



Quartz Crystal - Tuning Fork - TF308

Pin Type Crystal - Tuning Fork - TF308

• Features

- Low cost & wide applications
- Low power consumption
- RoHS compliant available

• General Specification

Type	3.0 x 8.0
Frequency Range	32.768KHz
	30.000KHz - 200.00KHz (Available)
Frequency Tolerance at 25°C	± 10ppm to ± 100ppm
Temperature Coefficient	-0.034 ± 0.006ppm/°C ²
Operating Temperature	-10 °C to +60 °C *
Load Capacitance	12.5pF (6pF - 12.5pF)
Shunt Capacitance	1.8pF typical
Motional Capacitance	0.0035pF typical
Quality Factor	60000 typical
Storage Temperature	-40°C to +85°C *
Drive Level	1.0μW *
Aging	± 5ppm max first year *

* Can be changed according to Customer's requirement.

• Drive Level Codes (μW)

M = 1.0	B = 200	D = 50	E = 300	G = 500	I = 10
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• Load Capacitance Codes

12pF = A	12.5pF = B	14pF = C	16pF = D	17pF = E	18pF = F
20pF = G	25pF = H	30pF = I	32pF = J	33pF = K	Series = L
13pF = M	27pF = N	50pF = O	10pF = P	15pF = Q	22pF = R
15.8pF = S	8.5pF = T	8.2pF = U	40pF = V	9pF = W	11pF = X
13.8pF = Y	19.6pF = Z	6pF = a	7pF = d	8pF = e	19pF = f

• Operating Temperature Codes (°C)

A = -10 to +60	B = -20 to +70	C = -10 to +70	I = -40 to +85	X = -30 to +80	W = -10 to +50
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Pls contact us for the parameters you could not find in these tables.

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• Frequency Tolerance & Frequency Stability Codes (ppm)

P = ± 10	S = ± 20	T = ± 30	U = ± 50	V = ± 100	W = ± 5
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• Frequency Stability vs. Operating Temperature

	- 80ppm	- 160ppm
-20°C - +70°C	•	
-40°C - +85°C		•

⊙ Available • Standard

• ESR (Series Resistance Rs) vs Standard Frequency

Frequency Range	ESR Max	Code
(KHz)	(K Ω)	
30.000 - 200.000	35	b

• Marking

32.768

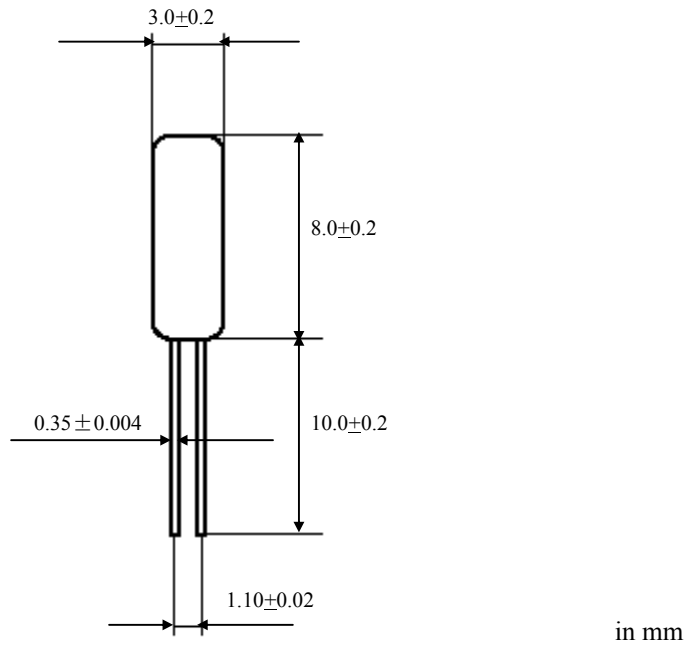
• Ordering Information

Drive Level	Load Capacitance	Operating Temperature	Frequency Tolerance	Frequency Stability	ESR	Type	Vibration Mode	Frequency	Lead-free	Packing
(μ W)	(pF)	(°C)	(ppm)	(ppm)	(K Ω)			(KHz)		
See Tables						L = 3.0 x 8.0	Blank=N/A	xx.xxxK	LF=leadfree Blank=with lead	Blank=bulk
1.0	12.5	-20 to +70	± 20	± 50	40					
M	B	B	S	U	a	L			LF	

For Example: MBBSUaL-32.768KLF

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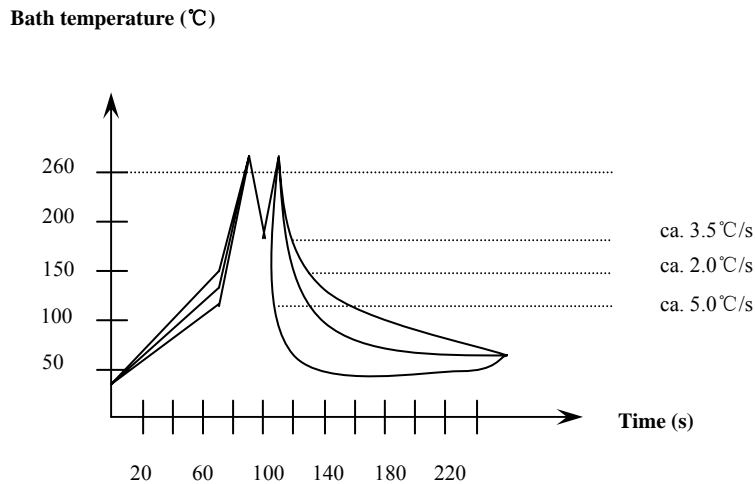
• Dimensions



• Packing

Bulk

• Wave Soldering Profile



• Mounting

Do not solder the metal can if the crystal shall be mounted vertically to the board. The crystal may be overheated by the direct heat flow. Pls use glue (hot-melt adhesive) or mechanical clamping to fasten the metal can.