



PRODUCT SPECIFICATION SHEET

CUSTOMER : 深圳办
PRODUCT TYPE : SMD TUNING FORK 3.2X1.5
NOMINAL FREQ. : 32.768 KHz
FL P/N : 3SQ3270012
REVISION : S1
CUSTOMER P/N :

CUSTOMER'S APPROVAL&DATE

--

FL CORPORATION

APPROVED	CHECKED	DESIGNED
Jay Lee	Jin Qi	Han Shuang

MSL 1

RoHS Compliant



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ATTACHMENT (optional)

- ELECTRICAL CHARACTERISTICS TEST A YES NO
- TEMPERATURE CHARACTERISTICS TEST B YES NO



PRODUCT DESCRIPTION

Standard atmospheric conditions

Unless otherwise specified. The standard range of atmospheric conditions for making measurement and tests are as follow:

Ambient temperature $25\pm 2^{\circ}\text{C}$
Relative humidity 40%~70%

If there is no doubt the results, measurement shall be made within the following limits:

Ambient temperature $25\pm 2^{\circ}\text{C}$
Relative humidity : 40%~70%

Measure equipment

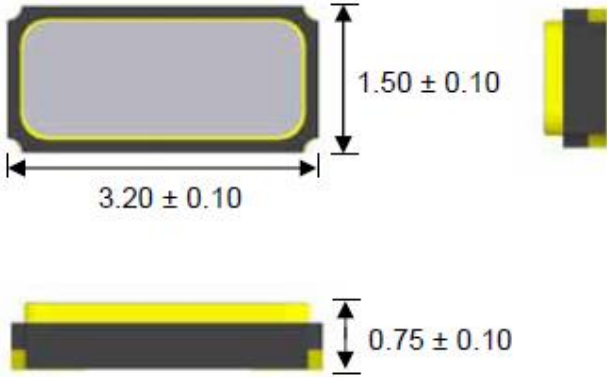
Electrical characteristics measured by S&A250B or equivalent.

ELECTRICAL SPECIFICATIONS

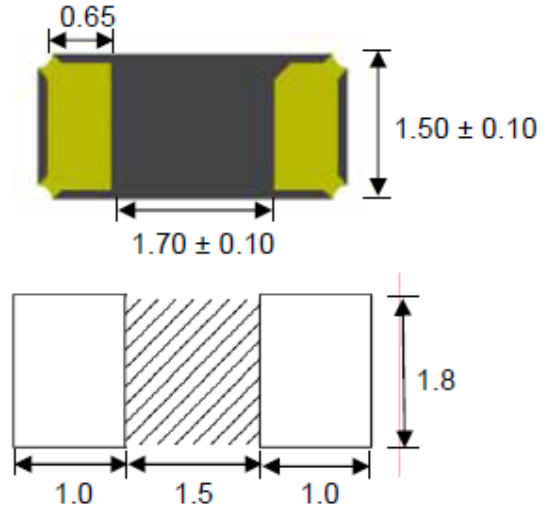
	Parameters	SYM.	Electrical Spec.				Notes
			MIN	TYPE	MAX	UNITS	
1	Nominal Frequency	F0	32.768			KHz	-
2	Frequency Tolerance	-	± 20			ppm	at 25 °C
3	Driver Level	DL	-	0.1	1	uW	-
4	Load Capacitance	CL	12.5			pF	-
5	Series Resistance	-	-	-	70	K Ω	-
6	Temperature characteristic	-	$(-0.03\pm 0.01)\times 10^{-6}$			$^{\circ}\text{C}$	at 25 °C $\pm 5^{\circ}\text{C}$
7	Storage Temperature	-	-40	~	125	$^{\circ}\text{C}$	-
8	Operating Temperature	-	-40	~	125	$^{\circ}\text{C}$	-
9	Shunt Capacitance	C0	-	-	7	pF	
10	Motional Capacitance	C1	-	-	-	fF	
11	Insulation Resistance	-	500	-	-	M Ω	at DC 100V $\pm 15\text{V}$
12	Aging	-	± 3			ppm	1st Year



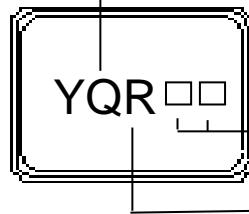
DIMENSIONS
(UNIT:mm)



RECOMMENDED SOLDER PAD
(UNIT:mm)



MARKING



Frequency
EX: 32.768KHz = Q

Year Month Code

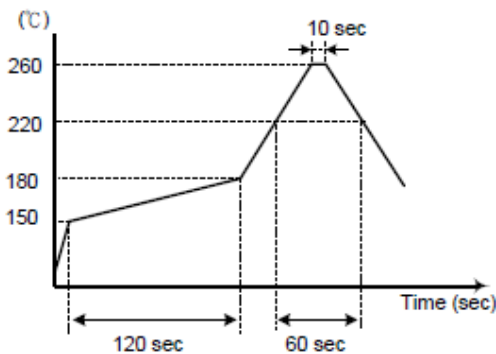
Administrative Symbo

			Month											
			Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Year	2017	2021	A	B	C	D	E	F	G	H	J	K	L	M
	2018	2022	N	P	Q	R	S	T	U	V	W	X	Y	Z
	2019	2023	a	b	c	d	e	f	g	h	j	k	l	m
	2020	2024	n	p	q	r	s	t	u	v	w	x	y	z

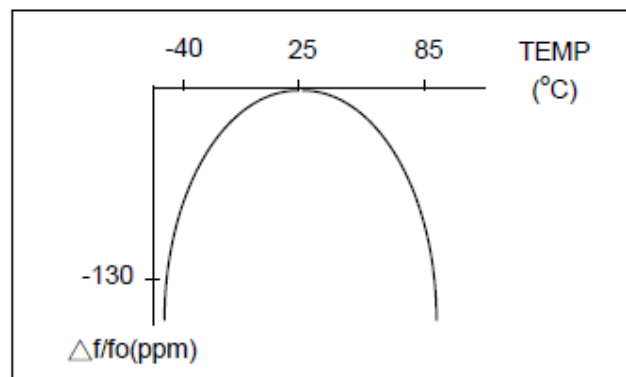
SUGGESTED REFLOW PROFILE

Total time : 200 sec. Max.

Solder melting point :220°C



TEMPERATURE V.S FREQUENCY CURVE



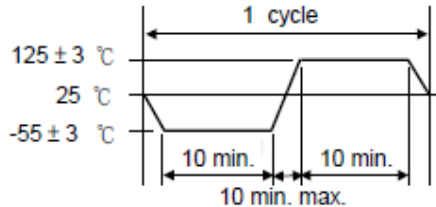


RELIABILITY SPECIFICATIONS

1.MECHANICAL ENDURANCE

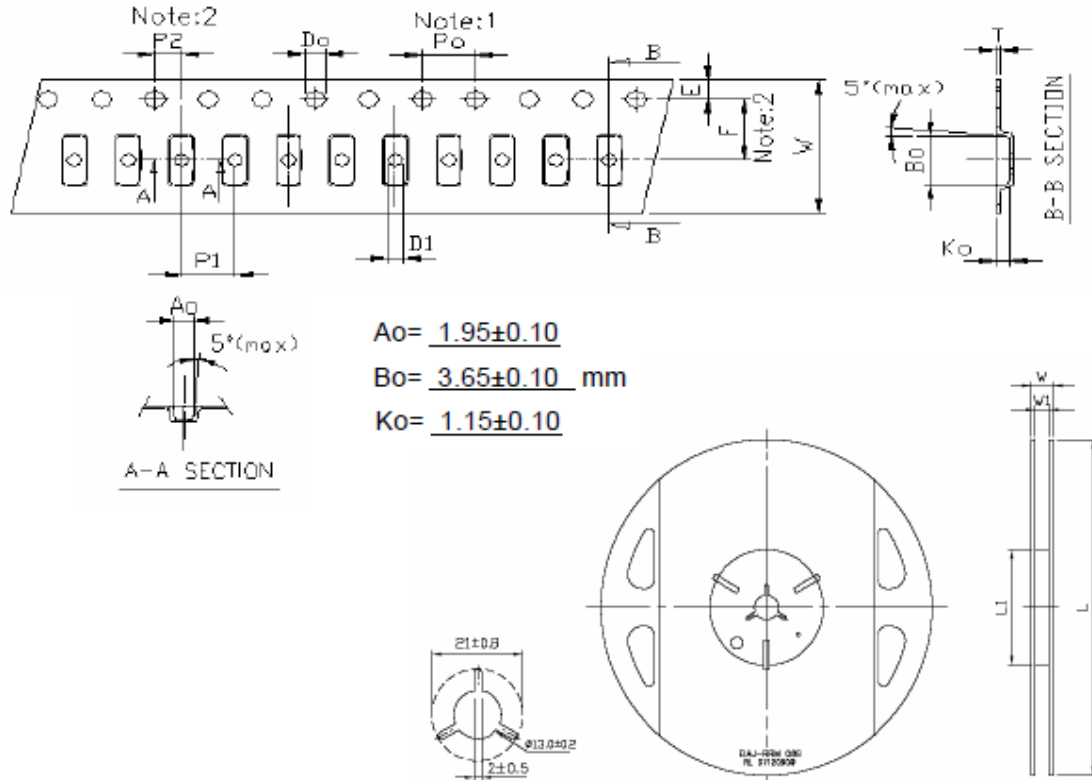
No.	Test Item	Test Methods	REF. DOC
1	Drop Test	150 cm height, fall freely onto concrete floor 3 times.	MIL-STD-202
2	Mechanical Shock	Device are shocked to half sine wave (1000 G) three mutually perpendicular axes each 3 times. 0.5m sec. duration time	MIL-STD-202
3	Vibration	Frequency range 10 ~ 2000 Hz Amplitude 1.52 mm,20G Sweep time 20 minute Perpendicular axes each test time 4 hours (Total test time 12 hours)	MIL-STD-883
4	Solderability	Temperature 245 °C ± 5°C Immersing depth 0.5 mm minimum Immersion time 5 ± 1 seconds Flux Rosin resin methyl alcohol solvent (1 : 4)	MIL-STD-883

2.ENVIRONMENTAL ENDURANCE

No.	Test Item	Test Methods	REF. DOC
2	Resistance To Soldering Heat	Pre-heat temperature 125 °C Pre-heat time 60 ~ 120 sec. Test temperature 260 ± 5 °C Test time 10 ± 1 sec.	MIL-STD-202
2	High Temp. Storage	+ 125 °C ± 3 °C for 1000 ± 12 hours	MIL-STD-883
2	Low Temp. Storage	- 40 °C ± 3 °C for 1000 ± 12 hours	MIL-STD-883
2	Thermal Shock	Total 100 cycles of the following temperature cycle 	MIL-STD-883
3	Pressure Cooker Storage	121 ± 3°C, RH100%, 2 bar, for 240 hours	JIS C6701
3	High Temp&Humidity	85°C ± 3°C, RH 85% , 1000Hrs	JIS C5023



PACKING :



Ao= 1.95±0.10
Bo= 3.65±0.10 mm
Ko= 1.15±0.10

DIMENSIONS	K1	P0	P1	P2	D0	D1	E	F	10P0	W	T	pcs / Reel
	-	4	4	2	1.55	1.1	1.75	3.5	40	8	0.2	3K

REEL DIMENSIONS	W	W1	L	L1
	11.4±1	9.0±0.3	180+0/-3	60+1/-0

REMARK : 1. 230 mm (9.05) minimum leader which consist of carrier and/or tape followed by a minimum of 160 mm (6.3) of empty carrier tape sealed with cover tape.
2. 160 mm (6.3) minimum trailer of empty carrier tape sealed with cover tape.



Range	Products	Packing Material
Banned Substances	Maximum concentration ppm(mg/kg)	Maximum concentration ppm(mg/kg)
1.镉及镉化合物 Cadmium and cadmium compounds	100	100
2.铅及铅化合物 Lead and lead compounds	1000	100
3.汞及汞化合物 Mercury and mercury compounds	1000	100
4.六价铬化合物 Hexavalent-Chromium VI (Cr+6)	1000	100
5.聚溴联苯 PBB Polybrominated biphenyls	1000	N/A
6.聚溴二苯醚 PBDE Polybrominated diphenyl ethers	1000	N/A
7.邻苯二甲酸二(2-乙基己基)酯 DEHP Di (2-ethylhexyl) phthalate	1000	N/A
8.邻苯二甲酸丁苄酯 BBP Butyl Benzyl Phthalate	1000	N/A
9.邻苯二甲酸二丁酯 DBP Dibutyl Phthalate	1000	N/A
10 邻苯二甲酸二异丁酯 DIBP Diisobutyl Phthalate	1000	N/A
11. 氟 (F)、氯 (Cl)、溴 (Br)、碘 (I) Fluorine、Chlorine、Bromine、Iodine	900、900、900、900 注: Br+Cl<1000	N/A
12.包装材料中重金属(汞、镉、六价铬、铅、PBB、PBDE)之总量 Heavy metals (mercury, cadmium, lead, Cr+6,PBB and PBDE) in packing materials	N/A	100 铅(Pb) + 镉(Cd) + 汞(Hg) + 六价铬 (Cr+6) <100ppm
13.高度关注物质 SVHC-Substances of Very High Concern	1000	N/A



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