

QESM052

5.0 x 3.2 mm, SMD, glass sealed ceramic package



Frequency and Electrical Characteristics

Parameter	Min.	Typ.	Max.	Unit	Test condition / Description
Nominal frequency (Fn)	8.000		54.000	MHz	
Calibration tolerance			±30 to ±100	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	-55		125	°C	
Frequency stability over temperature			±20 to ±100	ppm	Referenced to frequency reading at 25°C and the specified load capacitance
Long-term stability (Ageing)			±2	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	300	µW	
Equivalent series resistance (ESR)					Mode of vibration: Fundamental (AT-cut)
8.000 to 9.999MHz			120	Ω	Fundamental (AT-cut)
10.000 to 11.999MHz			80		Fundamental (AT-cut)
12.000 to 23.999MHz			50		Fundamental (AT-cut)
24.000 to 54.000MHz			30		Fundamental (AT-cut)
Insulation resistance (IR)	500			MΩ	100 V ±15 V at 25°C

Environmental Specifications

Parameter	Test condition / Description
Mechanical vibration	20g, Frequency: 10Hz ~ 2KHz according to standard MIL-STD-202 Method 204
Shock	3 times Free Fall from 150cm height to concrete floor according to IEC 60068-2-32

Order Part Example – QESM052.1.20.DT.30.18 / 8.000MHz

Parameter	Package type	Vibration mode	Frequency tolerance	Operating temperature range	Frequency stability	Load capacitance	Nominal Frequency (MHz)
Code	QESM052	1	20	DT	30	18	8.000MHz
Decode	QESM = SMD Crystal 052 = 5.0 x 3.2 mm, 2 pads	1 = Fundamental 3 = 3rd Overtone	20 = ±30ppm 30 = ±30ppm 50 = ±50ppm 100 = ±100ppm	D = -40°C F = -30°C H = -20°C L = -0°C M = +50°C Q = +70°C T = +85°C	30 = ±30ppm 50 = ±50ppm 100 = ±100ppm	00 = series 10 = 10pF 18 = 10pF 30 = 30pF	Please enter the nominal frequency

Model Outline, Recommended Pad Layout and Marking

TOP VIEW

FRONT VIEW

BOTTOM

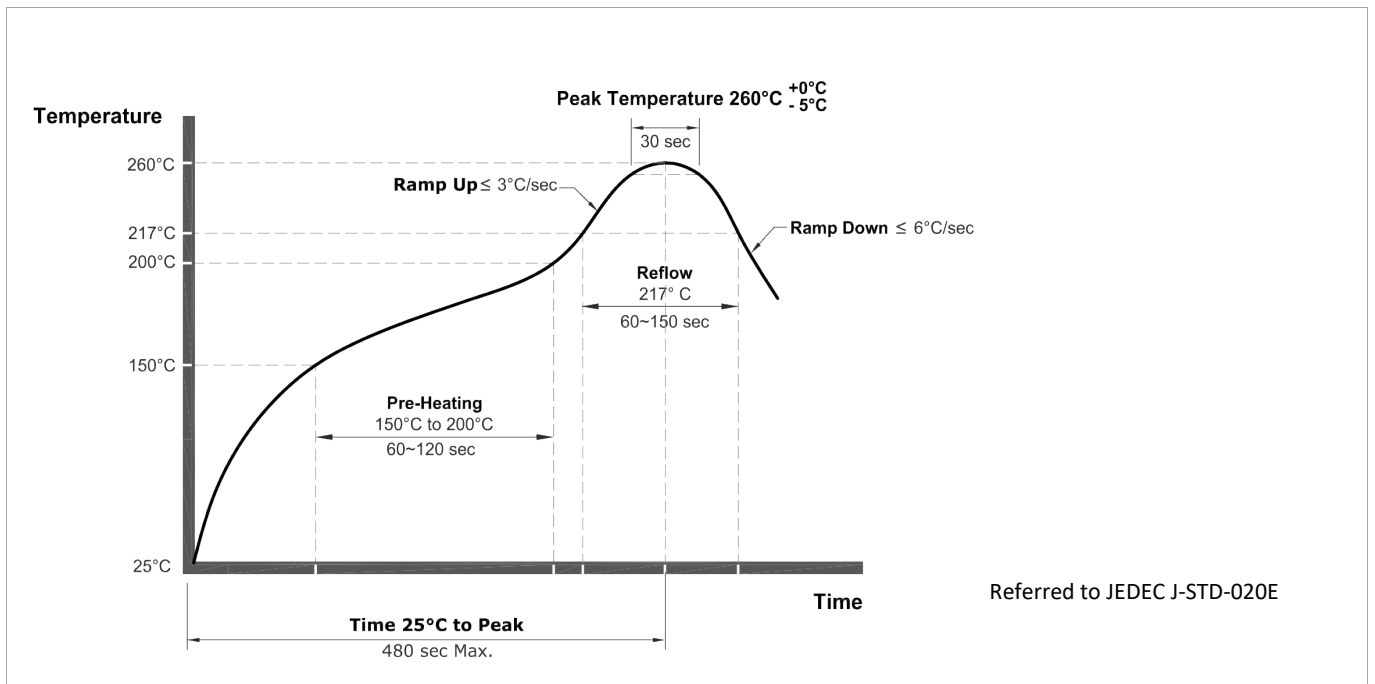
Marking		Example: QESM052.1.20.DT.30.18 / 8MHz
Line 1	Rakon code (6 digits)	105698
Line 2	T+date code (YYWW)	T2235

RECOMMENDED PAD LAYOUT

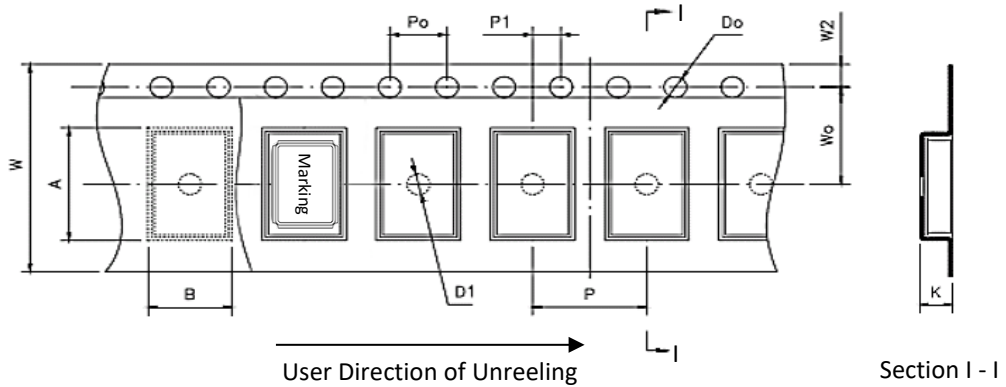
Pin	Connections
1	Crystal
2	Crystal

NOTE:
Dimensions are in millimetre.

Reflow Soldering Profile

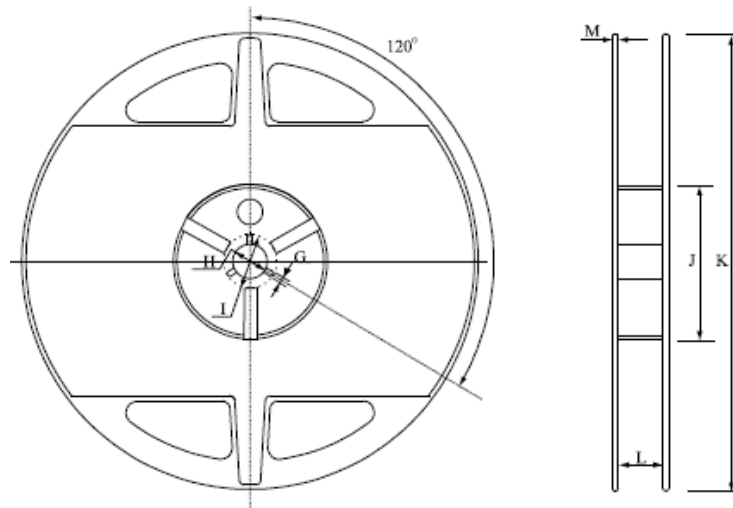


TAPE DETAILS:



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	5.5	± 0.1
Height of component hole	A	5.4	± 0.1
Width of component hole	B	3.6	± 0.1
Gap of hold down tape and carrier tape	W ₂	1.75	± 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	1.7	± 0.1

REEL DETAILS:



G	H	I	J	K	L	M
2.2 ± 0.5	13.5 ± 0.5	21.6 ± 0.5	60.0 ± 1.0	178.0 ± 1.0	13.5 ± 1.0	1.6 ± 0.2

NOTE:

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