

深圳市炬烜科技有限公司
CHIP SUN TECHNOLOGY CO., LTD

**APPROVAL
SHEET**



CUSTOMER: _____
DESCRIPTION: SMD7050 TCXO 12.000MHz
MANUFACTURER PART NO.: FTO12.000M3.3SM7-1.0/1.5D
CUSTOMER PART NO: _____
USED IN MODEL : _____

APPROVAL		
TECHNOLOGY DEPT.	QUALITY DEPT.	PURCHASING DEPT.

Date: December 17, 2020



深圳市炬烜科技有限公司

CHIP SUN TECHNOLOGY CO., LTD

地址 ADD: 深圳市龙华新区大浪腾龙路淘金地电子商务孵化基地 B 座 206
Rm. 206, Tower B, Taojindi Building, Tenglong Road, Dalang Street,
Longhua New District, Shenzhen, China

电话 TEL: 86-755-83458769 传真 FAX: 86-755-83459818

网址 WEB ADD: <http://www.chinachipsun.com>

E-MAIL: lily@chinachipsun.com

<u>Rev</u>	<u>Revise page</u>	<u>Revise contents</u>	<u>Date</u>	<u>Ref.No.</u>	<u>Reviser</u>
A1	ALL	Initial released		N/A	DavidJiang

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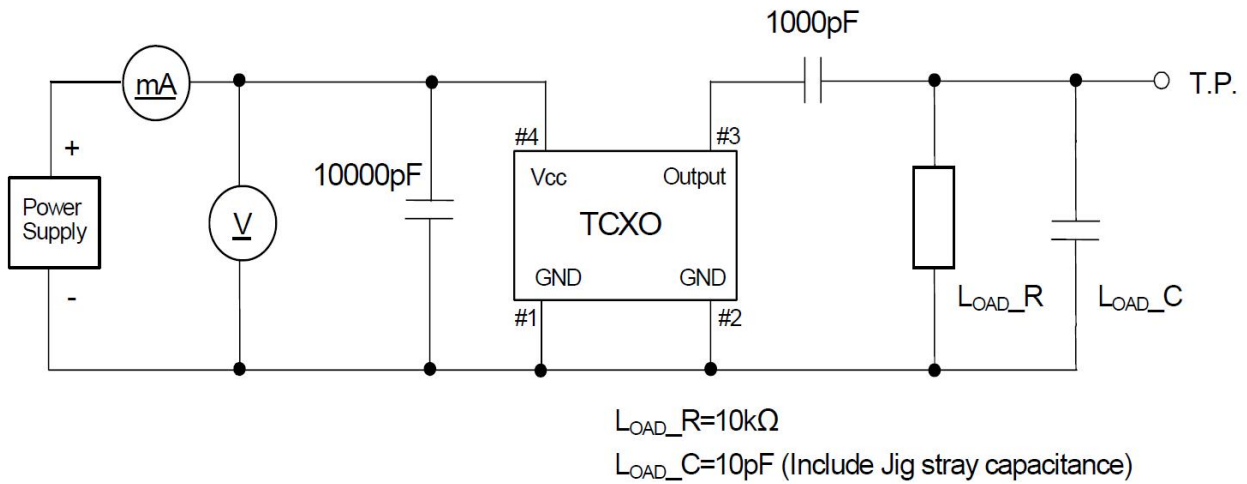
1. TEMPERATURE COMPENSATED CRYSTAL OSCILLATOR SPECIFICATION

Parameter	Value	Condition
1.1 Frequency:	12.000MHz	
1.2 Holder type:	FTO751S	TCXO
1.3 Supply voltage:	3.3V _{DC} ±5%	
1.4 Current:	3.0mA max	
1.5 Output Level:	0.8 Vp-p Min (Clipped Sine Wave DC-coupled 10KΩ//10pF)	
1.6 Output Load:	10KΩ//10pF	
1.7 Operable temperature range:	-40°C To +85°C	
1.8 Storage temperature range:	-55°C To +125°C	
1.9 Frequency tolerance:	±1.0ppm max	After 2 times reflow Ref. to nominal frequency
1.10 Frequency Stability:		
vs. Temperature:	±1.5ppm max	T _A = -40°C To +85°C Ref. to nominal frequency
vs. Supply voltage:	±0.2ppm max	V _{cc} =3.3V±5%
vs. Load Coefficient:	±0.2ppm max	10KΩ//10pF ±10%
vs. Aging:	±1.0ppm max	1 st Year (25±2°C)
1.11 Start Up Time	2.0 ms max	More than 90% of final amplitude
1.12 Harmonics	-5 dBc max	
1.13 Duty Cycle	40~60% / 60~40%	
1.14 SSB Phase Noise:	-125 dBc/Hz max	Relative to f ₀ level offset 1kHz
1.15 Test circuit	Refer to fig.2	
1.16 Dimensions and marking	Refer to page.3	
1.17 Emboss carrier tape & reel	Refer to page.5 and page.6	

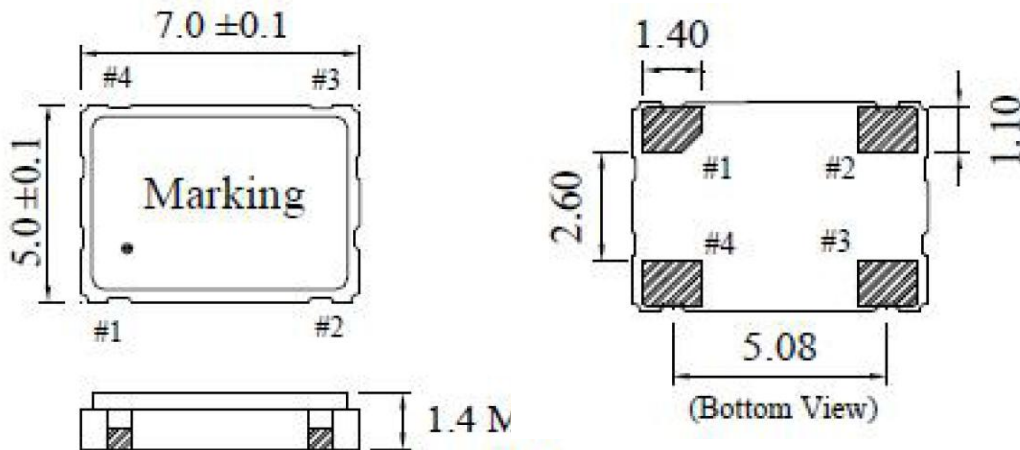
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2. Measurement circuit



3. FTO751S MARKING & DIMENSIONS



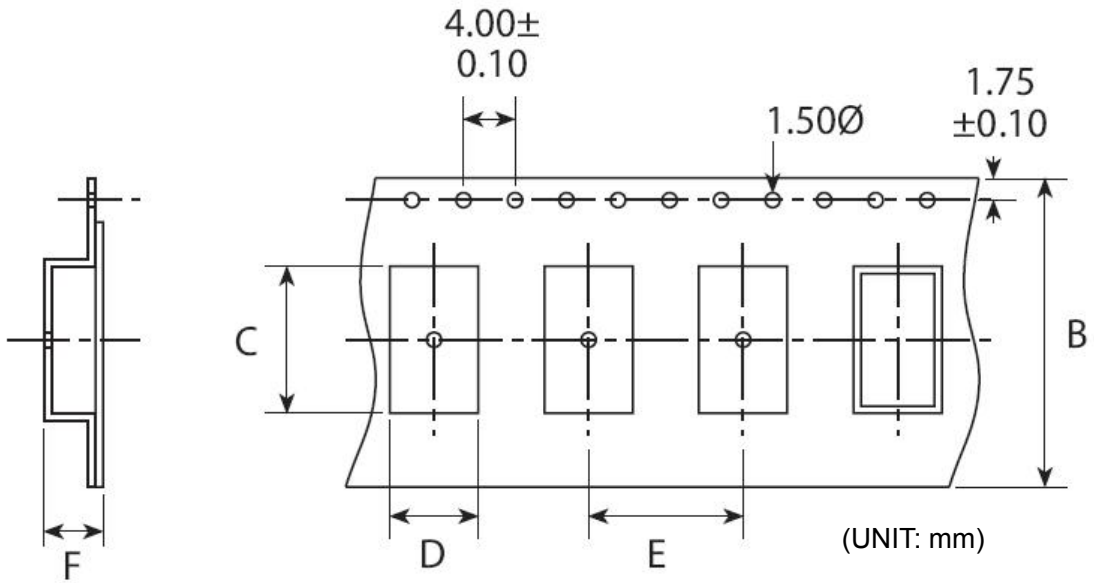
Pin	Connection
1	GND
2	GND
3	Output
4	V _{DC}

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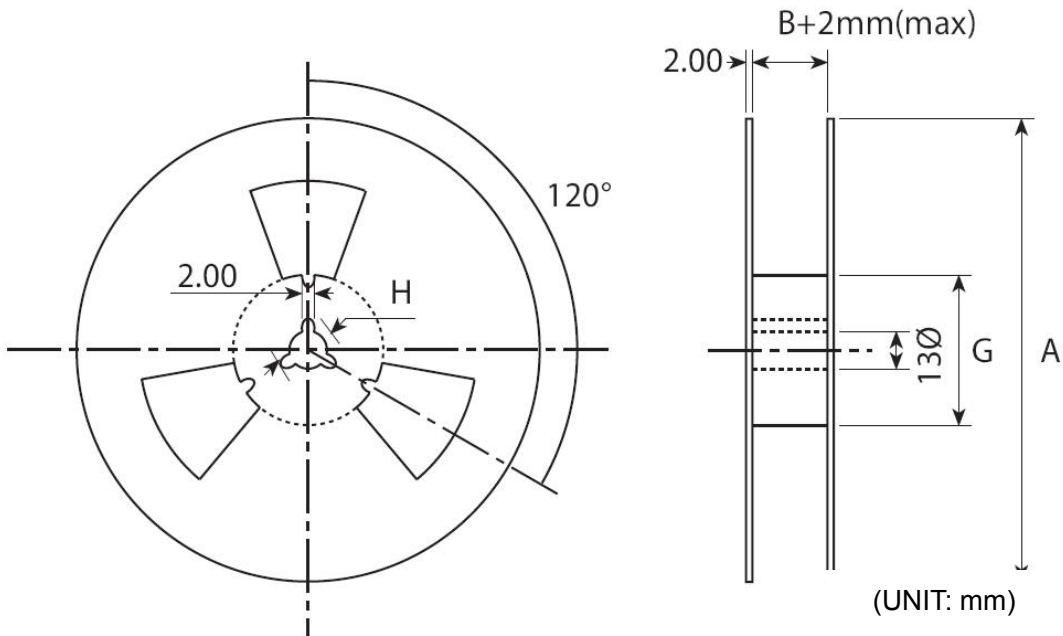
4. FT0751S EMBOSS CARRIER TAPE & REEL

a.) Dimensions of Carrier Tape



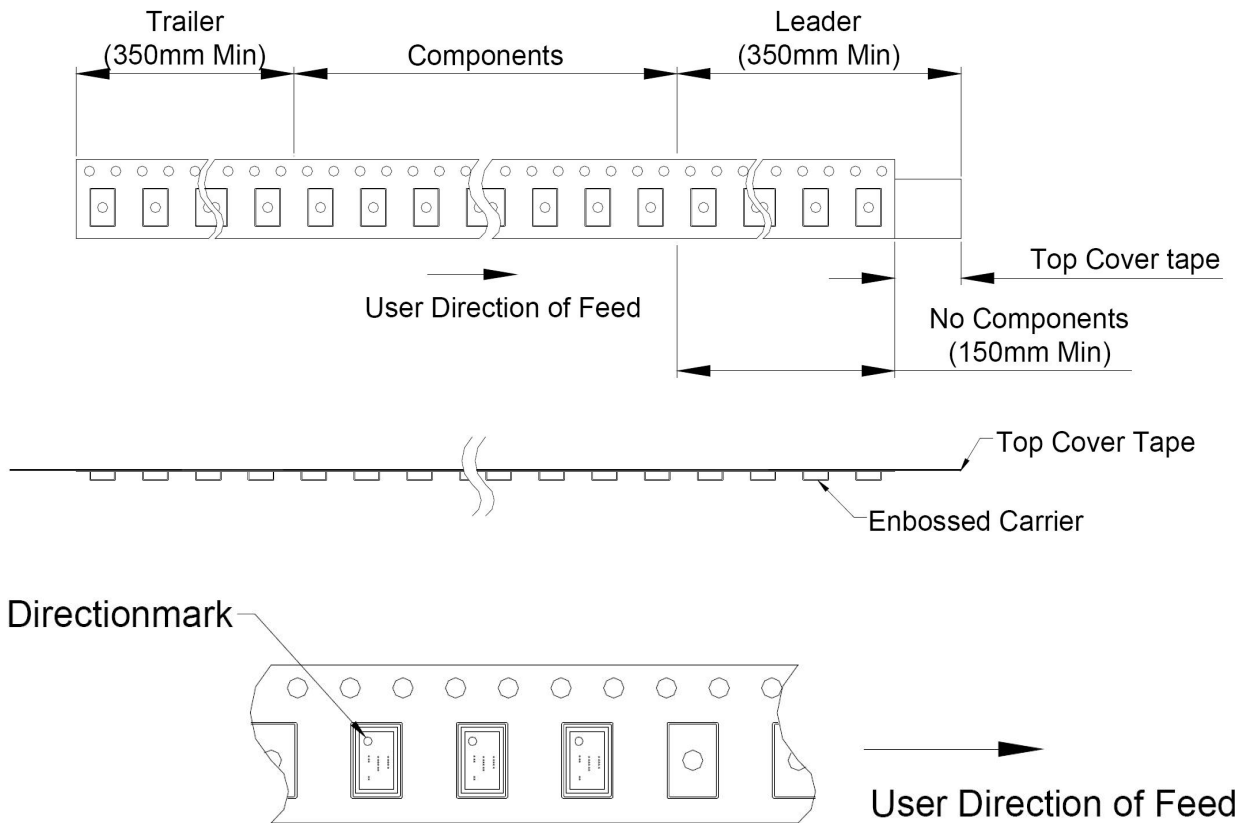
	A	B	C	D	E	F	G
SMD7050	178±2.0	16.0±0.3	7.40±0.10	5.40±0.10	8.0±0.1	2.2±0.1	60.5±1.0

b.) Dimensions of Reel



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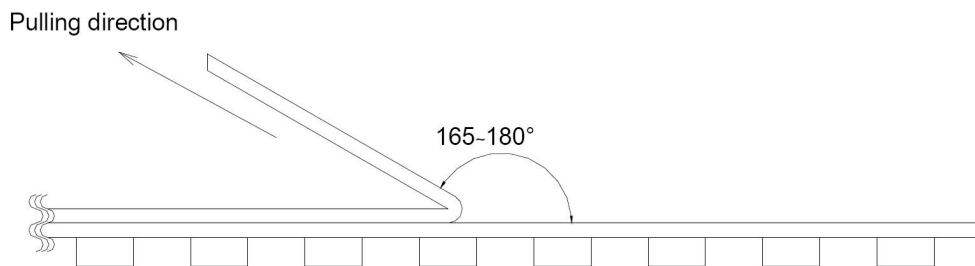
c.) Packing



When a tape end is taken out to the front, sprocket holes becomes right hand side.

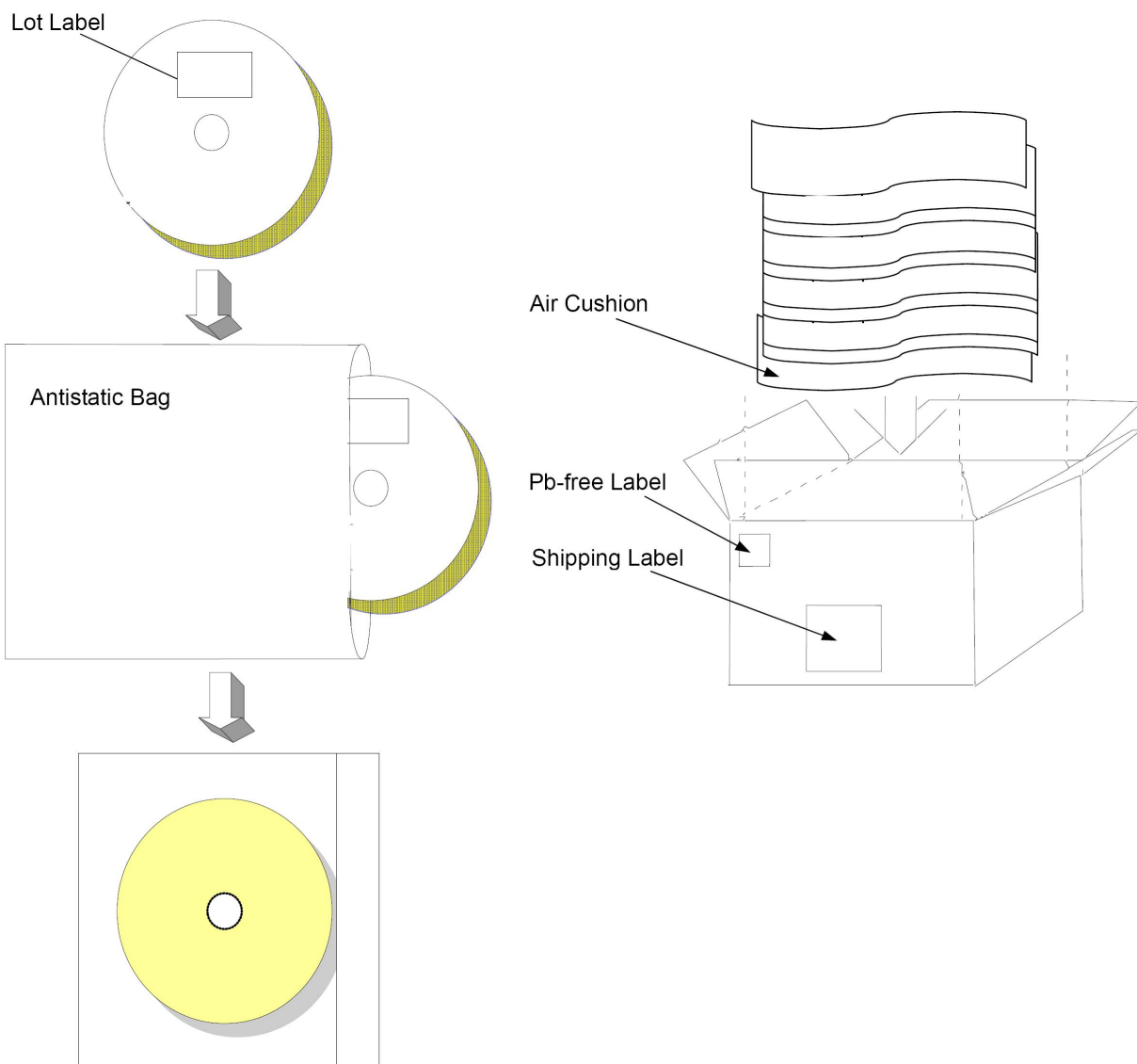
Peel strength

Pulling angle 165~180°, pulling speed at 300mm/min, strength should be 0.2~0.7N.



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d.) Inner& Outer carton



e.) Standard packing quantity
1,000PCS / REEL

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5. STORAGE ENVIRONMENT

- * Storage the reel at normal temperature and humidity
- * Open the packing just before using.
- * Do not expose the sun.
- * Do not storage with some erosive chemicals.
- * Nothing is allowed to put on the reel or carton to prevent mechanical damage.

6. HANDLING

- * Handle with care to prevent the damage of tape, reel and products.

- ELECTROSTATIC DISCHARGES

This device contains a CMOS IC. Please take precautionary measures against ESD damage.

- SHOCK RELIABILITY

This device contains a quartz crystal, so please do not give too much shock or vibration. Surface mounters can be used for assembling, but be sure to check your machine conditions before using them.

- ULTRASONIC CLEANING

Also be sure to check your cleaning condition of ultrasonic cleaning apparatus.

- TEMPERATURE AND HUMIDITY

We recommend to store and use device under normal temperature and humidity for frequency stability. Condensation may cause this device damages.

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7. Mechanical Characteristics:

NO.	ITEM	CONDITIONS	REQUIREMENT
7.1	Drop	Natural drop (On concrete) Mounting on the set or test fixture.(Total weight 100g) Height : 150cm Direction : X,Y,Z, 6directions Test cycle : 3cycles Reference specification : EIAJ-ED-4702A Method5	df/f=<±1.0ppm
7.2	Vibration Test	Sweep range : 10~500Hz Sweep speed : 11min/cycle Amplitude : 1.5mm (10~55Hz) Acceleration : 200m/s ² (55~500Hz) Direction : X,Y,Z, 3directions Test cycle : 10cycles Reference specification : IEC 60068-2-6	df/f=<±0.5ppm
7.3	Shock	Acceleration : 1000m/s ² Direction : X,Y,Z, 6directions Duration : 6ms Test cycle : 3cycles/each directions Reference specification : IEC 60068-2-27	df/f=<±0.5ppm
7.4	PCB bend strength	PWB : t=1.6mm Pressure speed : 1.0mm/s Bend width : 1 2 3mm Duration : 10±1s Reference specification : IEC 60068-2-21 Ue1	df/f=<±0.5ppm No visible damage. No leak damage.
7.5	Adherence nature	PWB : t=1.6mm Direction : X,Y, 2directions Pressure : 10N Duration : 10±1s Reference specification : IEC 60068-2-21 Ue3	df/f=<±0.5ppm No visible damage. No leak damage.
7.6	Package strength	Pressure : 10N Duration : 10±1s Reference specification : IEC 60068-2-77	df/f=<±0.5ppm No mechanical damage. No leak damage.
7.7	Gross leak	It is immersed for 3min into +125±5°C Chlorofluorocarbon (CFCs) liquid. Reference specification : IEC 60068-2-17	No continuous air bubbles.
7.8	Fine leak	It shall be measured by the helium leak detector after pressurization for 60min by the pressure of (3.92±0.49) x10 ⁵ Pa in a helium gas atmosphere. Reference specification : IEC 60068-2-17	Less than 1.0x10 ⁻⁹ Pa m ³ /s.
7.9	Solderability	Solder bath temperature : +245±5°C Duration : 3±0.3s Reference specification : IEC 60068-2-58	A new uniform coating of solder shall cover a minimum of 95% of the surface being immersed.
7.10	Resistance to soldering heat	1) Solder iron method Bit size : B(φ3) Bit temperature : +350±10°C Duration : 3+1/-0s /each terminal It shall be measured after 2h at room temperature, humidity. Reference specification : IEC 60068-2-20	df/f=<±0.5ppm dV _{OUT} =<±0.2V _{P-P} No visible damage.
		2) Reflow In refer to temperature profile shown in clause13. Test cycle : 3cycles It shall be measured after 2h at room temperature, humidity. Reference specification : IEC 60068-2-58	df/f=<±1.0ppm dV _{OUT} =<±0.2V _{P-P} No visible damage.

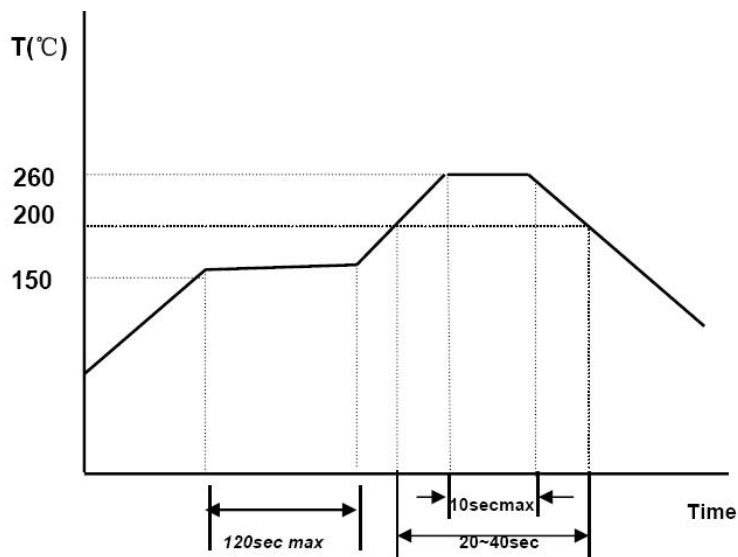
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8. Environmental Characteristics:

NO.	ITEM	CONDITIONS	REQUIREMENT
8.1	Low temperature storage	Temperature : $-40\pm 3^{\circ}\text{C}$ Duration : 1000h It shall be measured after 2h at room temperature, humidity. Reference specification : IEC 60068-2-1 Ab	$df/f \leq \pm 1.0\text{ppm}$ $dV_{\text{OUT}} \leq \pm 0.2\text{VP-P}$ The electrical characteristics are satisfied.
8.2	High temperature storage	Temperature : $+85\pm 2^{\circ}\text{C}$ Duration : 1000h It shall be measured after 2h at room temperature, humidity. Reference specification : IEC 60068-2-2 Bb	$df/f \leq \pm 1.0\text{ppm}$ $dV_{\text{OUT}} \leq \pm 0.2\text{VP-P}$ The electrical characteristics are satisfied.
8.3	Humidity	Temperature : $+85\pm 2^{\circ}\text{C}$ R.H. 85 \pm 5% Duration : 1000h It shall be measured after 2h at room temperature, humidity. Reference specification : IEC 60068-2-3	$df/f \leq \pm 1.0\text{ppm}$ $dV_{\text{OUT}} \leq \pm 0.2\text{VP-P}$ The electrical characteristics are satisfied.
8.4	HTB	Temperature : $+85\pm 2^{\circ}\text{C}$ Duration : 1000h BIAS : Max value of supply voltage It shall be measured after 2h at room temperature, humidity. Reference specification : IEC 60068-2-2 Bb	$df/f \leq \pm 1.0\text{ppm}$ $dV_{\text{OUT}} \leq \pm 0.2\text{VP-P}$ The electrical characteristics are satisfied.
8.5	THB	Temperature : $+40\pm 2^{\circ}\text{C}$ R.H. 90~95% Duration : 1000h BIAS : Max value of supply voltage It shall be measured after 2h at room temperature, humidity. Reference specification : IEC 60068-2-3	$df/f \leq \pm 1.0\text{ppm}$ $dV_{\text{OUT}} \leq \pm 0.2\text{VP-P}$ The electrical characteristics are satisfied.
8.6	Thermal shock	Thermal shock : $-40\pm 3^{\circ}\text{C}$: 0.5h -- $+85\pm 2^{\circ}\text{C}$: 0.5h Test cycle : 200cycles Shift time : 2~3min It shall be measured after 2h at room temperature, humidity. Reference specification : IEC pub.68-2-14.Na	$df/f \leq \pm 1.0\text{ppm}$ $dV_{\text{OUT}} \leq \pm 0.2\text{VP-P}$ The electrical characteristics are satisfied.

INFRARED REFLOW TEMP. PROFILE:



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