

QESM09

SMD 2.0x1.6 Crystal – Ceramic SMD packaged
Specification (Rev-B)

▣ Electrical Characteristics	P01
▣ ESR vs. frequency range and Mode of vibration	P01
▣ Mechanical Characteristics	P01
▣ Ordering Information	P02
▣ Suggested Reflow Soldering profile	P02
▣ Tape Drawing	P03
▣ Reel Drawing	P03

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Sept 09th, 2014

Electrical Characteristics

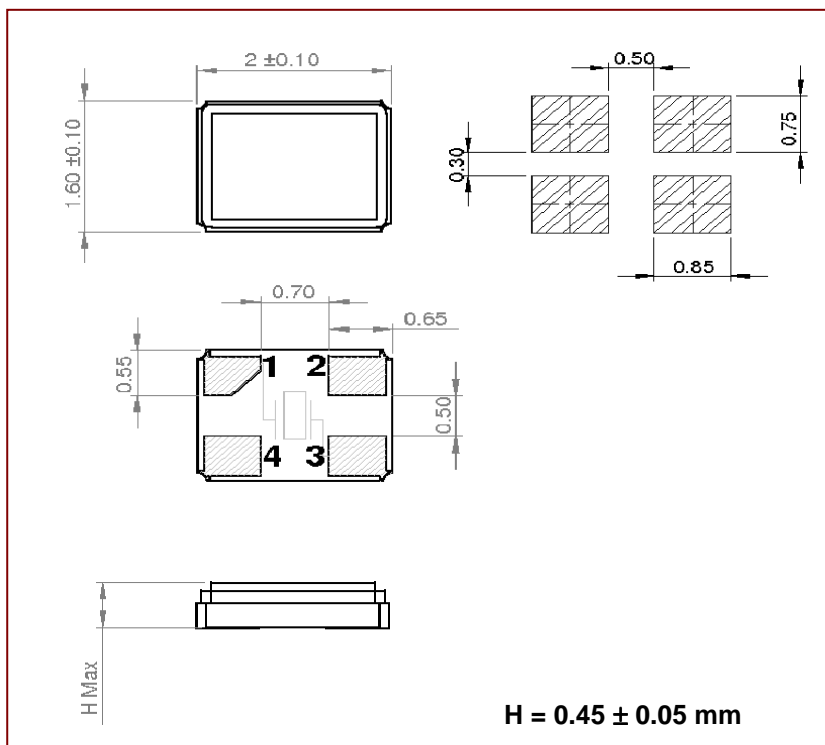
Electrical Parameters	Unit	Minimum	Typical	Maximum	Test conditions
Frequency range	MHz	24		60	
Frequency Tolerance (at 25°C)	± ppm	10	15	30	Refer to Ordering Information
Temperature Stability	± ppm	10	15	30	Refer to Ordering Information
Operating Temperature Range	°C		-20/+70	-40/+85	Refer to Ordering Information
Storage temperature range	°C	-55		+125	
Shunt capacitance C ₀	pF			3.0	
Load capacitance	pF	8pF ~ 16pF			Refer to Ordering Information
Drive level	µW		50	100	
Aging (First Year)	± ppm			2	Ref at 25°C
Insulator resistance	MΩ	500			At 100V _{DC}

Customized specification upon request

ESR vs. frequency range and Mode of vibration

Frequency range (MHz)	Mode of vibration	Max ESR (Ω)
24.000 to 24.999	Fundamental (AT-cut)	100
25.000 to 35.999	Fundamental (AT-cut)	80
36.000 to 60.000	Fundamental (AT-cut)	60

Mechanical Characteristics



Marking for QESM09

Line 1	Rakon code (6 digits)
Line 2	T+date code (YWW)

Mechanical conditions

Vibration	10g, 10Hz to 2KHz according to standard CEI 68-2-63
Shocks	100g, 6ms according to standard CEI 68-2-27

Note 1: QESM09 is compliant with RoHS 2 Directive (2011/65/EU).



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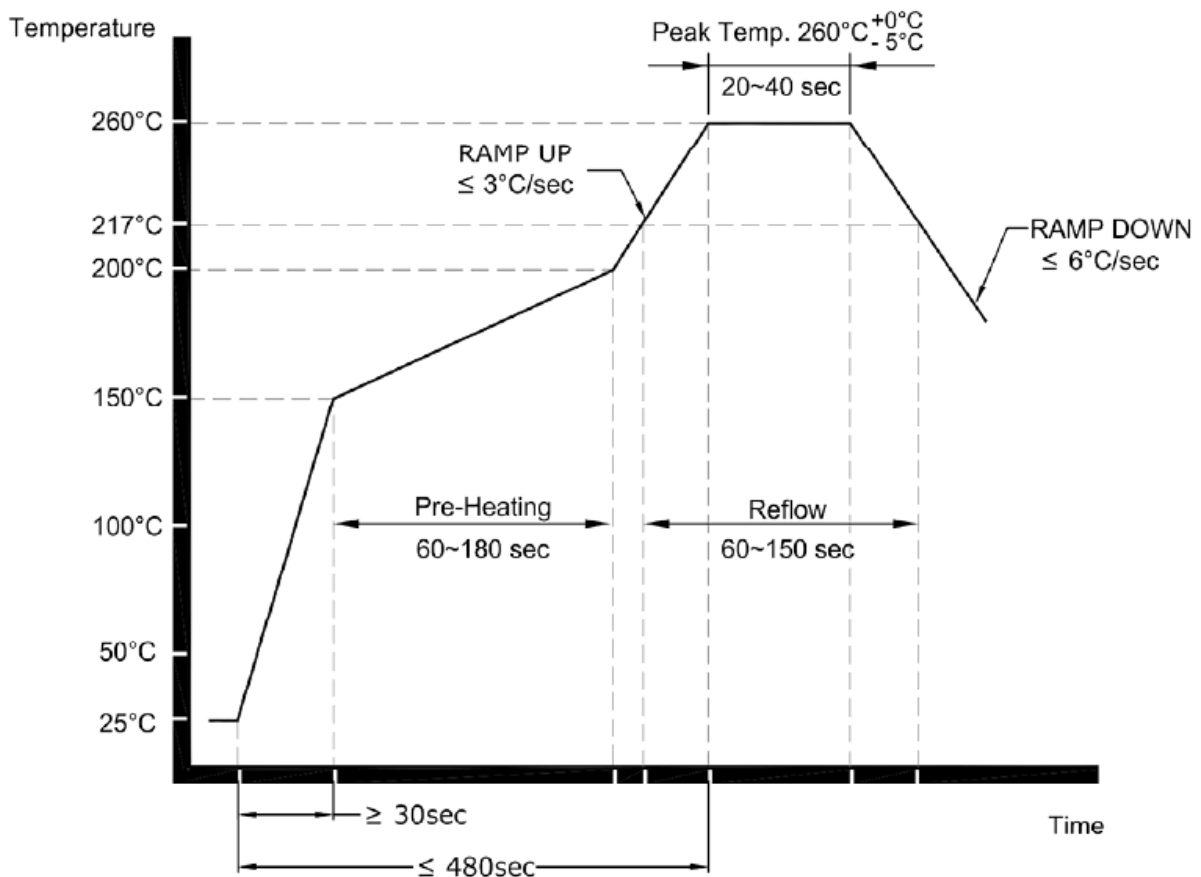
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Ordering Information

Part numbering system						
QESM09	1	15	HQ	15	10	30.000MHZ
Package type	Vibration mode	Frequency tolerance	Operating temperature range	Frequency stability	Load Capacitance	Nominal Frequency (MHz)
SMD Package QESM09 : SMD ceramic 2.0 x 1.6	1=Fundamental	10=±10ppm 15=±15ppm 20=±20ppm 30=±30ppm	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 15=±15ppm 20=±20ppm 30=±30ppm	10=10pF Please, enter the value of load capacitance	Please enter the nominal frequency

Suggested Reflow Soldering Profile



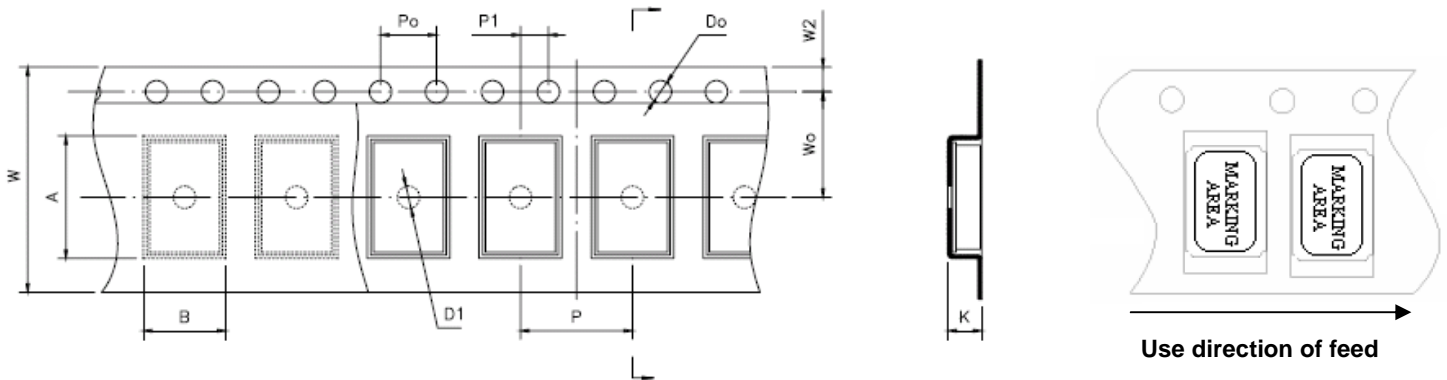
Referred to JEDEC J-STD-020C.

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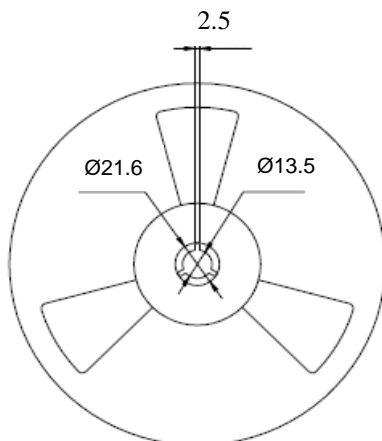
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▣ Tape Drawing

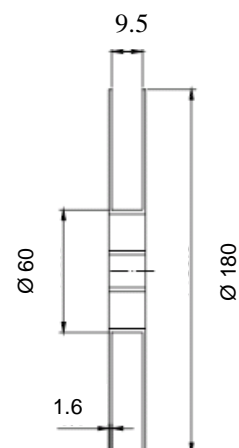


Item	Code	Dimension	Tolerance
Pitch of components	P	4.0	± 0.1
Pitch of sprocket hole	Po	4.0	± 0.1
Length from hole center to component center	P1	2.0	± 0.1
Width of carrier tape	W	8.0	± 0.3
Width of adhesive tape	W0	3.5	± 0.1
Height of component hole	A	2.3	± 0.1
Width of component hole	B	1.9	± 0.1
Gap of hold down tape and carrier tape	W2	0.5	± 0.1
Diameter of sprocket hole	Do	∅ 1.5	± 0.05
Diameter of feed hole	D1	∅ 1.5	± 0.25
Total of tape thickness	K	1.0	± 0.1

▣ Reel Drawing



Multiple :
3000pcs per reel



(unit : mm)