



TAI-SAW TECHNOLOGY CO., LTD.

No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,
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Product Specifications Approval Sheet

Product Description: 689.104 MHz SMD 3.0 x 3.0 mm SAW Resonator

TST Parts No.: TC0656A

Customer Parts No.: _____

Customer signature required
Company: _____
Division: _____
Approved by : _____
Date: _____

Checked by: _____ Sam Lin *Sam Lin*

Approval by: _____ Andy Yu *Andy Yu*

Date: _____ 2019/04/25

1. Customer signed back is required before TST can proceed with sample build and receive orders.
2. Orders received without customer signed back will be regarded as agreement on the specifications.
3. Any specifications changes must be approved upon by both parties and a new revision of specifications shall be released to reflect the changes.



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SAW Resonator 689.104MHz (SMD 3.0x3.0mm)

MODEL NO.: TC0656A

REV. NO.2.0

A. FEATURES:

1. 1-port Resonator.

RoHS Compliant
Lead free
Lead-free soldering

B. MAXIMUM RATING:

1. Input Power Level : 0 dBm
2. DC Voltage : 0V
3. Operating temperature range: -40 °C to +85 °C
4. Storage temperature range: -55 °C to +125 °C
5. Moisture Sensitive Level: Level 1 (MSL1)

Electrostatic Sensitive Device

C. ELECTRICAL CHARACTERISTICS:

Reference Temperature $T_A=25^{\circ}\text{C}$

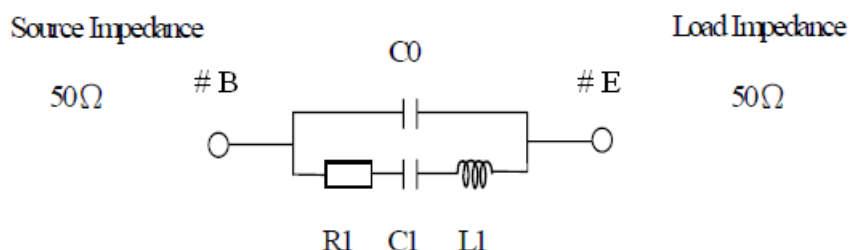
Item	Unit	Min.	Type.	Max.
Center Frequency*, Fc	MHz	689.0799	689.104	689.1281
Insertion Loss IL	dB	-	1.9	3.0
Equivalent Elements				
Unload Q Factor	-	8000	9000	-
Motional Capacitance C1	fF	-	1.17	-
Motional Inductance L1	μH	-	50.7	-
Motional Resistance R1	Ohm	-	22.1	-
Parallel Capacitance Co	pF	-	1.53	-
Frequency Temperature Coefficient**	ppm/°C²	-	-0.04	-
Turnover To	Deg.C	30	40	50
Package Size		SMD 3.0x3.0x1.4 mm		

*Center frequency measure by Yr 1-port with impedance analyzer

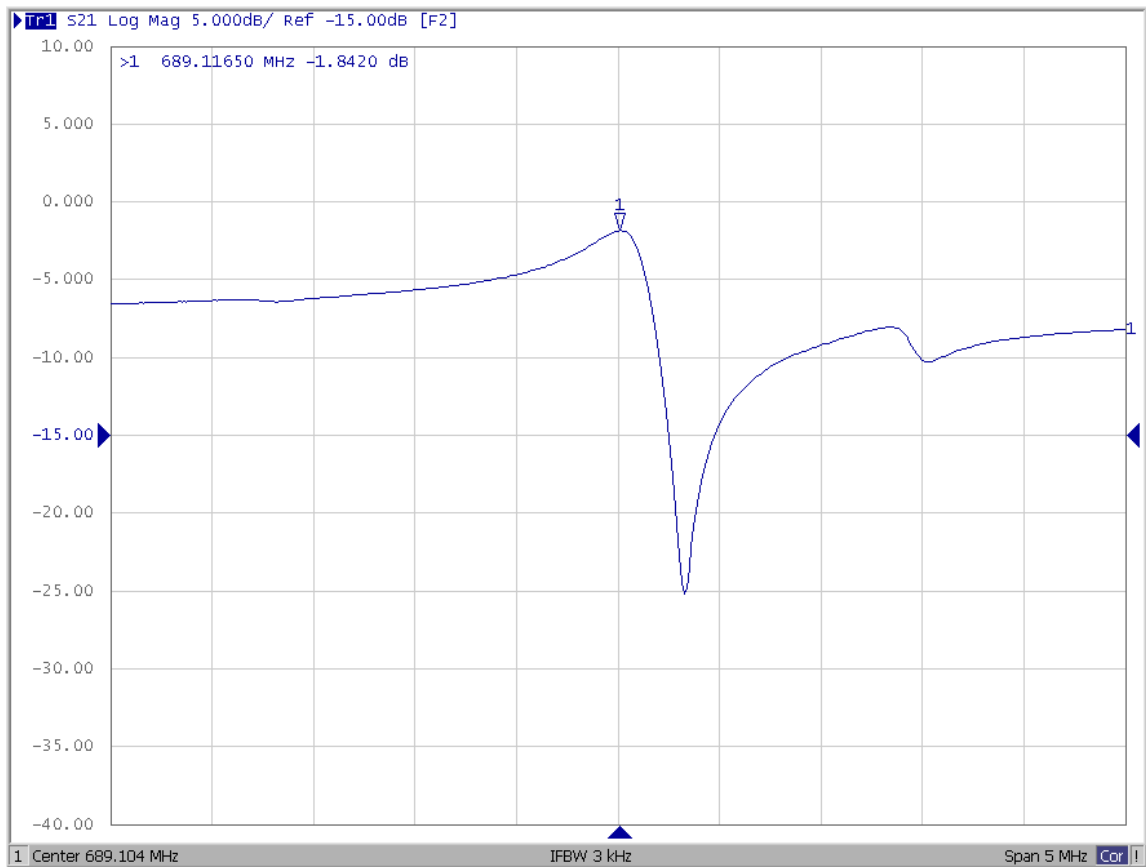
**Temperature dependence of fc: $f_c(T_A)=f_c(T_O)(1-TC_f(T_A-T_O)^2)$

D. EQUIVIRENT CIRCUIT:

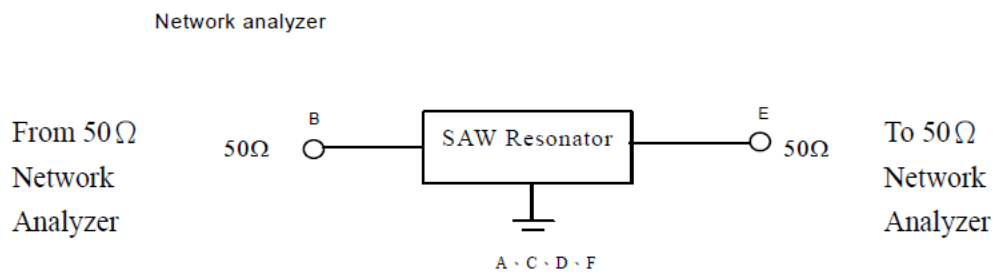
One-Port Resonator:



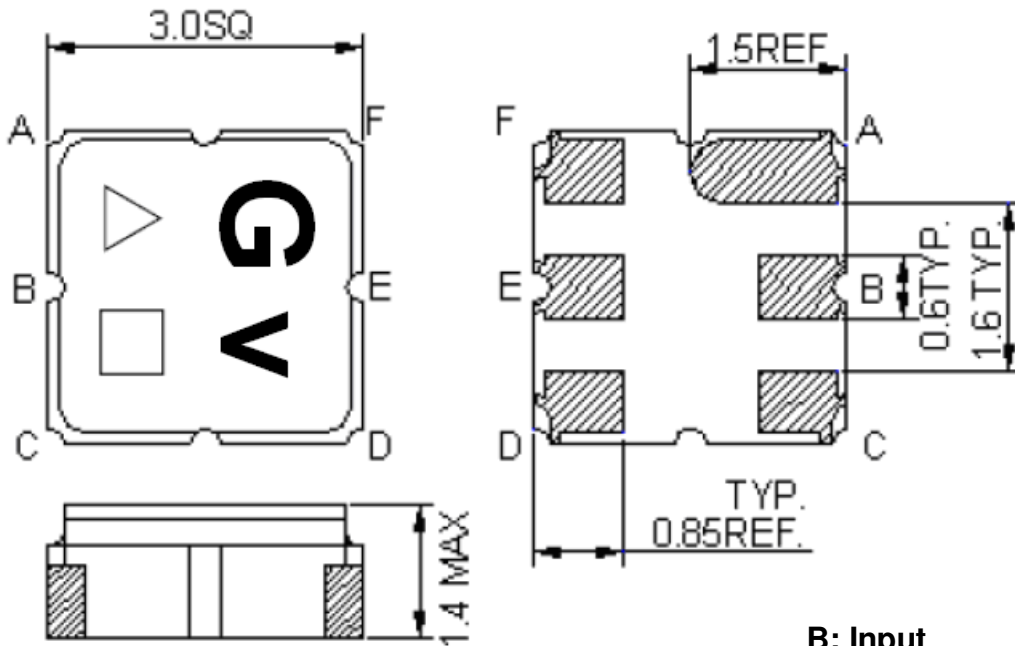
E. FREQUENCY CHARACTERISTICS:



F. TEST CIRCUIT:



E. OUTLINE DRAWING:



B: Input

E: Output

A, C, D, F: Ground

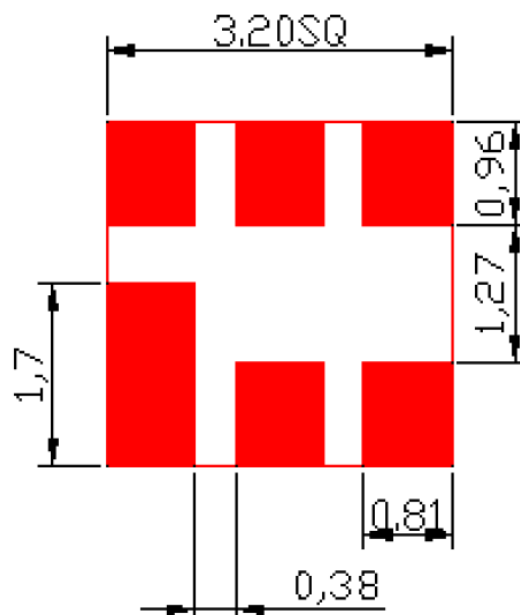
Unit: mm

△ : Year Code (2009->9, 2010->0, ..., 2018->8)

□ : Date Code (Follow the table from planner each year)

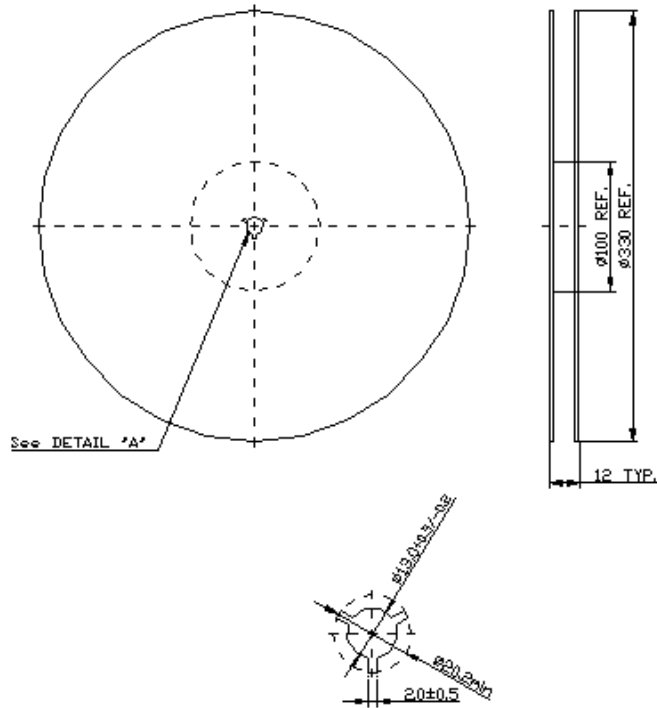
WK01	WK02	WK03	WK04	WK05	WK06	WK07	WK08	WK09	WK10	WK11	WK12	WK13
A	B	C	D	E	F	G	H	I	J	K	L	M
WK14	WK15	WK16	WK17	WK18	WK19	WK20	WK21	WK22	WK23	WK24	WK25	WK26
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
WK27	WK28	WK29	WK30	WK31	WK32	WK33	WK34	WK35	WK36	WK37	WK38	WK39
a	b	c	d	e	f	g	h	i	j	k	l	m
WK40	WK41	WK42	WK43	WK44	WK45	WK46	WK47	WK48	WK49	WK50	WK51	WK52
n	o	p	q	r	s	t	u	v	w	x	y	z

F. PCB FOOTPRINT:

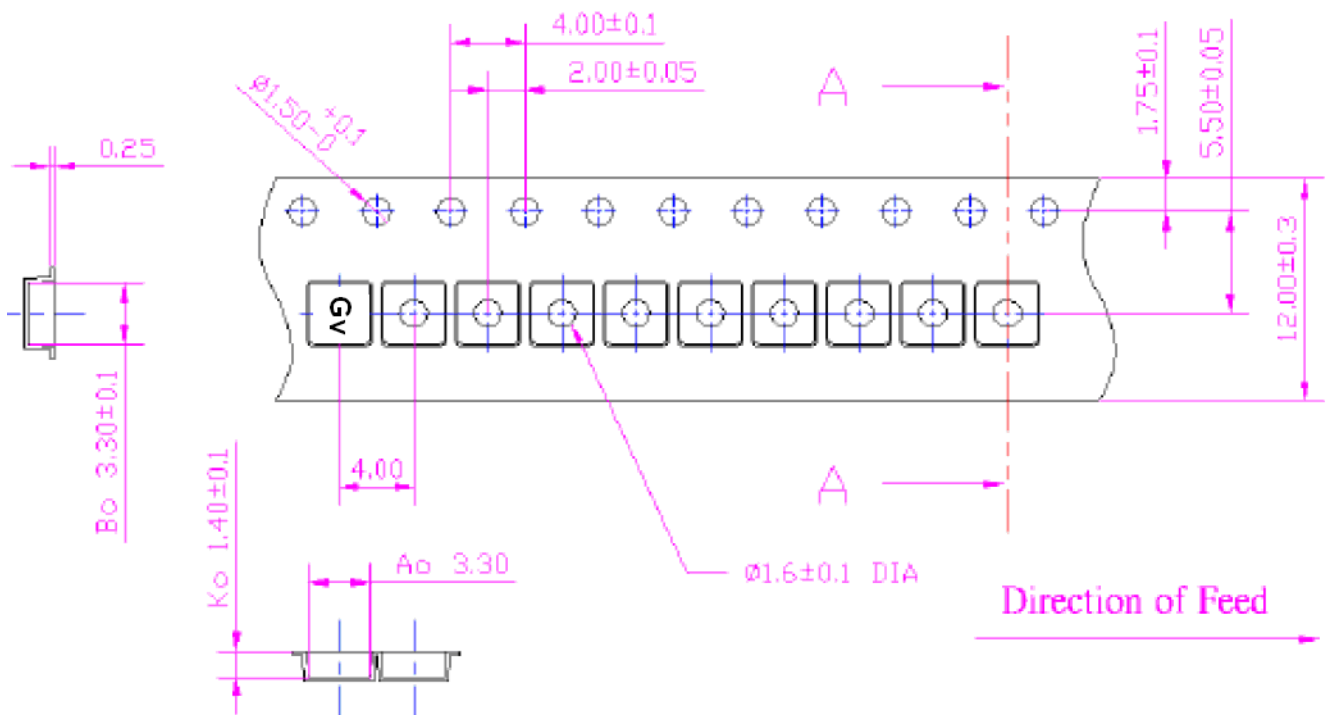


G. PACKING:

1. REEL DIMENSION (Please refer to FR-75D10 for packing quantity)



2. TAPE DIMENSION



H. RECOMMENDED REFLOW PROFILE:

1. Preheating shall be fixed at 150~180°C for 60~90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds min.
3. Heating shall be fixed at 220°C for 50~80 seconds and at 260°C +0/-5°C peak (20~40sec).
4. Time: 2 times.

