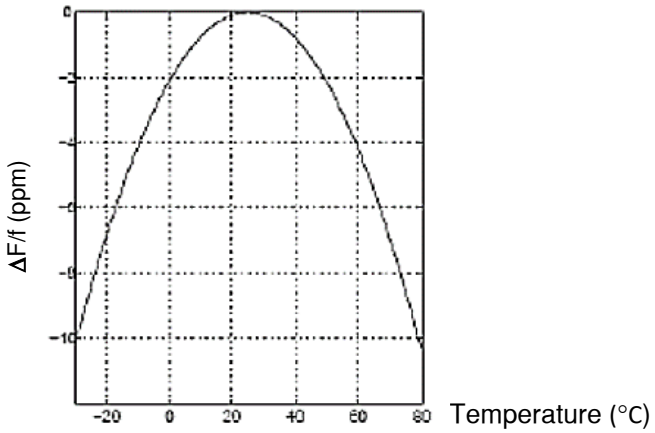
QETF32.768-SMD01

8.0 x 3.8 mm, SMD

Frequency and Electrical Characteristics

Parameter	Min.	Typ.	Max.	Unit	Test condition / Description
Nominal frequency (Fn)		32.768		kHz	
Operating temperature range	-40		85	°C	
Storage temperature range	-40		85	°C	
Frequency tolerance			±20	ppm	@ 25°C
Ageing			±5	ppm	1st year at 25°C
Load capacitance (C_L)		12.5±0.2		pF	
Shunt capacitance (C_O)		1.25		pF	
Motional capacitance (C_1)		2.1		fF	
Equivalent series resistance (ESR)			50	kΩ	
Drive level			1	µW	
Insulation resistance (IR)	500			MΩ	@100 VDC
Parabolic coefficient: Frequency vs temperature		-0.04		ppm/°C²	Turn over temperature at 25 ±5°C
Curve					

Environmental Specifications

Parameter	Test condition / Description
Vibration	Subject sample to 2 minute cycles (frequencies from 10 to 500Hz) with 1.5mm amplitude or 100g acceleration during 2 hrs in each direction (X, Y, Z). 6 hours in total.
Shock	Orient the sample in any attitude and drop it 3 times from a height of 50cm onto a hardwood board with a thickness of 3cm.

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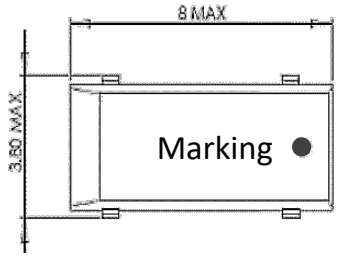
Order Part Example – QETF32.768-SMD01

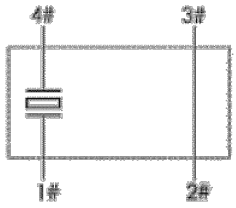
Parameter	Product series	Frequency	Package type	Package series
Code	QETF	32.768	SMD	01
Decode	QETF = Tuning Fork Crystal	32.768 = 32.768 kHz	SMD = Surface Mount Device	01 = 8.0 x 3.8

Model Outline, Recommended Pad Layout and Marking

TOP VIEW

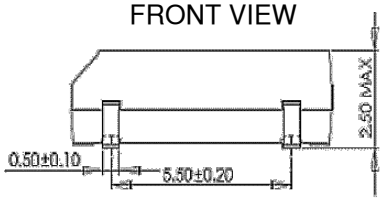


INTERNAL CONNECTIONS



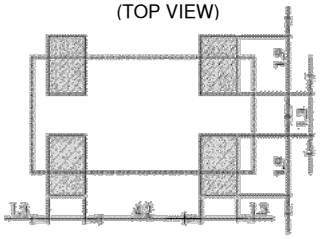
Marking	Example
TF+ ## (Internal code)+ YWW (Date code)	TF01-YWW

FRONT VIEW



RECOMMENDED PAD LAYOUT

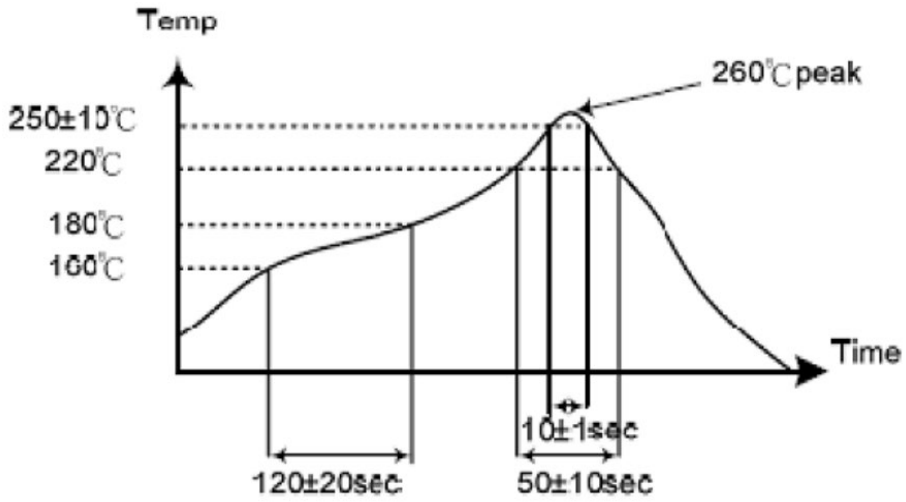
(TOP VIEW)



Pin	Connections
1	Crystal
2	NC
3	NC
4	Crystal

NOTE: Dimensions are in millimetre.

Reflow Soldering Profile



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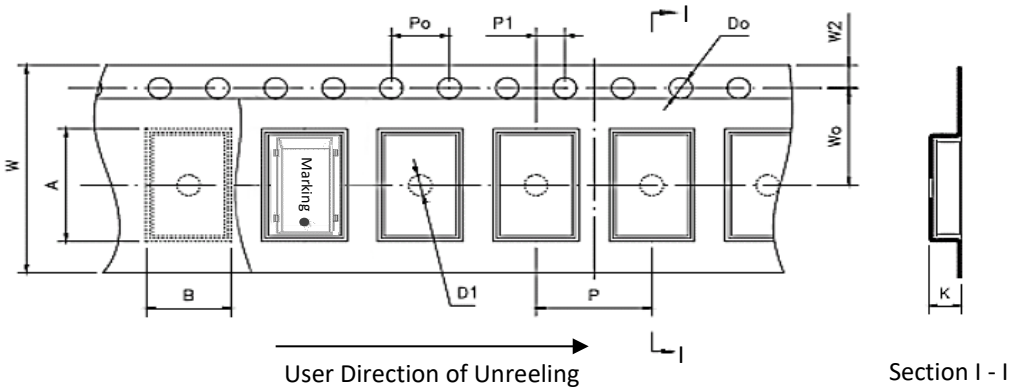
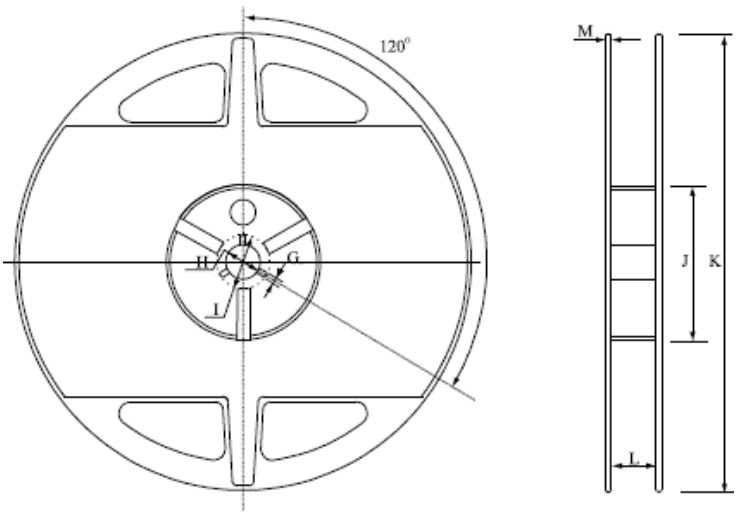
Packaging

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	16	± 0.3
Width of adhesive tape	W_0	7.5	± 0.1
Height of component hole	A	8.3	± 0.1
Width of component hole	B	4.05	± 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	+1/0
Diameter of feed hole	D_1	Φ 1.6	± 0.1
Total of tape thickness	K	2.7	± 0.1

REEL DETAILS:



G	H	I	J	K	L	M
2	Φ 13	Φ21	Φ100	Φ 330	17.5	2.0

NOTE:

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

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