



# QESM05

SMD 5.0x3.2 Crystal – Ceramic SMD packaged  
*Specification (Rev-E)*

---

▣ 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

# QESM05

SMD 5.0x3.2 Crystal – Ceramic SMD packaged  
Specification (rev-E)

April 08<sup>th</sup>, 2014

### Electrical Characteristics

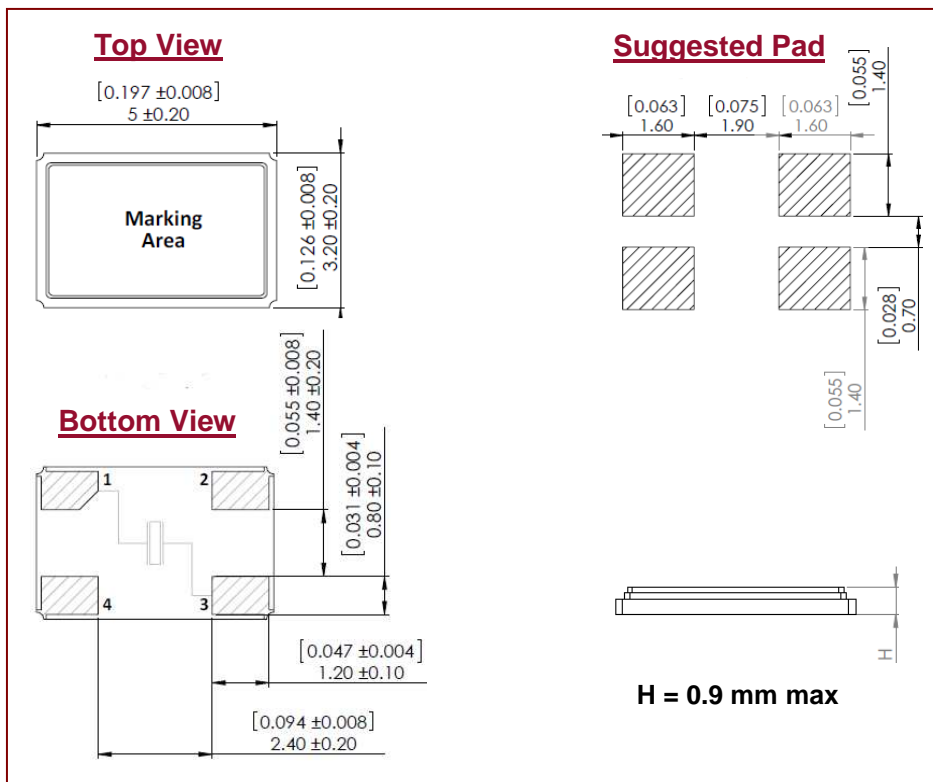
Electrical Parameters	Unit	Minimum	Typical	Maximum	Test conditions
Frequency range	MHz	8		80	
Frequency Tolerance (at 25°C)	± ppm	10	30	50	Refer to Ordering Information
Temperature Stability	± ppm	10	30	50	Refer to Ordering Information
Operating Temperature Range	°C		-20/+70	-40/+85	Refer to Ordering Information
Storage temperature range	°C	-55		+125	
Shunt capacitance C <sub>0</sub>	pF			7.0	
Load capacitance	pF	8pF ~ 30pF or series			Refer to Ordering Information
Drive level	μW	10	100	300	
Aging (First Year)	± ppm			2	Ref at 25°C
Insulator resistance	MΩ	500			At 100V <sub>DC</sub>

Customized specification upon request

### ESR vs. frequency range and Mode of vibration

Frequency range (MHz)	Mode of vibration	Max ESR (Ω)	Frequency range (MHz)	Mode of vibration	Max ESR (Ω)
8.000 to 9.999	Fund. / AT	100	20.000 to 29.999	Fund. / AT	50
10.000 to 13.999	Fund. / AT	80	30.000 to 47.999	Fund. / AT	40
14.000 to 19.999	Fund. / AT	60	48.000 to 80.000	3 <sup>rd</sup> / AT	70

### Mechanical Characteristics



Marking for QESM05	
Line 1	Rakon code (6 digits)
Line 2	Frequency in MHz (6digits)
Line 1	Manuf Code-Date Code (YYWW)

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 :** QESM05 is compliant with RoHS Recast Directive (100/65/EU).

# QESM05

SMD 5.0x3.2 Crystal – Ceramic SMD packaged

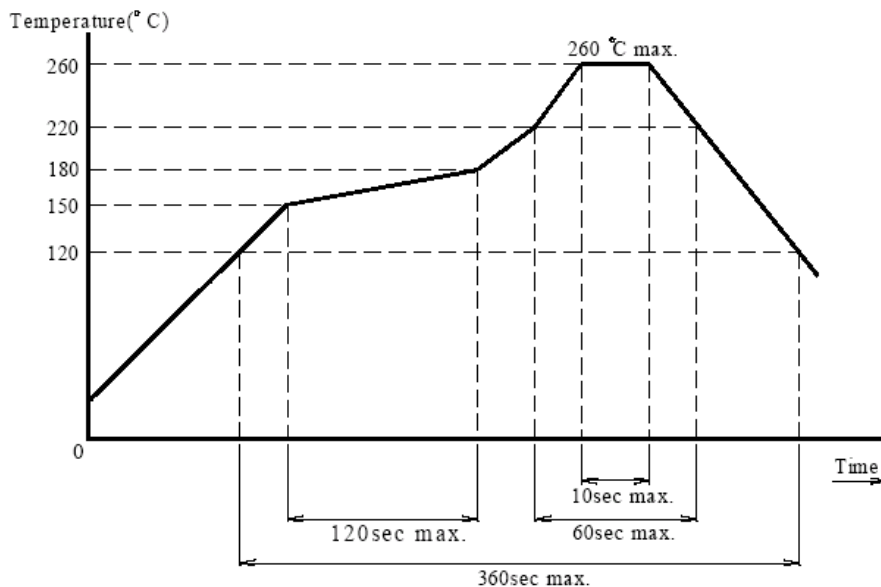
Specification (rev-E)

April 08<sup>th</sup>, 2014

### Ordering Information

Part numbering system						
QESM05	1	30	HQ	50	12	13.4008MHZ
Package type	Vibration mode	Frequency tolerance	Operating temperature range	Frequency stability	Load Capacitance	Nominal Frequency (MHz)
<b>SMD Package</b> <b>QESM05</b> : SMD ceramic 5.0 x 3.2 4 pads	1=Fundamental 3=3 <sup>rd</sup> overtone	10=±10ppm 20=±20ppm 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 20=±20ppm 30=±30ppm 50=±50ppm	00=series 10=10pF 30=30pF  Please, enter the value of load capacitance	Please enter the nominal frequency

### Suggested Reflow Soldering Profile

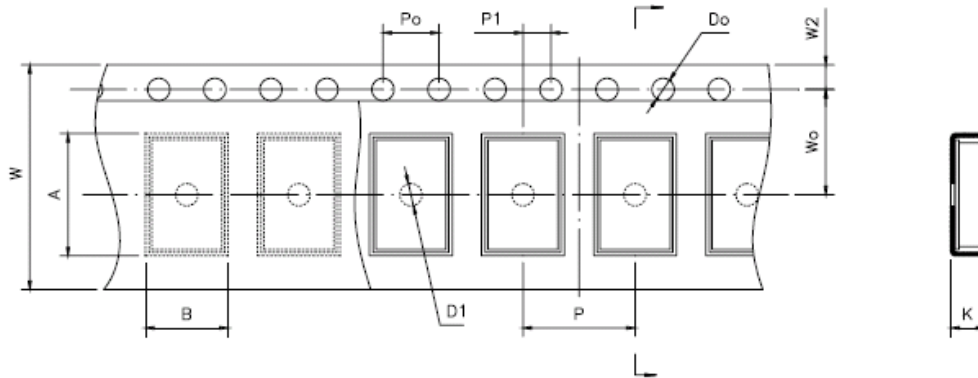


# QESM05

SMD 5.0x3.2 Crystal – Ceramic SMD packaged  
Specification (rev-E)

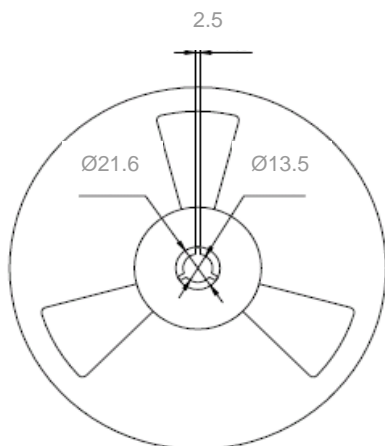
April 08<sup>th</sup>, 2014

## ▣ Tape Drawing



Item	Code	Dimension	Tolerance
Pitch of components	P	8.0	± 0.1
Pitch of sprocket hole	P <sub>0</sub>	4.0	± 0.1
Length from hole center to component center	P <sub>1</sub>	2.0	± 0.1
Width of carrier tape	W	12.0	± 0.3
Width of adhesive tape	W <sub>0</sub>	5.5	± 0.1
Height of component hole	A	5.5	± 0.1
Width of component hole	B	4.7	± 0.1
Gap of hold down tape and carrier tape	W <sub>2</sub>	1.75	± 0.1
Diameter of sprocket hole	D <sub>0</sub>	∅ 1.5	± 0.05
Diameter of feed hole	D <sub>1</sub>	∅ 1.5	± 0.25
Total of tape thickness	K	1.5	± 0.1

## ▣ Reel Drawing



Multiple : 1Kpcs per Reel

Unit : mm

