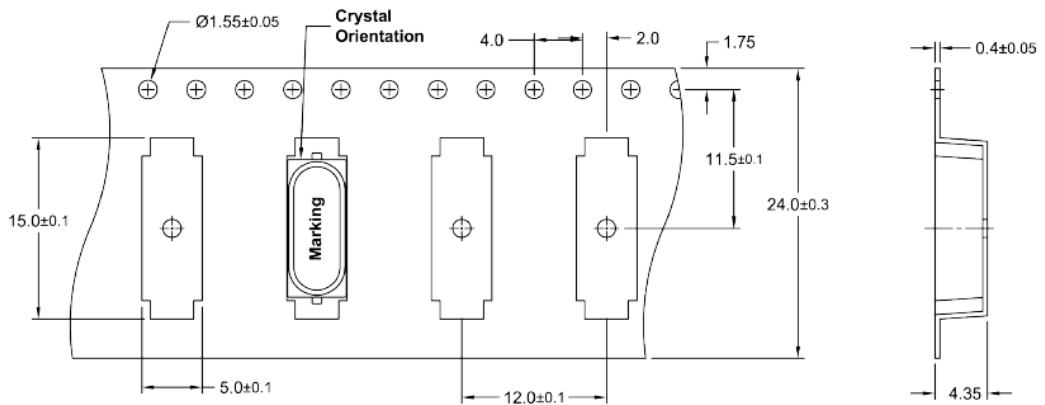
REEL DETAILS
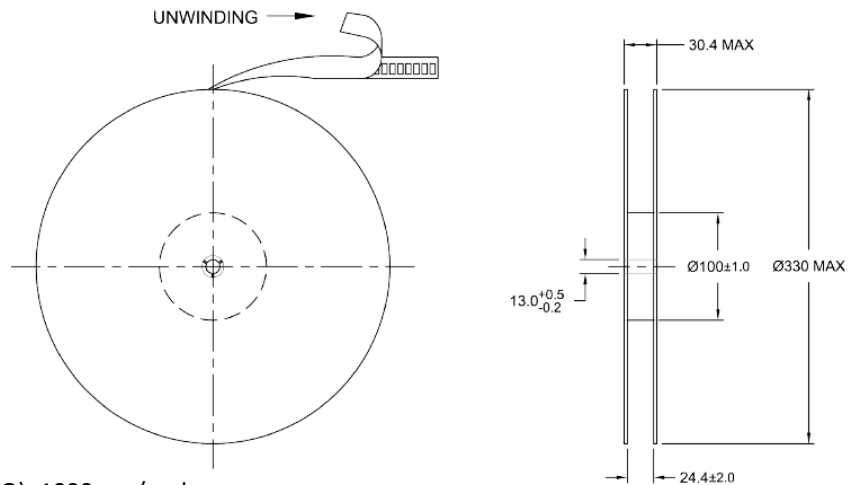
NOTE:
- Standard Packing Quantity (SPQ): 1000 pcs/reel
- Unit: mm