Shoulder 好达

SHOULDER ELECTRONICS LIMITED

SAW Components Data Sheet

PRODUCT 产 品: SAW FILTER

MODEL NO 型 号: SFW942PZ002

PREPARED 编 制:

CHECKED 审 核:

APPROVED 批 准:

DATE 日 期: 2007-01-25

1. DEFINITION

1-1. PART No.

S F W 9 4 2 P Z 0 0 2
① ② ③ ④ ⑤ ⑥

No.	EXPLANATION
①	SAW Filter
②	Dual Reverse Type(GSM900+GSM1800)
③	Center Frequency(Low Band) : 942.5MHz:
④	Balanced filter, Input/output → 50ohm/150ohm
⑤	Package size: 2.0×1.6mm²
⑥	Design Revision (02: Molding Type)

1-2. APPLICATION

Dual type Band-pass RF SAW Filter for EGSM & DCS Rx (UMTS Band VIII + III)

Center Frequency: Filter 1 - EGSM 942.5 MHz

Filter 2 - DCS 1842.5 MHz

Suitable for GPRS class 1 to 12 (Continuous Wave)

2. PRECAUTIONS

2-1. This device should not be used in any type of fluid such as water, oil, organic solvent, etc.

2-2. This is a hermetic device.

MSL(Moisture Sensitive Level) is the '2A' level.

2-3. Ultrasonic cleaning shall be avoided.

2-4. Isopropyl Alcohol and Ethyl Alcohol can be used for cleaning. Contact us before using other cleaning solvents than above

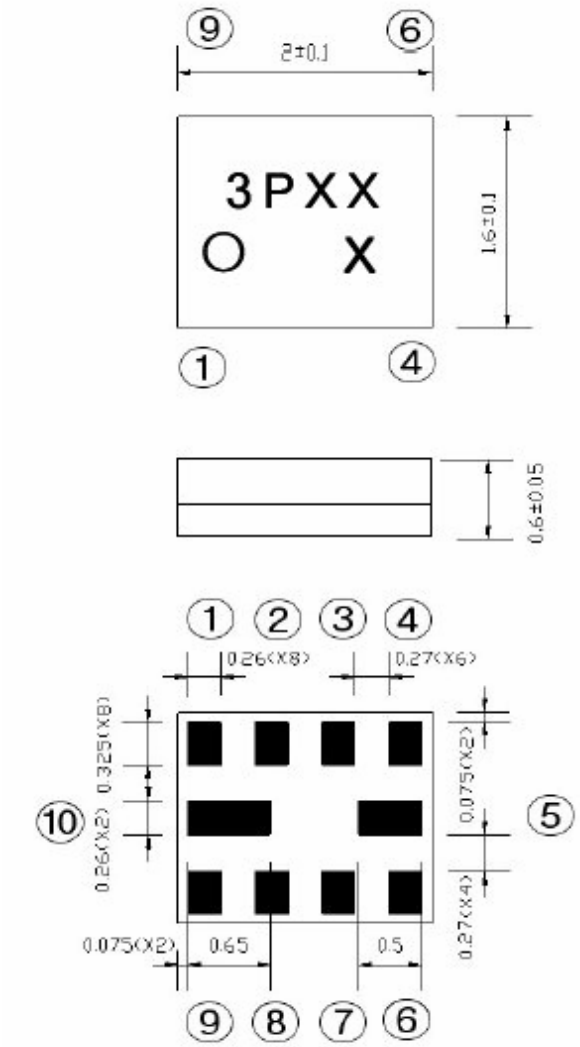
2-5. This is an electrostatic sensitive device.

Please avoid static voltage during operation and storage.

2-6. Sudden change of temperature shall be avoided, deterioration of the characteristics can occur.

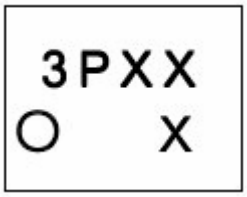
2-7. If any malfunction due to designing or manufacturing which is out of specification occurs within one year after the products have been delivered, the maker should exchange the defective products.

3. OUTLINE DRAWING & DIMENSIONS



No.	Function
①	DCS-Input
④	EGSM-Input
⑧⑨	DCS-Output
⑥⑦	EGSM-Output
②③⑤⑩	Ground

4. MARKING



4-1. 3 P X X X

- The 1st, 2nd character '3P' indicates the model name of SAW Filter SFW942PZ002.

- The 3rd character 'X' indicates the year and the month of manufacture.

Year	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
2007	P	Q	R	S	T	U	V	W	X	Y	Z	a
2008	1	2	3	4	5	6	7	8	9	A	B	C
2009	D	E	F	G	H	I	J	K	L	M	N	O
2010	P	Q	R	S	T	U	V	W	X	Y	Z	a

※ This rotates by the 3 years.

- The 4th, 5th character 'X' indicates Lot No.

4-2. ○

- This symbol indicates input pin 1.

- This indicates the producing center

○: China, ●: Korea

4-3. Marking: Laser Marking

5. PERFORMANCE

5-1. MAXIMUM RATINGS

CHARACTERISTICS	RATINGS	UNITS
DC Permissive Voltage	5	V
Maximum Input Power	13	dBm
Operating Temperature Range	−20 ~ +75	℃
Storage Temperature Range	−40 ~ +85	℃

5-2. ELECTRICAL CHARACTERISTICS

5-2-1. TABLE 1 (EGSM_GSM900)

Ta = -20 ~ +75℃

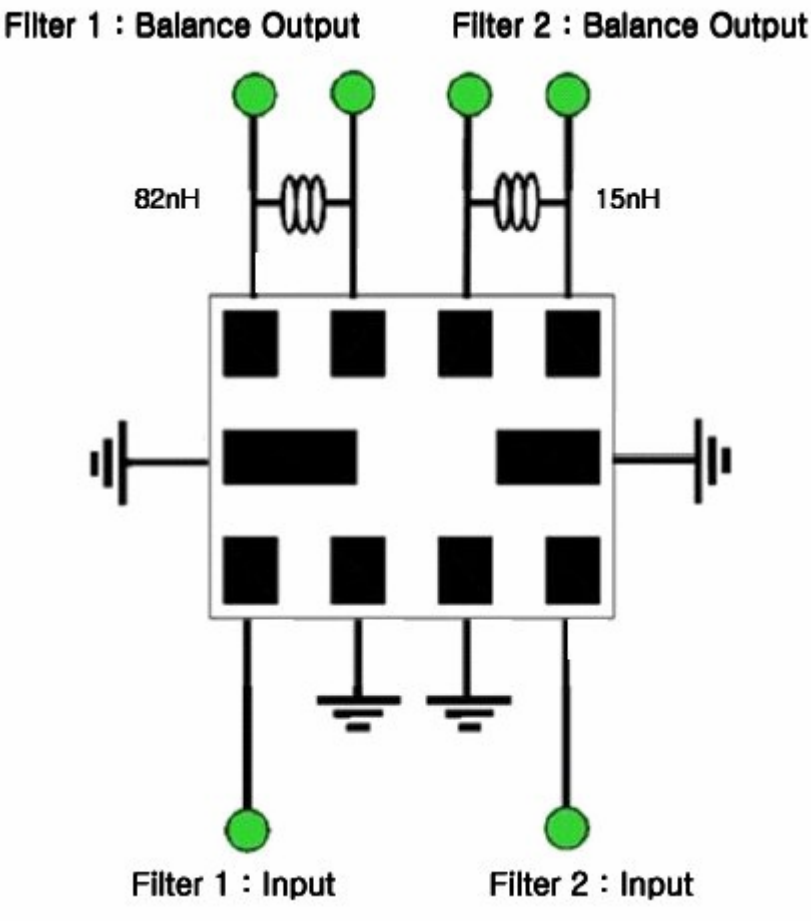
CHARACTERISTICS	CONDITION [MHz]	UNIT	RATING		
			Min.	Typ.(25℃)	Max.
Insertion Loss	925 ~ 960	dB	-	1.5	2.4
Inband Ripple	925 ~ 960	dB	-	0.7	1.7
Input VSWR	925 ~ 960	-	-	1.9	2.2
Output VSWR	925 ~ 960	-	-	1.9	2.2
Amplitude Imbalance	925 ~ 960	dB	−1.2	-	1.2
Phase Imbalance	925 ~ 960	degree	−10	-	10
Absolute Attenuation	DC ~ 480	dB	45	53	-
	480 ~ 905	dB	25	32	
	905 ~ 915	dB	15	23	-
	980 ~ 1000	dB	23	30	-
	1000 ~ 1850	dB	28	32	
	1850 ~ 6000	dB	30	35	-
Termination Impedance			Input: Unbalanced 50 ohm Output: Balanced 150 ohm // 82nH		

5-2-2. TABLE 2 (DCS_GSM1800)

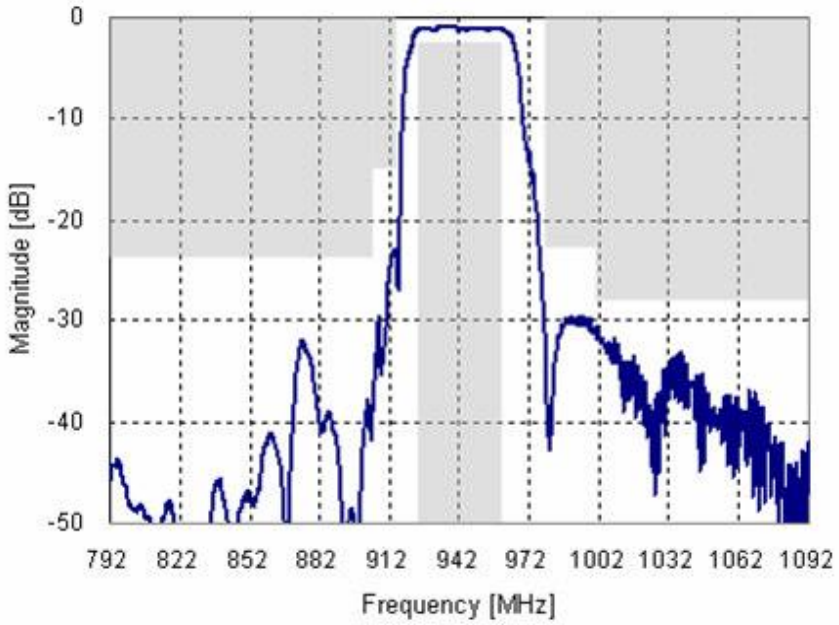
Ta = −20 ~ +75℃

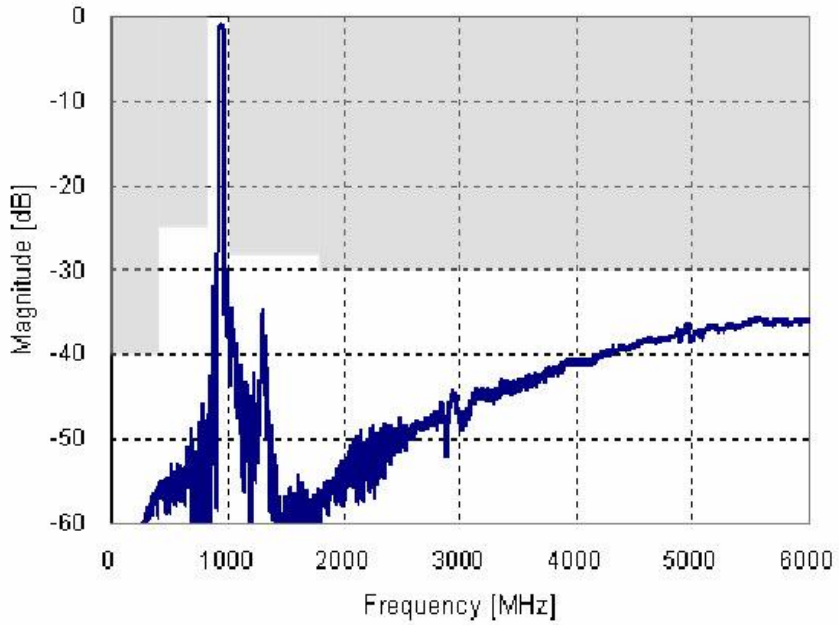
CHARACTERISTICS	CONDITION [MHz]	UNIT	RATING		
			Min.	Typ.(25℃)	Max.
Insertion Loss	1805 ~ 1880	dB	-	1.5	2.5
Inband Ripple	1805 ~ 1880	dB	-	0.7	1.5
Input VSWR	1805 ~ 1880		-	1.8	2.4
Output VSWR	1805 ~ 1880		-	1.8	2.4
Amplitude Imbalance	1805 ~ 1880	degree	−2.0	-	2.0
Phase Imbalance	1805 ~ 1880	dB	−15	-	15
Absolute Attenuation	DC ~ 1300	dB	40	43	-
	1300 ~ 1705	dB	28	36	-
	1705 ~ 1785	dB	10	16	-
	1920 ~ 1980	dB	16	21	-
	1980 ~ 3000	dB	22	27	-
	3000 ~ 6000	dB	30	35	-
Termination Impedance			Input: Unbalanced 50 ohm Output: Balanced 150 ohm // 15nH		

5-2-3. TEST FIXTURE (TOP VIEW)

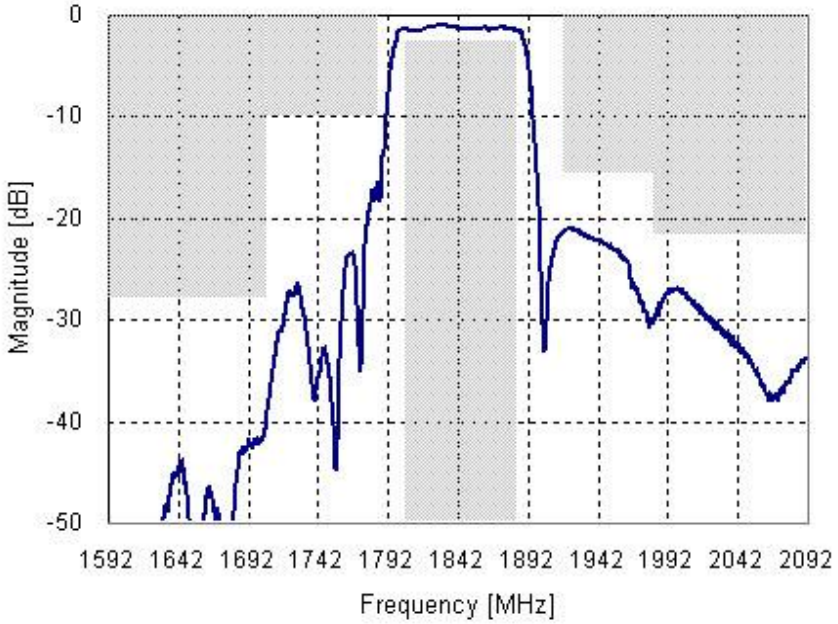


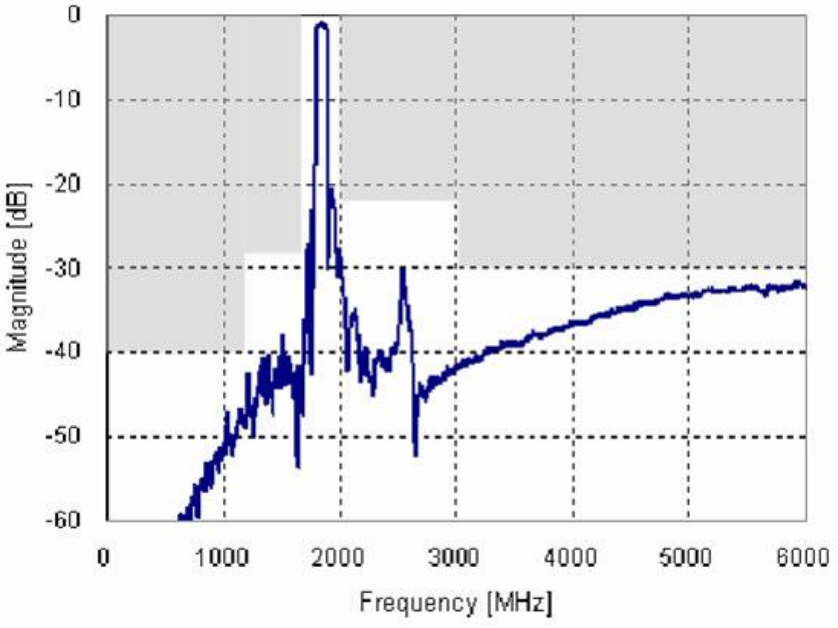
5-2-4. GRAPH 1 (EGSM_GSM900)





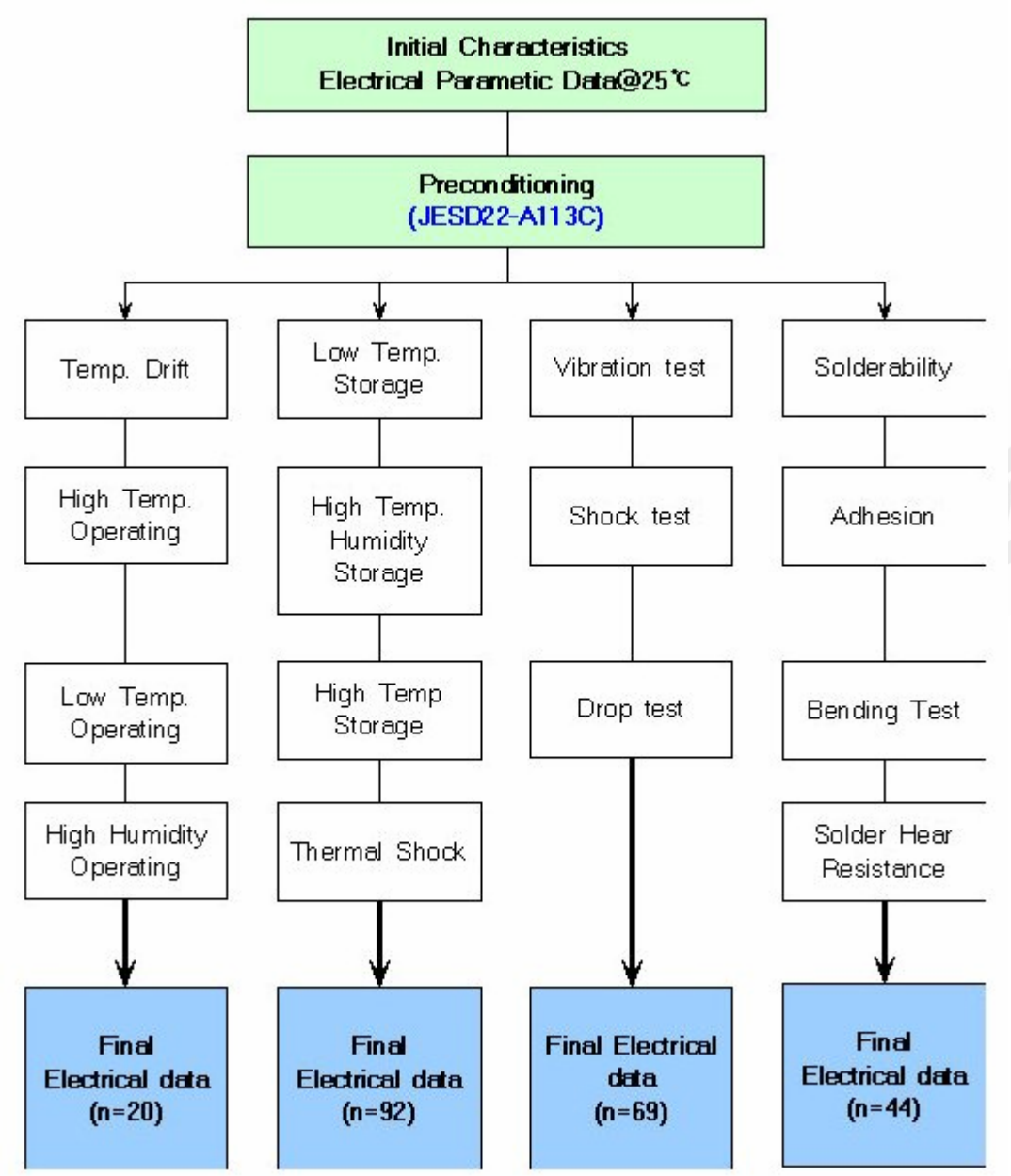
5-2-5. GRAPH 2 (DCS_GSM1800)





6. RELIABILITY

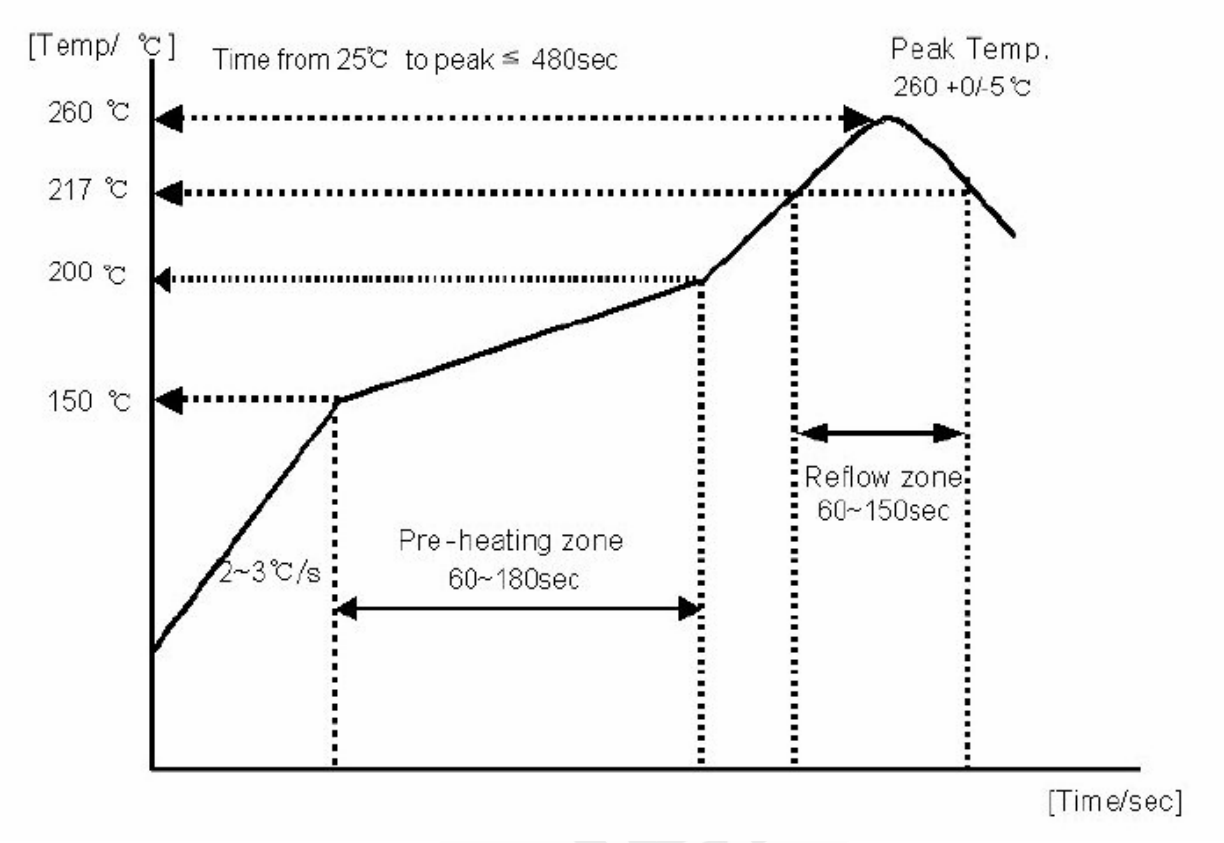
6-1. ENGINEERING SAMPLE FLOW CHART



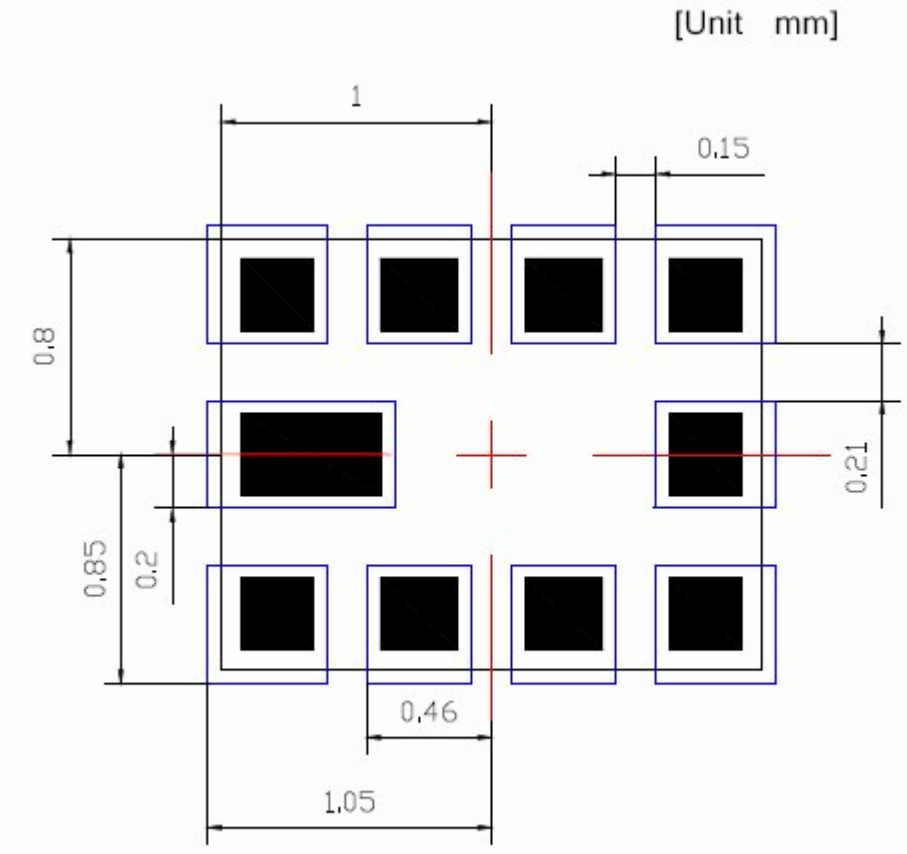
6-2. TEST ITEM & CONDITION

CATEGORY	TEST ITEM	TEST CONDITION	REMARK
Preconditioning		125℃ 24H Baking → 60℃ 60%RH 120H → Reflow 3 times	JESD22-A113C
		↓	
Environment Test	Temp. Drift	−30℃ → 25℃ → 85℃	description
	High Temp. Storage	125℃ 240H	IEC 1178-1.4.8.11
	Low Temp. Storage	−40℃ 240H	IEC 1178-1.4.8.13
	High Temp. High Humidity Storage	85℃ 85%RH 240H	IEC 1178-1.4.8.15
	Thermal Shock	−40℃/30min ⇔ +85℃/30min, 100cycle	JESD22-A106A
	High Temp. Operating	85℃, 13dBm, Center Frequency, 72H	option
	Low Temp. Operating	−30℃, 13dBm, Center Frequency, 72H	
	High Temp. High Humidity Operating	85℃, 85%RH, 13dBm, Center Frequency, 72H	
Mechanical Test	Vibration Test (Random)	20Hz~2000Hz, 0.053G²/Hz or 8g's RMS 15min/plane	IEC 68-2-36 Fdb
	Vibration (Sine wave)	10~55Hz, Amplitude:1.5mm(p-p) Sweep time:1min, X.Y.Z direction, 2H/direction	IEC 1178-1.4.8.7
	Shock Test	3000g's, 0.3ms, harf SINE wave pulse, 3 impacts per axis	JIS C7021 (option)
	Drop Test	120㎝(12times), 152㎝(19times) total(31times) Steel floor JIG(110g~150g)	IEC 68-2-27Ea
	Board Adhesion	0.5㎜/sec 1point push	IEC 68-2-21 Ue3
	Bending Test	0.5㎜/sec 3times -PCB: FR4 , PCB SIZE: 100*40㎜	IEC 68-2-21 Ue3
Physical Test	Solder Heat Resistance	260±5℃, 10±1sec(Solder Pot)	JIS C 5201 4.17
	Solderability	235±5℃, 3±0.5sec(Solder Pot)	JIS C 5201 4.17

7. REFLOW CONDITION



8. RECOMMENDED PCB DIMENSIONS



9. TAPE SPECIFICATIONS

9-1. Tensile Strength of Carrier Tape: 4.4N/mm width

9-2. Top Cover Tape Adhesion (See the below figure)

- pull of angle: 0~15 degree
- speed: 300mm/min.
- force: 20~70g