

A7C Series 7.0 x 5.0 mm SMD Automotive Crystal Oscillator

A : Automotive

7 : 7.0×5.0×1.3 mm | SMD7050-4P

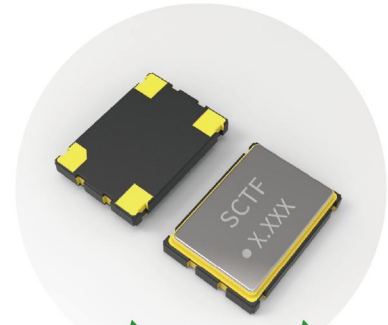
C : Crystal Oscillator

Feature

- Ceramic surface mount with Metal Lid
- CMOS compatible logic levels
- Tri-state function available
- Supply voltage range : 1.62V ~ 3.63V(Compatible with 1.8V, 2.5V, 3.3V)
- AEC-Q200 Qualified
- RoHS Compliant / Pb Free

Applications

- Automotive navigation system
- Automotive audio equipment
- Image processing for self-driving
- Automotive Car audio and video entertainment system



Electrical Specifications

Item	Symb.	Min.	Typ.	Max.	Unit	Notes
Frequency Range	Freq.	1.000		54.000	MHz	
Operating Temperature	T _{use}	-40		85	°C	
		-40		105	°C	
		-40		125	°C	
Storage Temperature Range	T _{stg}	-55		125	°C	
Supply Voltage	V _{dd}	1.62	1.8/2.5/3.3	3.63	V	
Output Load	L _{CMOS}		15		pF	
Current Consumption	I _{cc}			10	mA	1MHz ≤ Freq. < 40MHz
				20		40MHz ≤ Freq. ≤ 54MHz
Duty Cycle	SYM	45		55	%	50 % V _{dd} level, L _{CMOS} ≤ 15 pF
Rise / Fall Time	T _R / T _F			5	nS	10% V _{dd} to 90% Level
Start-up Time	T _{str}			5	mS	To 90% of Final Amplitude
High output voltage	V _{OH}	0.9V _{dd}			V	
Low output voltage	V _{OL}			0.1V _{dd}	V	
Enable Voltage High(Logic 1)	V _{IH}	0.7V _{dd}			V	Output will be disable if OE is Logic 0 Output will be enable if OE is Logic 1 or open
Enable Voltage Low(Logic 0)	V _{IL}			0.3V _{dd}	V	
Aging	f _{age}			3	ppm	1st. Year at 25°C

Frequency Stability & Operating Temperature Range

Temp.	FT	±25ppm	±30ppm	±50ppm	±100ppm
		-40°C to +85°C	△	★	★
-40°C to +105°C		△	★	★	
-40°C to +125°C			△	★	

★: Available △: Conditional

All condition: Include 25°C tolerance, operating temperature range, input voltage change, aging, load change.

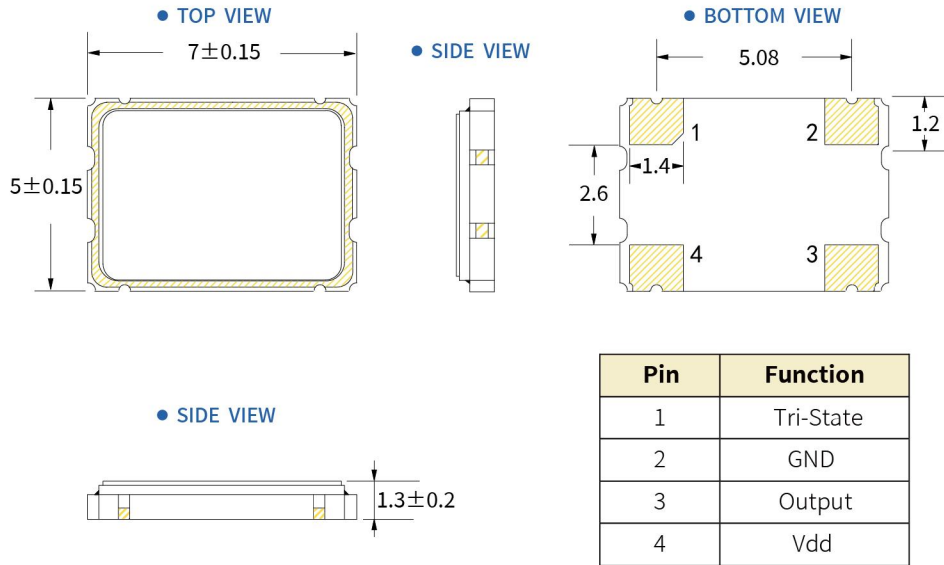
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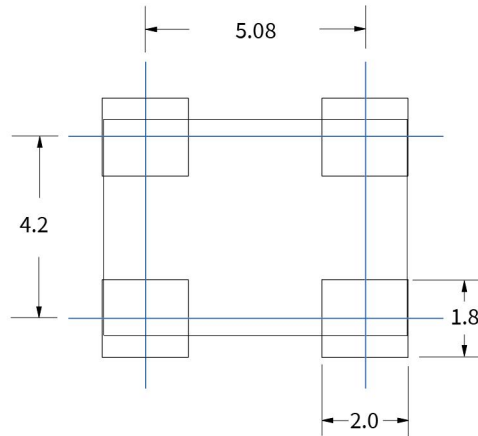
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Dimensions (UNIT:mm)



Solder pad layout (UNIT:mm)



Options and Part Identification : Example SXA7M1.000B20F30TNN

Company	Ratings	Ceramic Package	Frequency Code [MHZ]	Supply Voltage	Frequency Tolerance	Operating Temperature	Frequency Drift	Output	Current Consumption	Phase Noise
SX	A	7M	X.XXX	B	20	F	30	T	N	N
Code Company	Code Ratings	Code Ceramic Package	Frequency	Code Voltage	Code Frequency Tolerance	Code Operating Temperature	Code Frequency Drift	Code Output	Code Current	Code Phase Noise
SX SCTF	Blank Standard	7M 7.0×5.0×1.3mm	1.000	D 1.8V	10 ±10ppm	F -40°C ~ +85°C	15 ±15ppm	T CMOS	N Standard	N Standard
	A AEC-Q100,AEC-Q200	5M 5.0×3.2×1.2mm	13.560	H 2.5V	20 ±20ppm	G -40°C ~ +105°C	20 ±20ppm			
		3M 3.2×2.5×0.95mm	19.200	B 3.3V		M -40°C ~ +125°C	30 ±30ppm			
		2M 2.5×2.0×0.81mm	37.125	A 5.0V			50 ±50ppm			
		1M 2.0×1.6×0.75mm					100 ±100ppm			

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

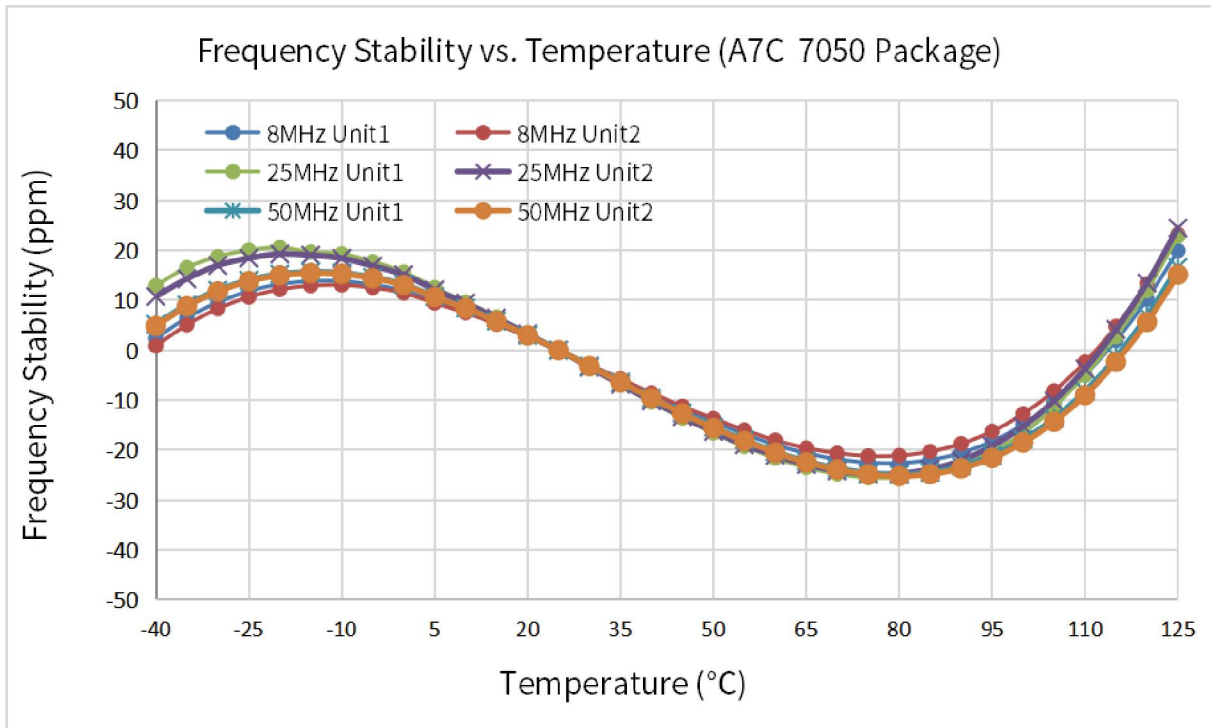
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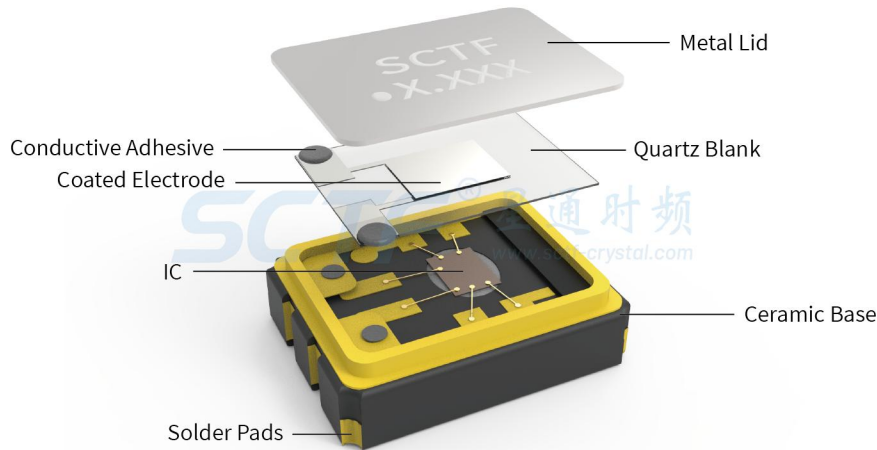
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Frequency Temperature Characteristics

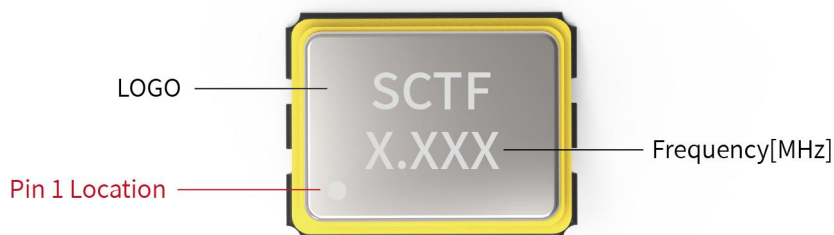


Product Structure & Marking Information

Product Structure



Marking Information



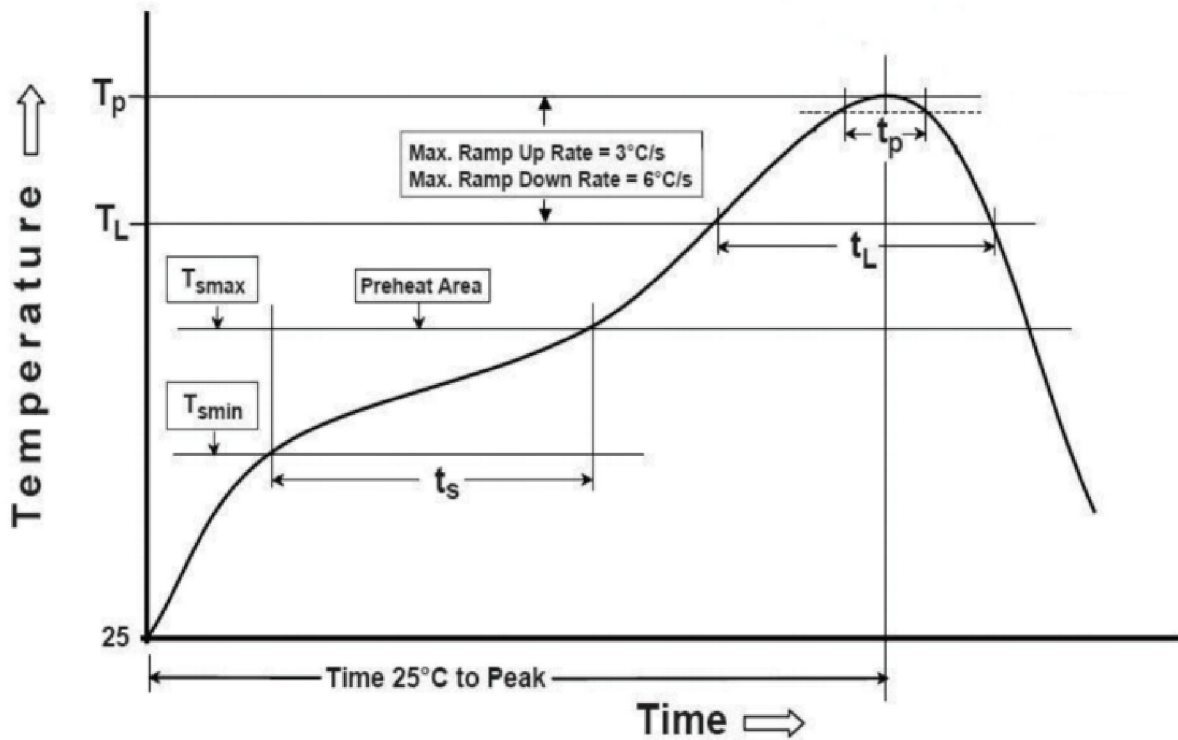
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Suggested Reflow Profile



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

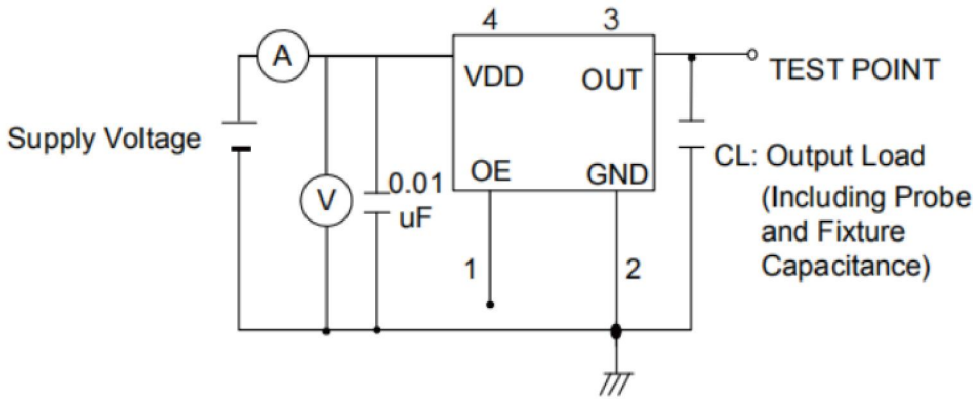
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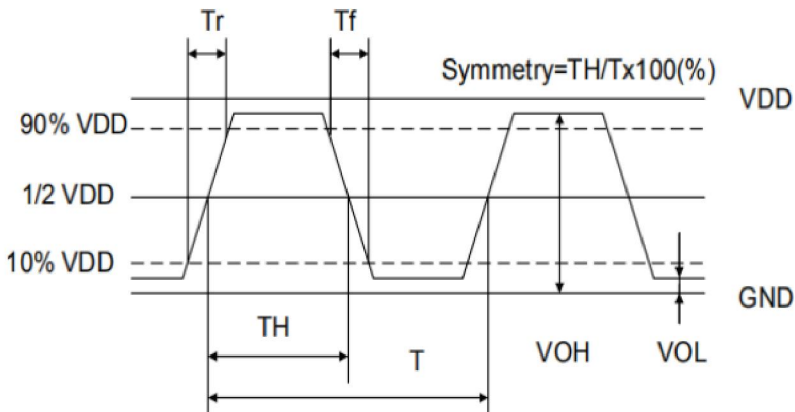
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Testing Circuit



※ Notes: PIN 1 connected to Vdd or floating, the product is working properly; connected to GND, stops working.

Waveform Conditions



Waveform measurement system should have a min. bandwidth of 5 times the frequency being tested.

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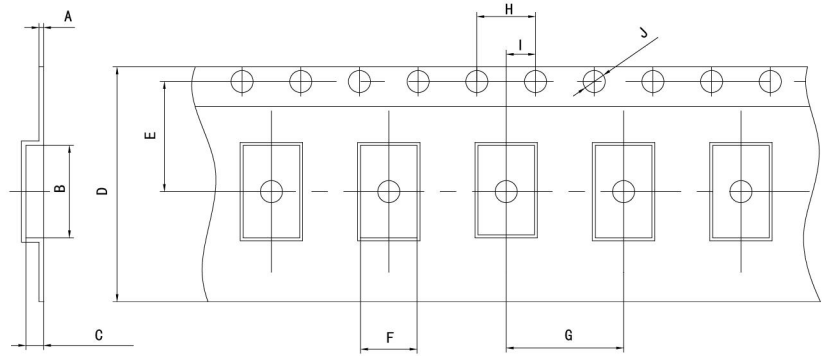
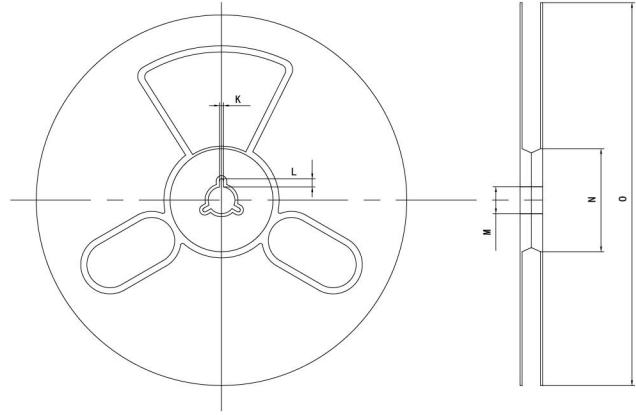
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Packaging Information

T=Tape and reel (3,000pcs/reel)



Pocket Tape Dimensions(mm)

Series	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
A7C	0.3±0.05	7.6±0.1	2.0±0.1	16±0.3	7.5±0.1	5.4±0.1	8.0±0.1	4.0±0.1	2.0±0.1	φ1.5±0.1	2.0±0.2	4.0±1.0	φ13±0.5	φ60±1	φ180±1