

## Feature

- Miniature Cylindrical Tuning Fork Crystals
- Package Size: Φ2.0 x 6.0 mm/Φ3.0 x 8.0 mm
- Low Aging, Low Power Consumption, High Shock
- RoHS Compliant / Pb Free

## Applications

- Real Time Clock
- Consumer Devices
- Portable Electronics
- Time Display Devices



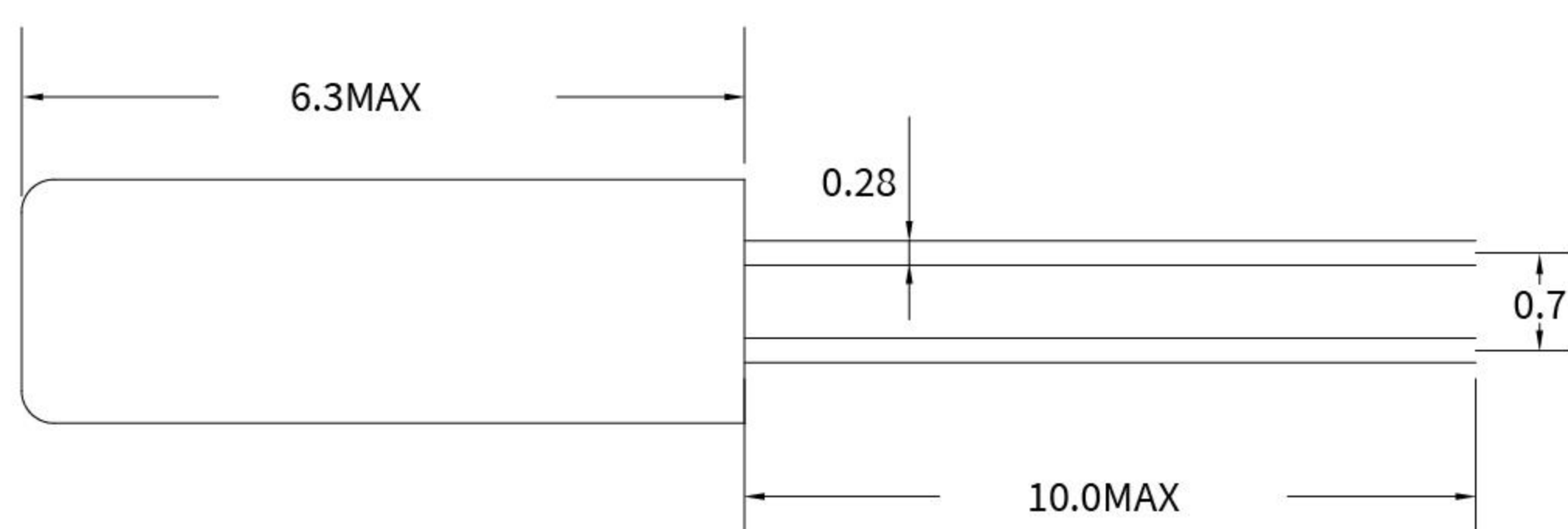
## Electrical Specifications

Item	Symb.	Electrical spec.	Notes
Nominal Frequency	Freq.	32.768KHz	
Operating Temperature	T_use	-10°C~+60°C/-20°C~+70°C	
Storage Temperature Range	T_stg	-40°C~+85°C	
Oscillation Mode		Fundamental	
Frequency Tolerance	f_tol	±10ppm / ±20ppm	at 25°C±3°C
Turnover Temperature	Ti	+25°C±5°C	
Parabolic curvature constant	B	-0.042ppm/(Δ°C) <sup>2</sup> max.	Over Operating Temp. Range (Reference 25°C)
Drive Level	DL	1 μW Max.	
Load Capacitance	CL	6pF;7pF;9pF;12.5pF	
Effective Resistance	RR	30kΩ max.	
Aging	f_age	±3 ppm Max.	1st.Year at 25°C

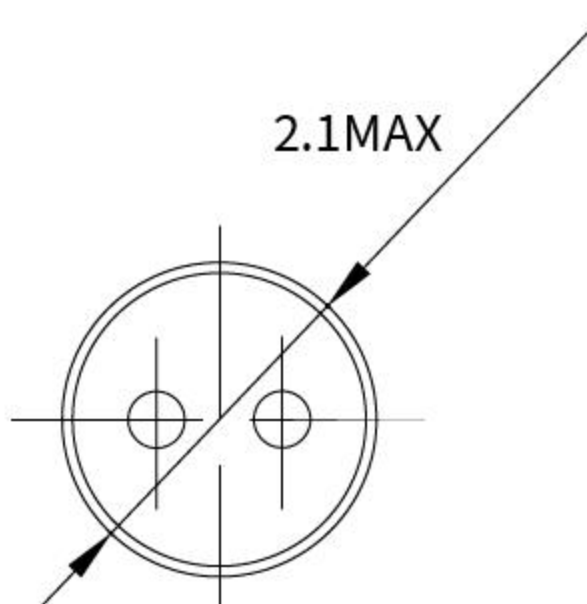
## Dimensions (UNIT:mm)

### TF206 Series

#### • SIDE VIEW



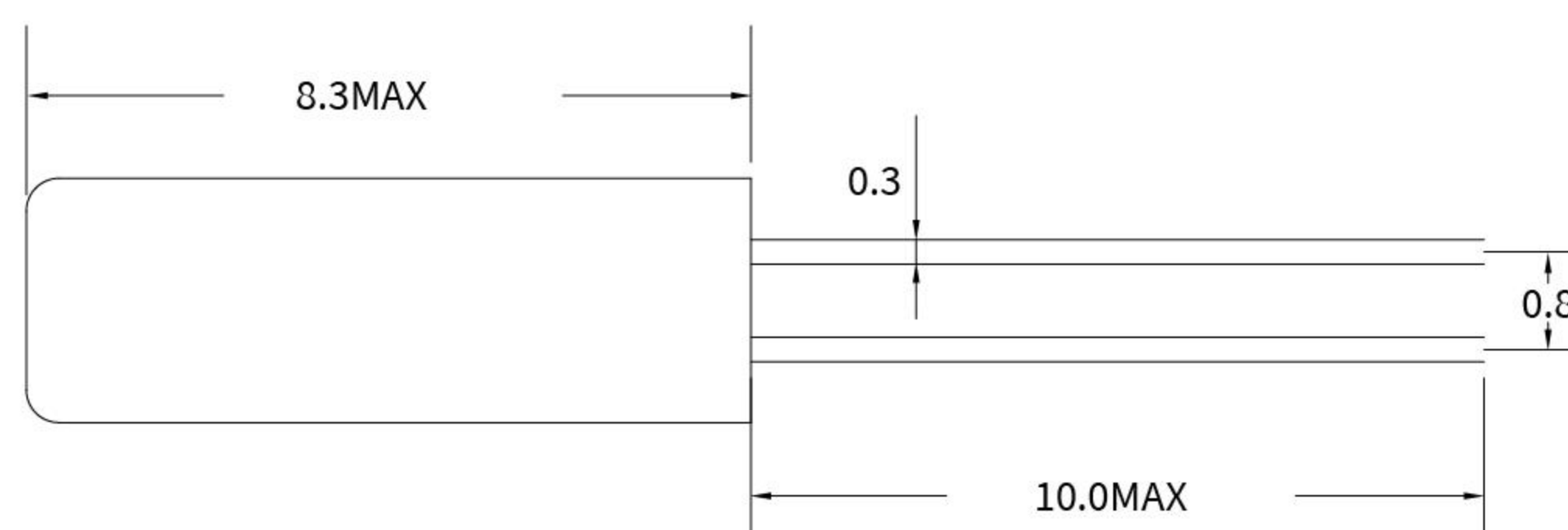
#### • BOTTOM VIEW



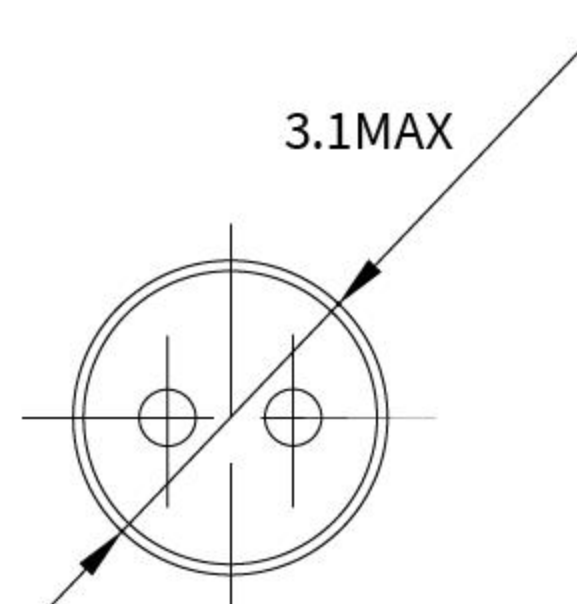
## Dimensions (UNIT:mm)

### TF308 Series

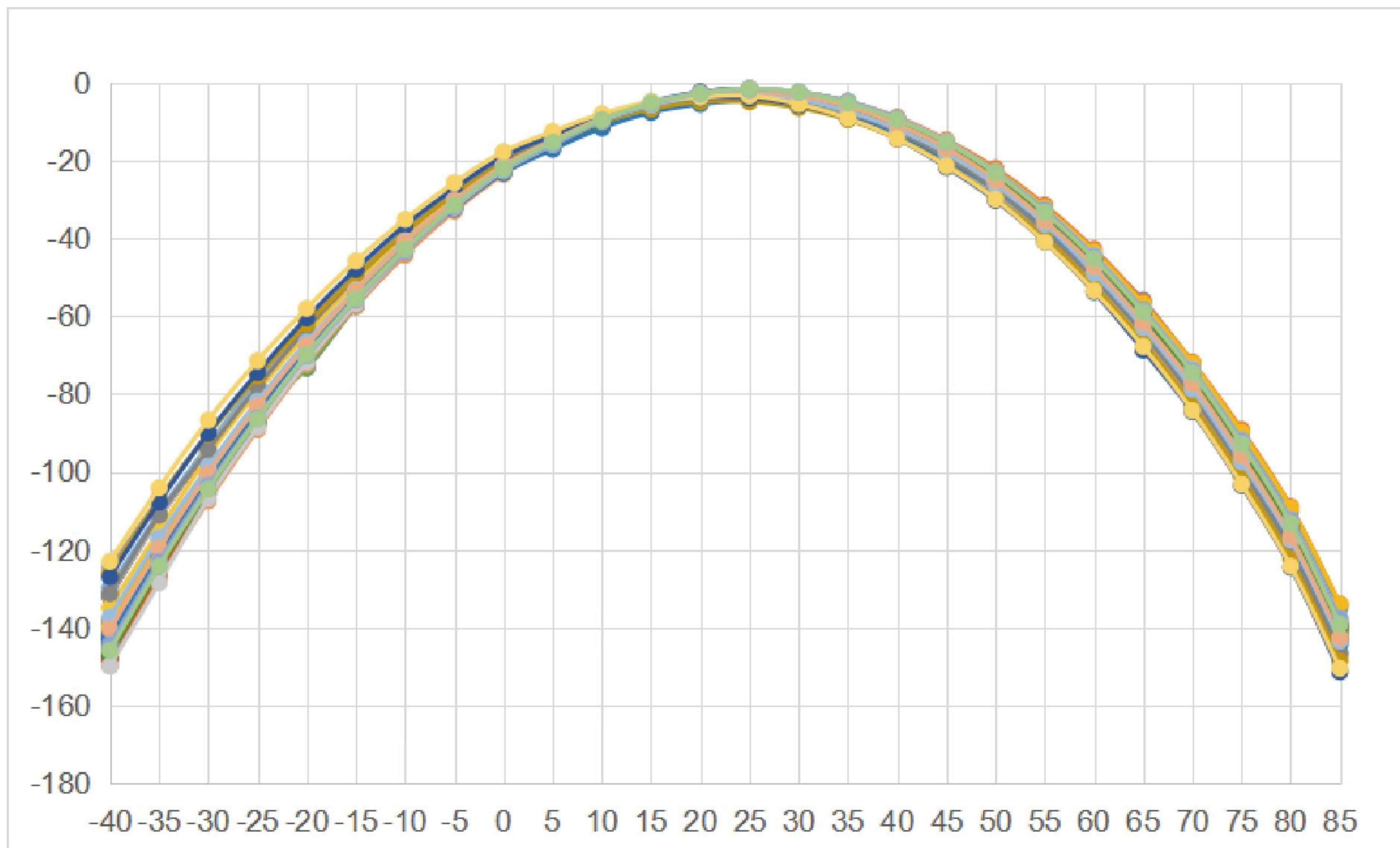
#### • SIDE VIEW



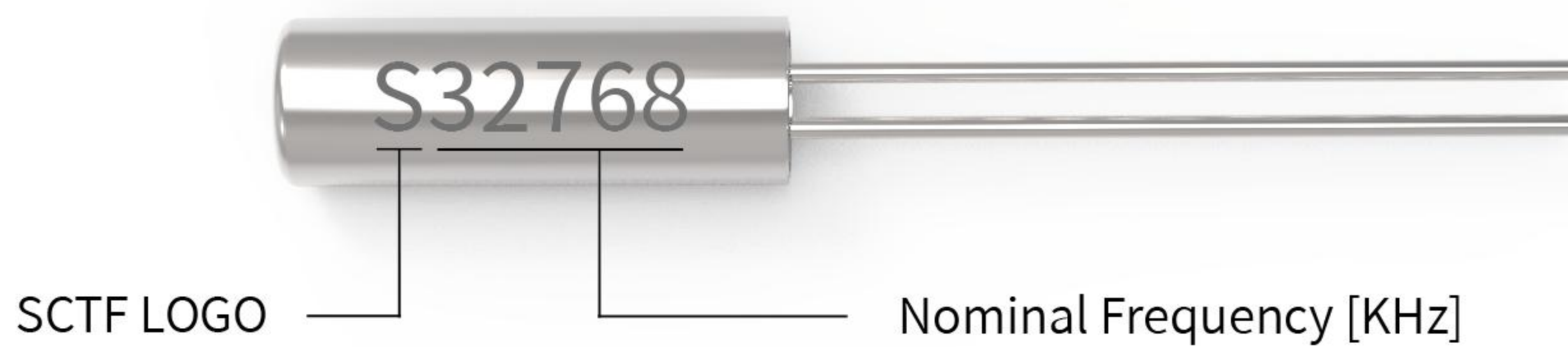
#### • BOTTOM VIEW



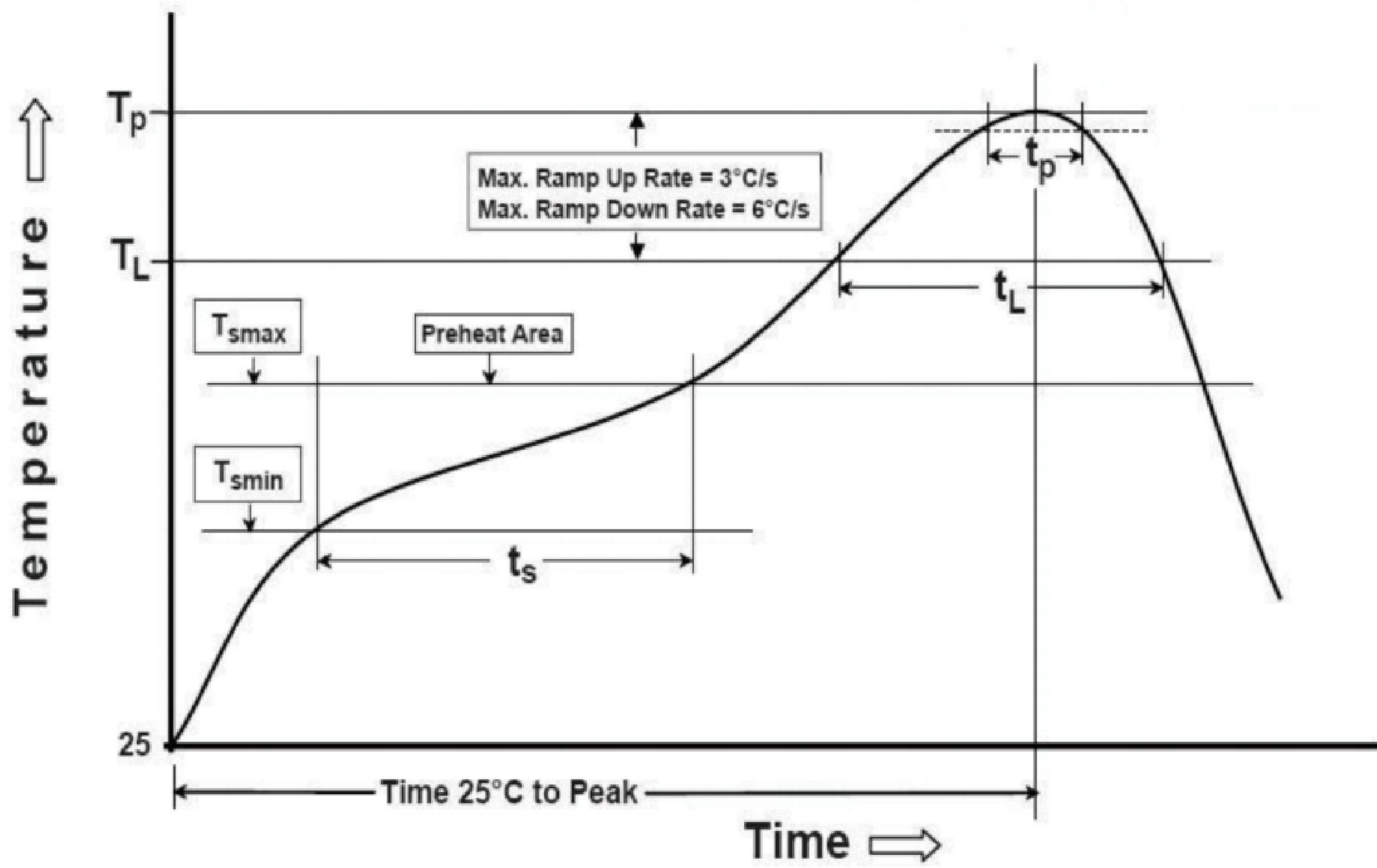
## Frequency Temperature Characteristics



## Marking Information



## Suggested Reflow Profile



Profile Feature	Sn - Pb Eutectic Assembly	Preheat / Soak
Preheat / Soak <ul style="list-style-type: none"> <li>● Temperature Min ( T<sub>s</sub> min )</li> <li>● Temperature Max ( T<sub>s</sub> max )</li> <li>● Time ( T<sub>s</sub> min to T<sub>s</sub> max )</li> </ul>	100°C 150°C 60-120 seconds	150°C 200°C 60-120 seconds
Ramp - up rate ( T <sub>L</sub> to T <sub>p</sub> )	3°C/ second max.	3°C/ second max.
Time maintained above <ul style="list-style-type: none"> <li>● Liquidous temperature ( T<sub>L</sub> )</li> <li>● Time ( t<sub>L</sub> ) maintained above T<sub>L</sub></li> </ul>	183°C 60-150 seconds	217°C 60-150 seconds
Peak package body temperature ( T <sub>p</sub> )	235°C	260°C
Time within 5° C of the specified classification temperature ( T <sub>p</sub> )	20 seconds	30 seconds
Ramp - down rate ( T <sub>p</sub> to T <sub>L</sub> )	6°C/ second max.	6°C/ second max.
Time 25° C to peak temperature	6 minutes max.	8 minutes max.
<b>Suggest reflow times</b>	<b>2 Times max.</b>	

## Options and Part Identification : Example SXTF20632768A20E

Company	Ceramic Package	Effective Resistance	Frequency Code [KHZ]	Load Capacitance	Frequency Tolerance	Operating Temperature
<b>SX</b>	<b>TF206</b>	<b>R</b>	<b>32768</b>	<b>A</b>	<b>20</b>	<b>E</b>
Code Company	Code Ceramic Package	Code Effective Resistance	Frequency	Code Load Capacitance	Code Frequency Tolerance	Code Operating Temperature
SX SCTF	TF1610 1.6×1.0×0.5mm TF2012 2.0×1.2×0.6mm TF3215 3.2×1.5×0.8mm TF7015 7.0×1.5×1.4mm TF206 Φ2.0×6.0 mm TF308 Φ3.0×8.0 mm	Blank Standard R 50kΩ max.	32.768	A 12.5pF G 9pF C 7pF D 6pF	10 ±10ppm 20 ±20ppm	C -10°C ~ +60°C E -20°C ~ +70°C F -40°C ~ +85°C

If you have other parameter requirements, you can contact **SCTF** at any time.

## Options and Part Identification : Example SXTF30832768A20E

Company	Ceramic Package	Effective Resistance	Frequency Code [KHZ]	Load Capacitance	Frequency Tolerance	Operating Temperature
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## Packaging Information

- TF308

T=Bag and box (1,000pcs/bag)



T=Bag and box (5,000pcs/box)



- TF206

T=Bag and box (1,000pcs/bag)



T=Bag and box (10,000pcs/box)

