

QESM04

6.0 x 3.5 mm, SMD



Frequency and Electrical Characteristics

Parameter	Min.	Typ.	Max.	Unit	Test condition / Description
Nominal frequency (Fn)	10		80	MHz	
Calibration tolerance			±10 to ±50	ppm	Frequency at 25°C ± 2°C and specified load capacitance
Reflow shift			±1	ppm	Frequency shift after reflow with 4 hours settling at 25°C
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)	10		30	pF	Refer to ordering information
Drive level		10	100	µW	
Equivalent series resistance (ESR)					Mode of vibration: Fundamental (AT-cut) Fundamental (AT-cut) Fundamental (AT-cut) Fundamental (AT-cut) 3 rd Overtone (AT-cut)
10.000 to 10.999MHz			100	Ω	
11.000 to 11.999MHz			80		
12.000 to 15.999MHz			60		
16.000 to 39.999MHz			40		
40.000 to 80.000MHz			70		
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 – QESM04.1.10.JQ.10.10 / 39.000MHz

Parameter	Package type	Vibration mode	Frequency tolerance	Operating temperature range	Frequency stability	Load capacitance	Nominal Frequency (MHz)
Code	QESM04	1	10	JQ	10	10	39.000MHz
Decode	QESM = SMD Crystal 04 = 6.0 x 3.5 mm	1 = Fundamental	10 = ±10ppm 20 = ±20ppm 30 = ±30ppm 50 = ±50ppm	D = -40°C F = -30°C H = -20°C Q = +70°C T = +85°C	10 = ±10ppm 20 = ±20ppm 30 = ±30ppm 50 = ±50ppm	10 = ±10pF	Please enter the nominal frequency

Model Outline, Recommended Pad Layout and Marking

TOP VIEW

FRONT VIEW

BOTTOM VIEW

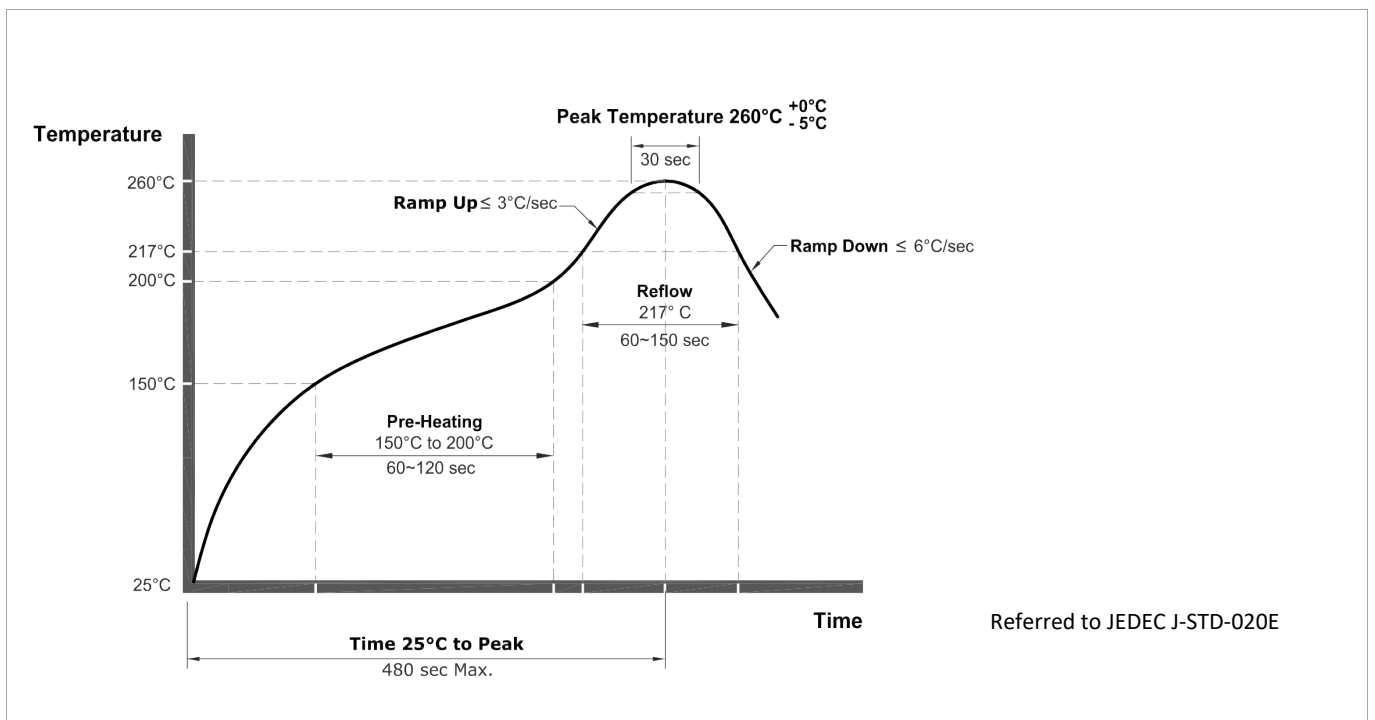
Marking		Example: QESM04.1.50.DT.20.08 / 39MHz
Line 1	Manuf code + Rakon code (6 digits)	G-104588
Line 2	Frequency in MHz (6digits)	39.000

Pin	Connections
1	Crystal
2	GND
3	Crystal
4	GND/NC

NOTE:
Dimensions are in inch and millimetre.

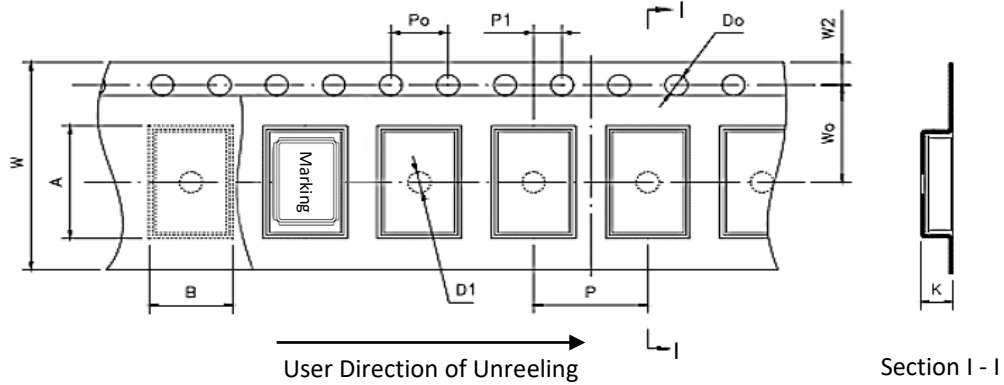
RECOMMENDED PAD

Reflow Soldering Profile



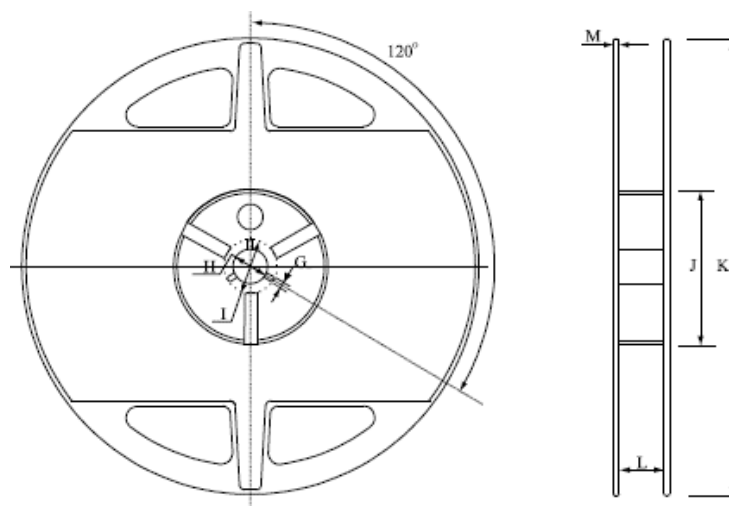
Packaging

TAPE DETAILS:



Parameter	Code	Dimension	Tolerance
Pitch of components	P	8.0	± 0.1
Pitch of sprocket hole	P ₀	4.0	± 0.1
Length from hole center to component center	P ₁	2.0	± 0.1
Width of carrier tape	W	12.0	± 0.3
Width of adhesive tape	W ₀	7.5	± 0.1
Height of component hole	A	6.4	± 0.1
Width of component hole	B	4.0	± 0.1
Gap of hold down tape and carrier tape	W ₂	5.5	± 0.1
Diameter of sprocket hole	D ₀	Φ 1.5	± 0.05
Diameter of feed hole	D ₁	Φ 1.5	± 0.25
Total of tape thickness	K	1.5	± 0.1

REEL DETAILS:



G	H	I	J	K	L	M
2.5 ± 0.5	13.5 ± 0.5	21.6 ± 0.5	60.0 ± 1.0	180.0 ± 1.0	9.5 ± 1.0	1.6 ± 0.2

NOTE:

- Standard Packing Quantity (SPQ): 1000 pcs/reel
- Unit: mm