



**TROQ Electronic Co.,Ltd.  
CRYSTAL UNIT SPECIFICATIONS**

<b>Customer</b>	
<b>Production Name</b>	<b>SMD CRYSTAL SEAM 5.0*3.2</b>
<b>Customer P/N</b>	<b>N/A</b>
<b>TROQ P/N</b>	<b>RH12000472</b>
<b>Revision</b>	<b>A</b>
<b>Print Date</b>	<b>2021-7-7</b>

<b>Drawn</b>	<b>Checked</b>	<b>Approved</b>



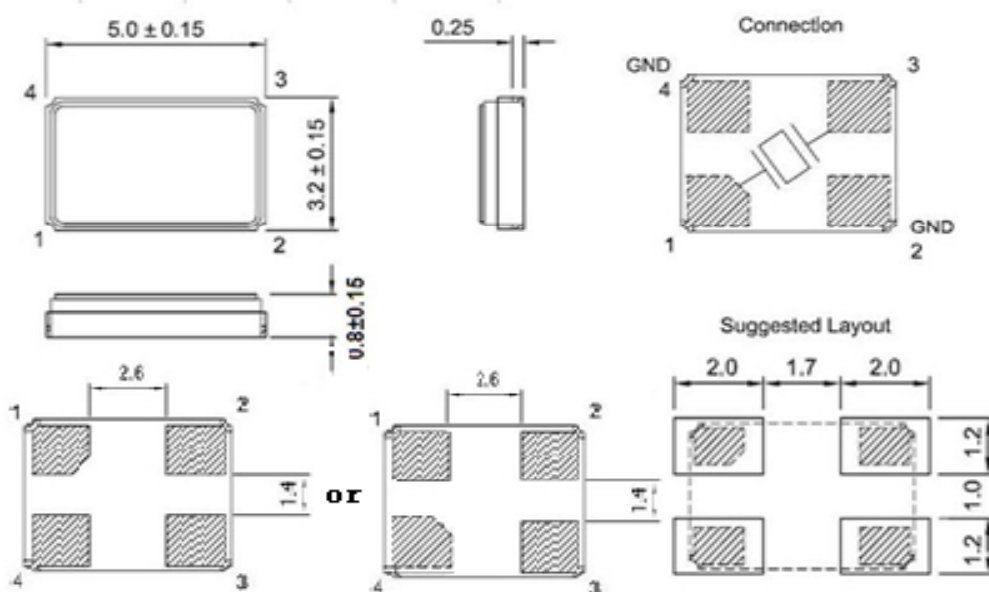
**RoHS Compliant**

**Pb used in sealing glass material is exempt from EU directive**

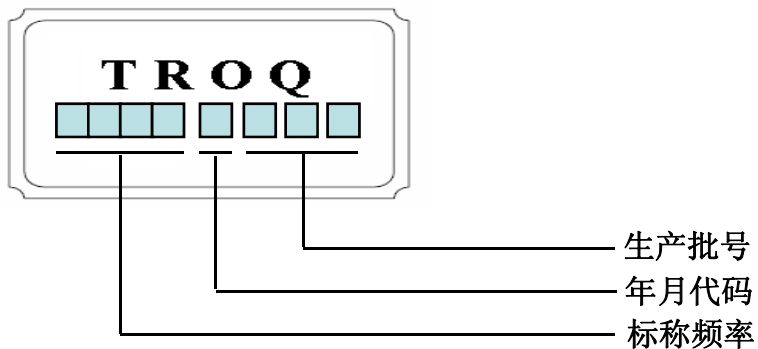
● ELECTRICAL PARAMETERS

谐振器产品技术指标		Min	Max	Units
1. Holder Type(型号规格)		SEAM 5.0*3.2		
2. Mode of Oscillation (振动模式)		Fundamental		
3. Frequency (标称频率)		12.000000		MHz
4. Load Capacitance (CL) (负载电容)		20		pF
5. Drive Level (激励功率)		100		uw
6. Equivalent Resistance (谐振电阻)			80	Ω
7. Shunt Capacitance (Co) (静态电容)		0	5	pF
8. Motional Capacitance (C1) (动态电容)		N/A		fF
9. Frequency Tolerance at 25°C (调整频差)		-10	10	ppm
10. Stability over operation temperance (温度频差)		± 30		ppm
11. Insulation Resistance (at DC 100V) (绝缘电阻)		500		MΩ
12. Operating Temperature Range (工作温度范围)		-40	85	°C
13. Storage Temperature Range (储存温度范围)		-40	85	°C
14. Aging (老化率)		± 3		ppm/year
15. DLD2	N/A		N/A	Ω
16. FLD2			N/A	ppm
17. RLD2			N/A	Ω
18. SPDB	N/A		N/A	db
19. Other(其它)		N/A		

OUTLINE DIMENSIONS(UNIT:mm) 外形尺寸 (单位: mm)



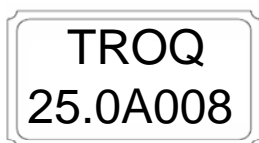
● Marking (标记)



● 年月代码

2020月份	1	2	3	4	5	6	7	8	9	10	11	12
2020年月码	A	B	C	D	E	F	G	H	J	K	L	M
2021月份	1	2	3	4	5	6	7	8	9	10	11	12
2021年月码	N	P	Q	R	S	T	U	V	W	X	Y	Z
2022月份	1	2	3	4	5	6	7	8	9	10	11	12
2022年月码	a	b	c	d	e	f	g	h	j	k	l	m
2023月份	1	2	3	4	5	6	7	8	9	10	11	12
2023年月码	n	p	q	r	s	t	u	v	w	x	y	z

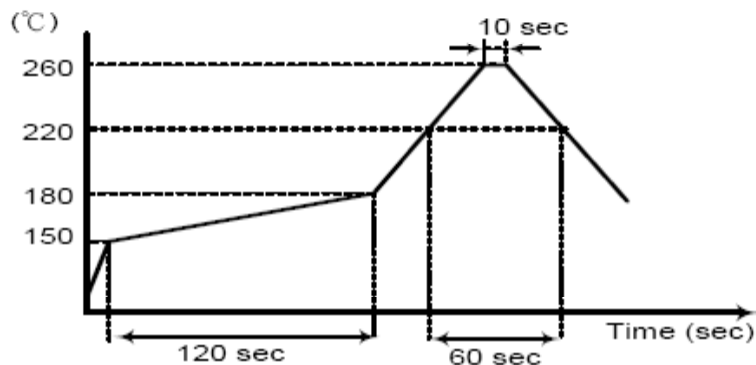
注:以上年月代码每四年一个循环。



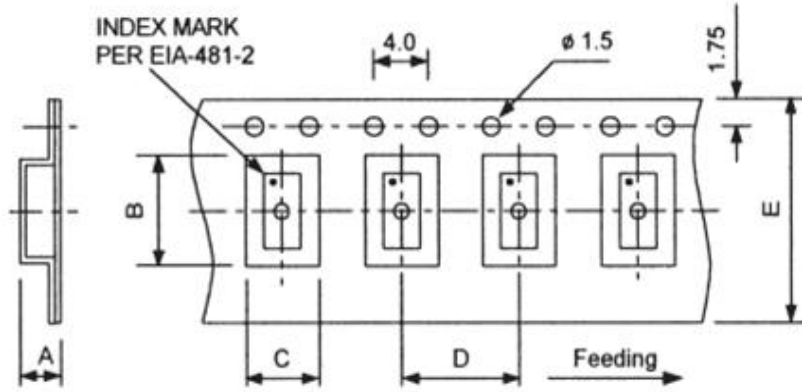
说明: 标称频率 25.000MHZ  
2020年1月份制造, 生产批号为008  
上述产品标志从2012年7月1日正式执行

- SUGGESTED REFLOW PROFILE (回流焊曲线图)  
Total time:200sec.Max. (总时间: 200秒 最大)  
Solder melting point:220°C (熔点220 °C)

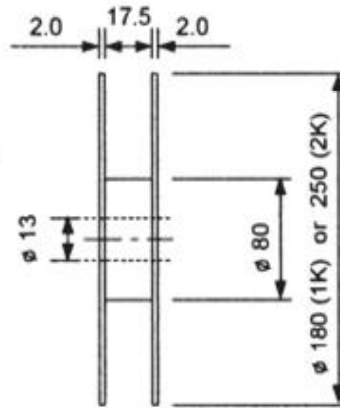
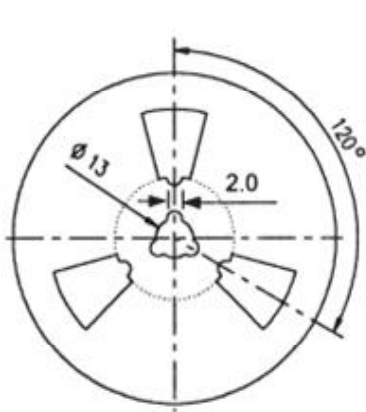
Profiles Feature (特性)	Pb-Free Assembly
Average Ramp-up Rate(Ts max to Tp) 平均升温速度	3°C/second Max
Preheat 预热	
■ Temperature Min (Ts min) 最低温度	125°C
■ Temperature Max (Ts max) 最高温度	200°C
■ Time (ts min to ts max) 从最低到最高时间	(60~180) seconds
Time maintained above 维持上述时间	
■ Temperature(T1) 温度	217°C
■ Time(tp) 时间	(60~150) seconds
Peak/Classification Temperature(Tp) 最高点温度	260 °C
Time within 5°C of actual Peak Temperature(tp) 高温维持时间	(20~40) seconds
Ramp-down rate 降温速度	6°C/second max
Time 25°C to Peak Temperature 从25°C到最高温度的时间	8 minutes max
Suggest reflow times 建议 reflow次数	3 Times max



● PACKING (包裝) 1Kpcs/REEL



SIZE	
A	1.7
B	5.45
C	3.65
D	8.0
E	12.0
IK	



REMARK :

- 230 mm (9.05) minimum leader which consist of carrier and/or cover tape followed by a minimum of 160 mm (6.3) of empty carrier tape sealed with cover tape.
- 160 mm (6.3) minimum trailer of empty carrier tape sealed with cover tape.

● **RELIABILITY SPECIFICATIONS (信頼度試験)**

No	Test Item (测试项目)	Test Conditions (测试条件)	Reference (参考)
1	High Temperature High Humidity Storage (高温、高湿、储存)	Temperature: 85°C±3°C 温度: 85°C±3°C Relative Humidity: 85%RH 相对湿度: 85%RH Time: 96 Hours 时间: 96小时	JIS C5023
2	High Temperature Storage (高温储存)	Temperature: 125°C±3°C 温度: 125°C±3°C Time: 96 Hours 时间: 96小时	MIL-STD-883E Method 1005.8
3	Low Temperature Storage (低温储存)	Temperature: -40°C±3°C 温度: -40°C±3°C Time: 96Hours 时间: 96小时	MIL-STD-883E Method 1013
4	Thermal Shock (温度冲击)	Temperature1: -55°C±5°C 温度1: -55°C±5°C Temperature2: 85°C±5°C 温度2: 85°C±5°C Temperature change between T1 and T2 5 min T1和T2温度在5分钟内改变 10cycles maintain T1 and T2 for 30 minutes each mone cy 每次循环30分钟共10次	MIL-STD-202F Method 107 Condition A
5	RESISTANCE TO SOLDER HEAT (耐焊接热)	Solder Temperature: 260°C±5°C 焊槽温度: 260°C±5°C Time: 10±1 Seconds 时间: 10±1秒	MIL-STD-202F Method 210E
6	Solderability(可焊性)	The solder pot temperature is 245±5°C , dwell time 5±0.5sec 245±5°C焊锡槽浸润5±0.5秒	J-STD-002B
7	Drop Test (落下试验)	3 Times Free Fall from 75cm height table to 3cm thickness hard wood board 从75cm高度3次跌落到3cm厚硬质木板上	JIS C6701
8	MECHANICAL SHOCK (机械冲击)	Half sine wave, 1000 G 半正弦波, 加速度1000G 3 Times for all 3 directions X、Y、Z 三个相互垂直方向各三次	MIL-STD-202F Method 213B
9	Vibration (机械振动)	Frequency Range: 10Hz~55Hz 频率范围: 10Hz~55Hz Amplitude: 0.75mm 振幅: 0.75mm 2 Hours in each direction, total 6 Hours X、Y、Z 三个相互垂直方向各振动2小时	MIL-STD-883E Method 2007.3
10	Leakage Test (气密性)	Take measurements with a helium Leakage detector 氦质检漏 Leakage Rate ≤ 1×10 <sup>-3</sup> Pa cm <sup>3</sup> /s 漏率 ≤ 1×10 <sup>-3</sup> Pa cm <sup>3</sup> /s	MIL-STD-883E