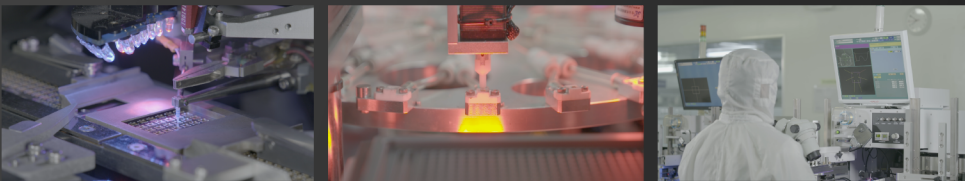


SCTF[®]



32.768KHz 石英晶体

值得信赖的专业频率控制元件制造商



www.sctf-crystal.com

值得信赖的专业频率控制元件制造商



企业简介

Company introduction

Since 2003

专业研发、生产、销售系列石英晶体及振荡器产品

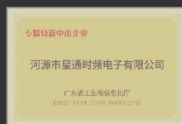
推行国际标准质量管理体系：ISO9001:2015、ISO14001: 2015、IATF16949: 2016

国家高新技术企业、专精特新企业、创新型中小型企业

符合ROHS、REACH标准

以客户为中心 视质量为生命

提供晶振及周边电路运用解决方案



SCTF 深圳市星通时频电子有限公司
SHENZHEN SCTF ELECTRONICS CO.,LTD

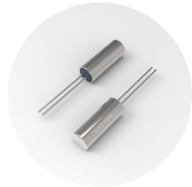
www.sctf-crystal.com

0755-86097105

sales@sctf-crystal.com

产品外观

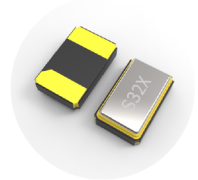
Product Appearance



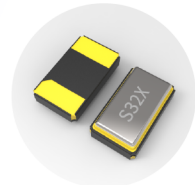
■ TF308
3.0×8.0mm



■ TF206
2.0×6.0mm



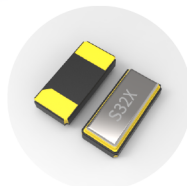
■ TF1610
1.6×1.0mm



■ TF2012/TF2012R
2.0×1.2mm



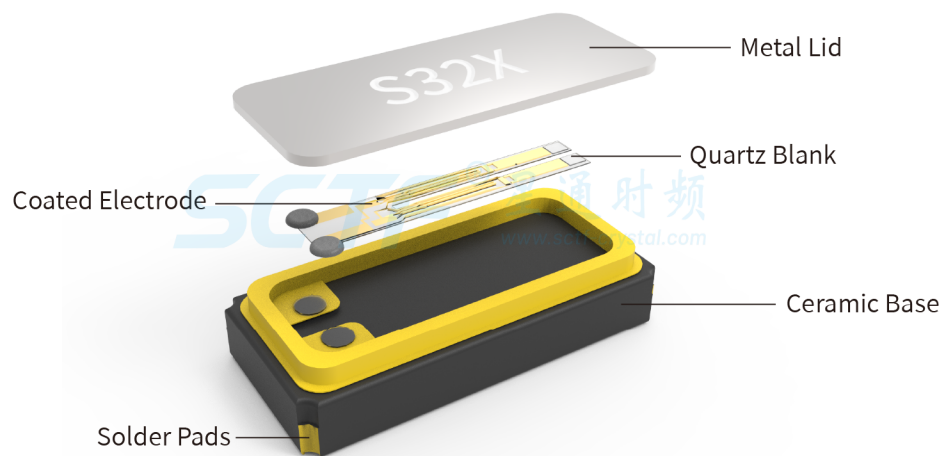
■ TF7015
7.0×1.5mm



■ TF3215/3215R
3.2×1.5mm

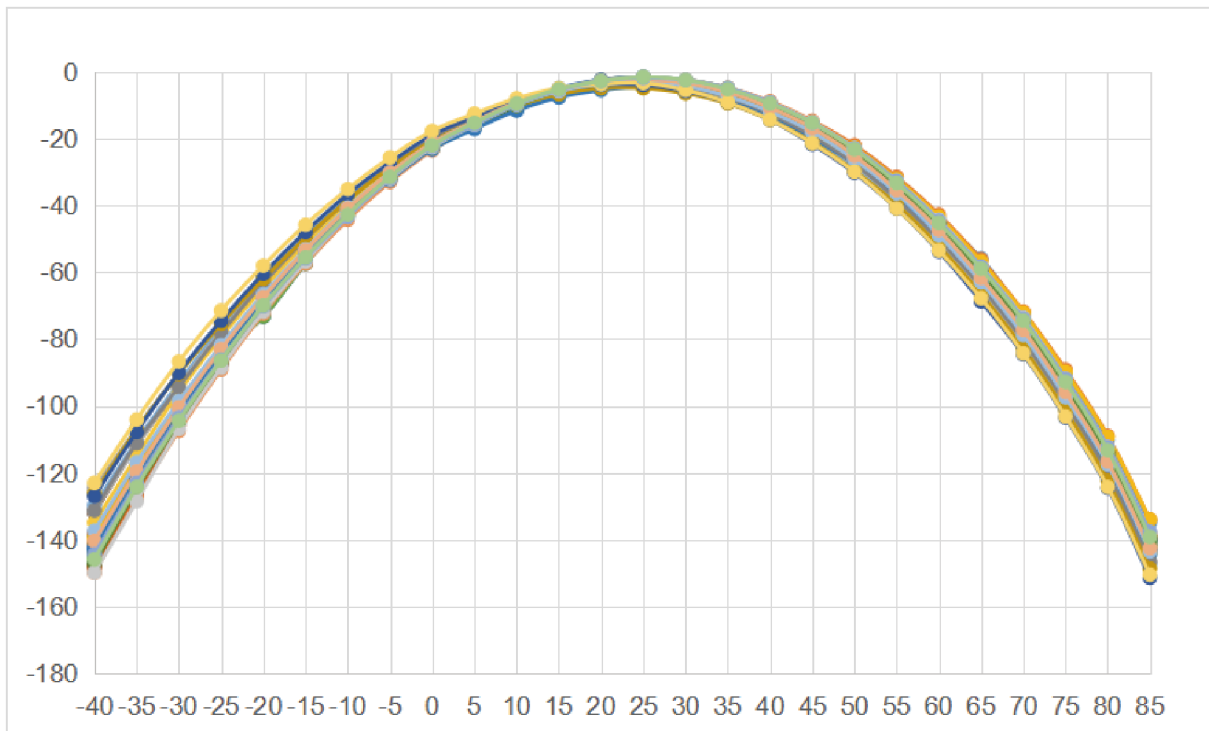
产品结构

Product Structure



频率温度特性曲线

Frequency Temperature Characteristics



零部件编码示意

Options and Part Identification

Options and Part Identification : Example SXTF3215R32768A20F

Company	Ceramic Package	Effective Resistance	Frequency Code [KHZ]	Load Capacitance	Frequency Tolerance	Operating Temperature
SX	TF3215	R	32768	A	20	F
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	E -20°C ~ +70°C F -40°C ~ +85°C

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

产品选型指南

Product Selection Guide

Item Series	Size [mm]		Nominal Frequency	Load Capacitance	Frequency Tolerance [@25°C]	ESR [max.]	Operating Temperature
	L	W					
TF1610	1.6	1.0	32.768KHz	6pF 7pF 9pF 12.5pF	±10ppm ±20ppm	90KΩ	-40°C~+85°C
TF2012	2.0	1.2				80KΩ	
TF2012R						50KΩ	
TF3215	3.2	1.5				70KΩ	
TF3215R						50KΩ	
TF7015	7.0	1.5				65KΩ	
TF206	Φ2.0	6				30KΩ	-10°C~+60°C
TF308	Φ3.0	8		-20°C~+70°C			

若需要更详细的资料请查询详细规格书或和我们的技术人员联系。

1. 选择需要的封装规格及产品系列：3.2×1.5mm; TF3215 Series
2. 选择需要的频率：32.768KHz
3. 确定负载电容值 (CL)：12.5pF
4. 选择需要的精度：±20ppm
5. 选择需要的工作温度范围：-40°C ~ +85°C

您需要的产品是：TF3215 Series 32.768KHz 12.5pF ±20ppm -40~+85°C

TF1610 Series

1.6 x 1.0 mm TUNING FORK Crystal

Feature

- Ultra Miniature Ceramic surface mount with Metal Lid
- Package Size: 1.6 x 1.0 x 0.5mm max
- Low Aging, Low Power Consumption, high reliability characteristics
- RoHS Compliant / Pb Free

Applications

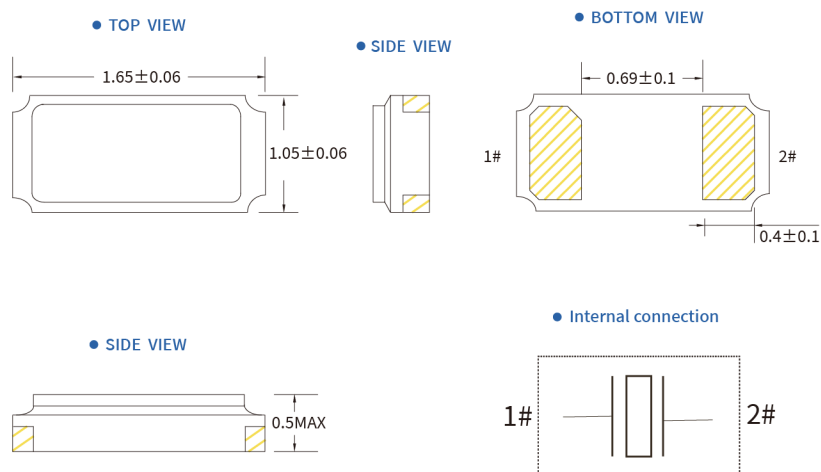
- Real Time Clock
- Portable Electronics
- Smart Meters
- Communication Electronics
- IoT Devices



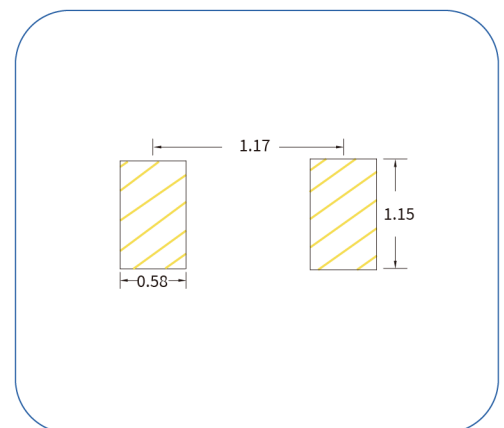
Electrical Specifications

Item	Symb.	Electrical spec.	Notes
Nominal Frequency	Freq.	32.768KHz	
Operating Temperature	T_use	-40°C~+85°C	
Storage Temperature Range	T_stg	-55°C~+125°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) ² max.	Over Operating Temp. Range (Reference 25°C)
Drive Level	DL	0.5 μW Max.	
Load Capacitance	CL	6pF;7pF;9pF;12.5pF	
Effective Resistance	RR	90kΩ max.	
Aging	f_age	±3 ppm Max.	1st.Year at 25°C

Dimensions (UNIT:mm)



Solder pad layout (UNIT:mm)



TF2012 Series

2.0 x 1.2 mm TUNING FORK Crystal

Feature

- Miniature Ceramic surface mount with Metal Lid
- Package Size: 2.05 x 1.2 x 0.6mm max.
- Low Aging, Low Power Consumption, high reliability characteristics
- RoHS Compliant / Pb Free

Applications

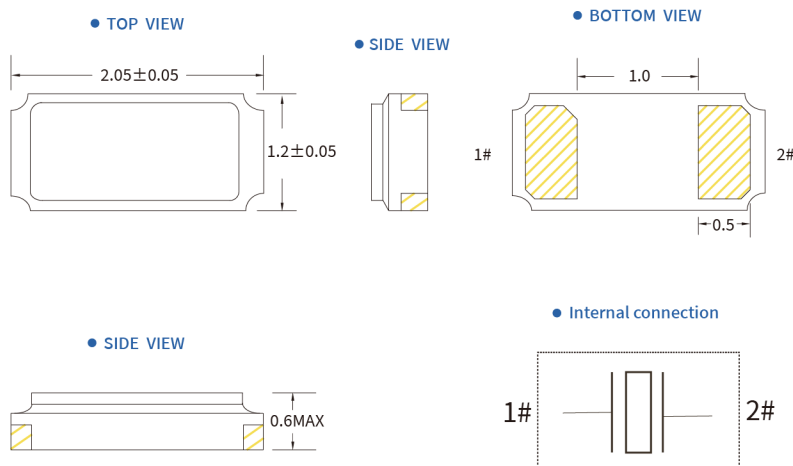
- Real Time Clock
- Portable Electronics
- Smart Meters
- Communication Electronics
- IoT Devices



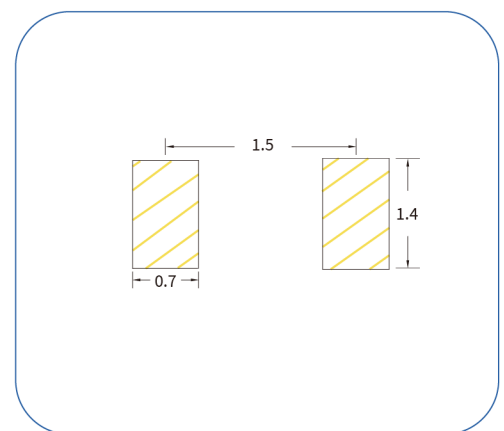
Electrical Specifications

Item	Symb.	Electrical spec.		Notes
		TF2012	TF2012R	
Nominal Frequency	Freq.	32.768KHz		
Operating Temperature	T_use	-40°C~+85°C		
Storage Temperature Range	T_stg	-55°C~+125°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) ² max.		Over Operating Temp. Range (Reference 25°C)
Drive Level	DL	0.5 μW Max.		
Load Capacitance	CL	6pF; 7pF; 9pF; 12.5pF		
Effective Resistance	RR	80kΩ max.	50kΩ max.	
Aging	f_age	±3 ppm Max.		1st. Year at 25°C

Dimensions (UNIT:mm)



Solder pad layout (UNIT:mm)



TF3215 Series

3.2 x 1.5 mm TUNING FORK Crystal

Feature

- Miniature Ceramic surface mount with Metal Lid
- Package Size: 3.2 x 1.5 x 0.8mm max.
- Low Aging, Low Power Consumption, High reliability characteristics
- RoHS Compliant / Pb Free

Applications

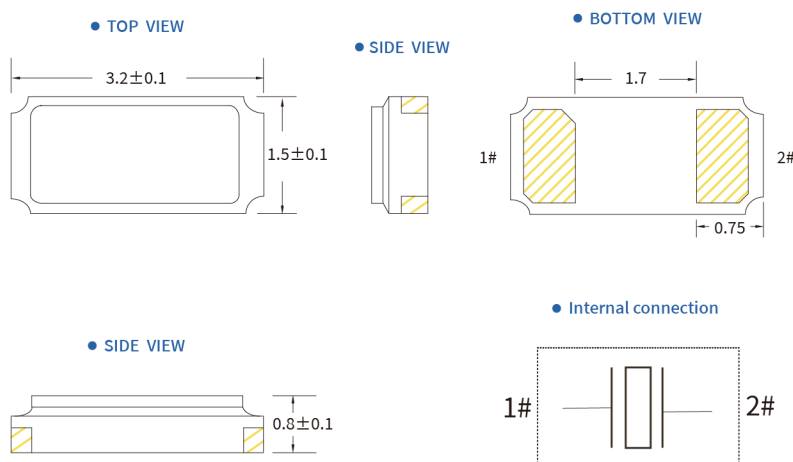
- Real Time Clock
- Portable Electronics
- Smart Meters
- Communication Electronics
- IoT Devices



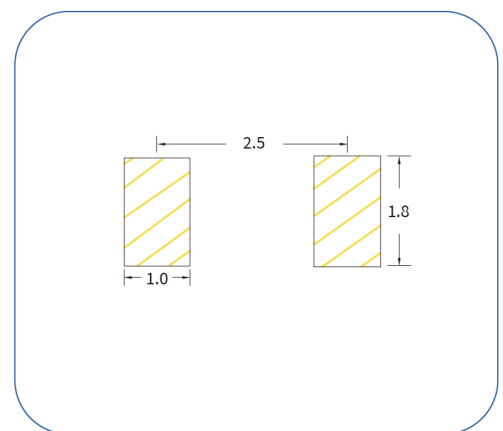
Electrical Specifications

Item	Symb.	Electrical spec.		Notes
		TF3215	TF3215R	
Nominal Frequency	Freq.	32.768KHz		
Operating Temperature	T_use	-40°C~+85°C		
Storage Temperature Range	T_stg	-55°C~+125°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) ² max.		Over Operating Temp. Range (Reference 25°C)
Drive Level	DL	0.5 μW Max.		
Load Capacitance	CL	6pF;7pF;9pF;12.5pF		
Effective Resistance	RR	70kΩ max.	50kΩ max.	
Aging	f_age	±3 ppm Max.		1st.Year at 25°C

Dimensions (UNIT:mm)



Solder pad layout (UNIT:mm)



TF7015 Series

7.0 x 1.5 mm TUNING FORK Crystal

Feature

- Ceramic surface mount
- Package Size:7.0 x 1.5 x 1.4mm max
- Low Aging, Low Power Consumption,high reliability characteristics
- RoHS Compliant / Pb Free

Applications

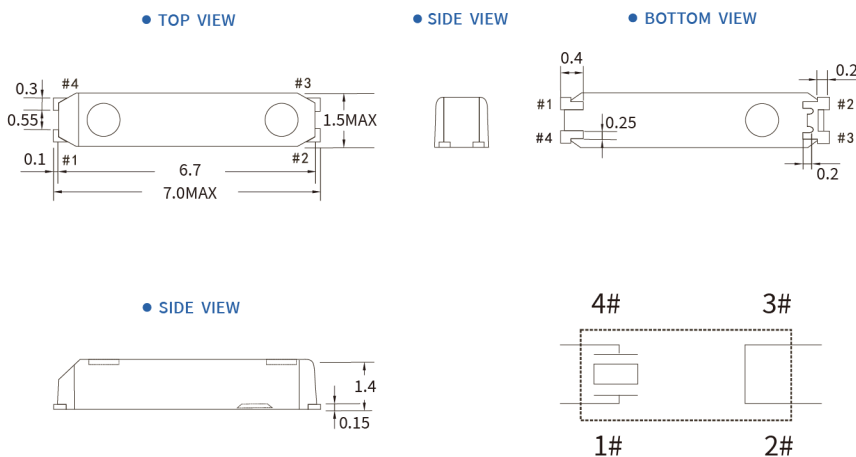
- Real Time Clock
- Portable Electronics
- Smart Meters
- Communication Electronics
- IoT Devices



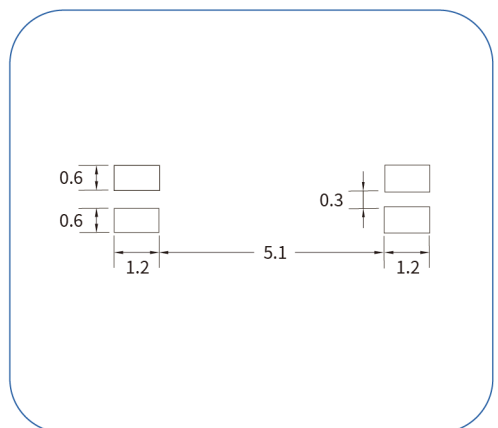
Electrical Specifications

Item	Symb.	Electrical spec.	Notes
Nominal Frequency	Freq.	32.768KHz	
Operating Temperature	T _{use}	-40°C~+85°C	
Storage Temperature Range	T _{stg}	-55°C~+125°C	
Oscillation Mode		Fundamental	
Frequency Tolerance	f _{tol}	±10ppm / ±20ppm	at 25°C±3°C
Turnover Temperature	T _i	+25°C±5°C	
Parabolic curvature constant	B	-0.042ppm/(Δ°C) ² max.	Over Operating Temp. Range (Reference 25°C)
Drive Level	DL	0.5 μW Max.	
Load Capacitance	CL	7pF;9pF;12.5pF	
Effective Resistance	RR	65kΩ max.	
Aging	f _{age}	±3 ppm Max.	1st.Year at 25°C

Dimensions (UNIT:mm)



Solder pad layout (UNIT:mm)



Notes:
 (1)Do not connect 2# and 3# to external device.
 (2)The metal case inside of the molding compound may be exposed on the top or bottom of this product. This purely cosmetic and does not have any effect on quality reliability or electrical specs.

TF206/TF308 Series

Ø2.0 x 6.0 mm Ø3.0 x 8.0 mm
TUNING FORK Crystal



Feature

- Miniature Cylindrical Tuning Fork Crystals
- Package Size: Ø2.0 x 6.0 mm/Ø3.0 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

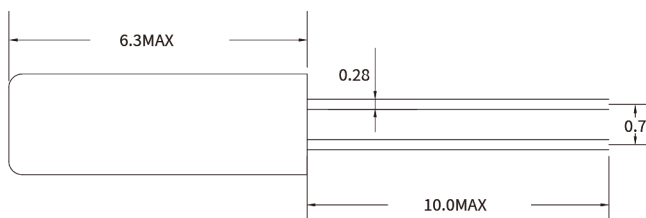
Electrical Specifications

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	T _i	+25°C±5°C	
Parabolic curvature constant	B	-0.042ppm/(Δ°C) ² 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

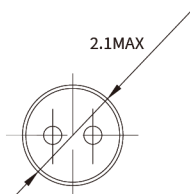
Dimensions (UNIT:mm)

• TF206 Series

• SIDE VIEW



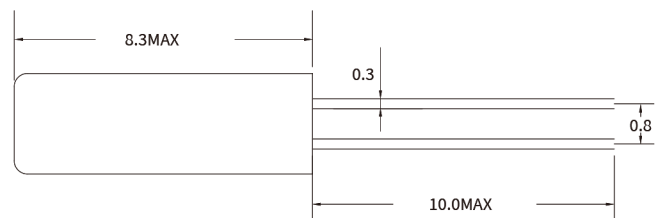
• BOTTOM VIEW



Dimensions (UNIT:mm)

• TF308 Series

• SIDE VIEW



• BOTTOM VIEW

