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A YAGEO Company

TECHNICAL DATA SHEET

Description: 1608 2.4G&5GHz Diplexer

PART NUMBER: DPX1608LKE5R2460A

Features:

- Compact Size
- RoHS compliant



Applications:

- WiFi

ELECTRICAL SPECIFICATIONS

Low band

Item	Frequency (MHz)	Min.	Typ.	Max.
Insertion Loss (dB)	2400~2500	-	0.97	1.20
Return Loss (dB)	2400~2500	10	20.5	-
Attenuation	700~1200	15	16.5	-
	1700~1900	1.5	2.02	-
	4800~6000	30	35.9	-
	7200~7500	28	41.1	-

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RoHS COMPLIANT

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High band

Item	Frequency (MHz)	Min.	Typ.	Max.
Insertion Loss	5150~7125	-	1.00	1.30
Return Loss	5150~7125	10	14.0	-
Attenuation	30~2100	25	26.9	-
	2400~2500	32	38.3	-
	2500~2700	23	27.2	-
	10300~14250	22	24.5	-
	15450~20000	17	20.3	-
	20000~21375	12	18.8	-

Common

Item	Frequency (MHz)	Min.	Typ.	Max.
Return Loss (dB)	2400~2500	10	23.5	-
	5150~7125	10	13.4	-

Operating Temperature Range：-40~85°C
Power Capacity：3W max.

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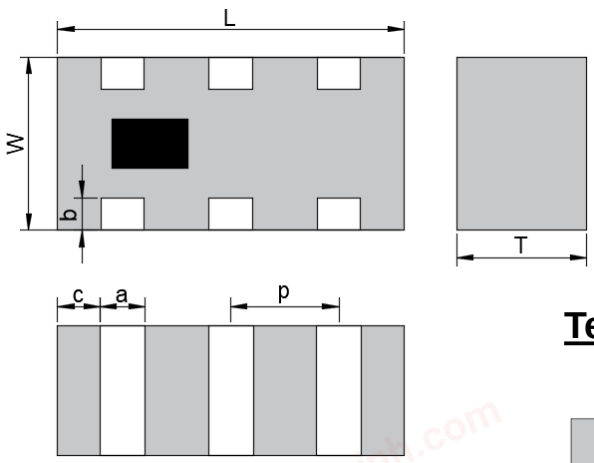
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MECHANICAL DIMENSION

Outline

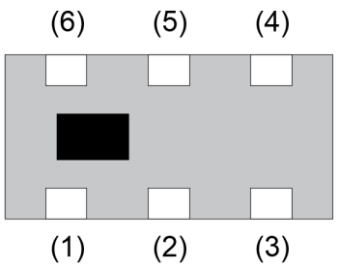


Dimension

L	W	T	a
1.60±0.15	0.80±0.10	0.40 max.	0.20±0.10
b	c	p	
0.15±0.10	0.20±0.10	0.50±0.05	

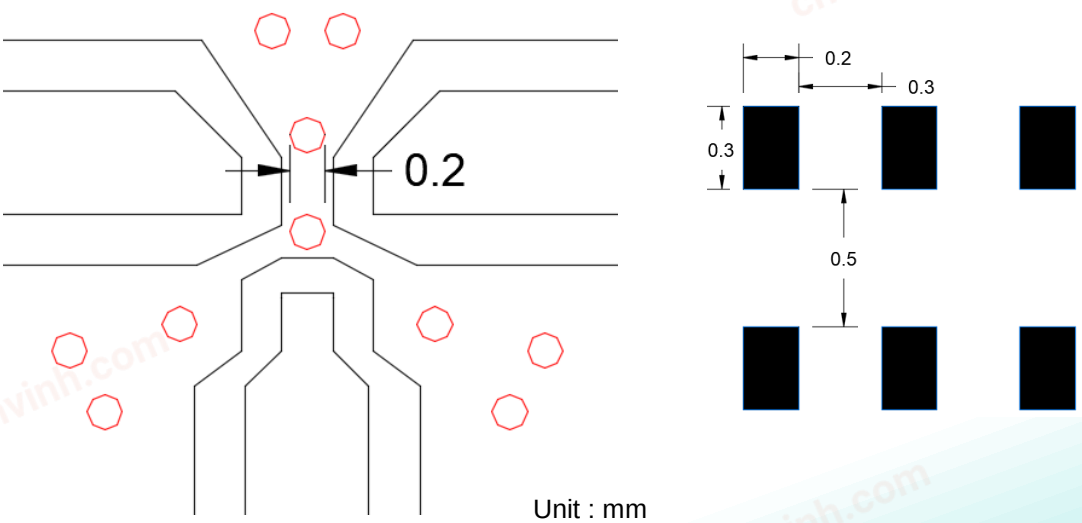
NOTE：Dimensions in mm.

Termination



Terminal name	Function
(1)	GND
(2)	Common
(3)	GND
(4)	High band
(5)	GND
(6)	Low band

Reference design of EVB



Unit : mm

*Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

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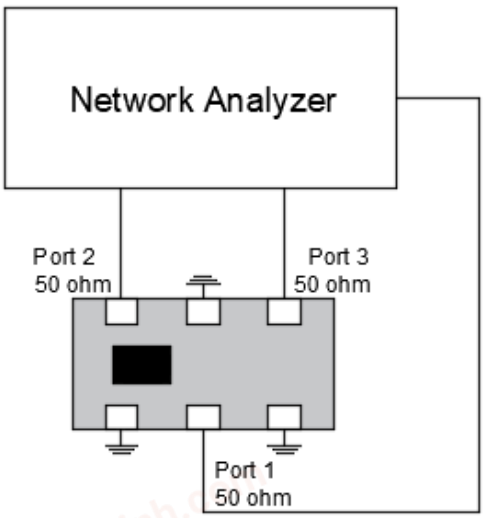
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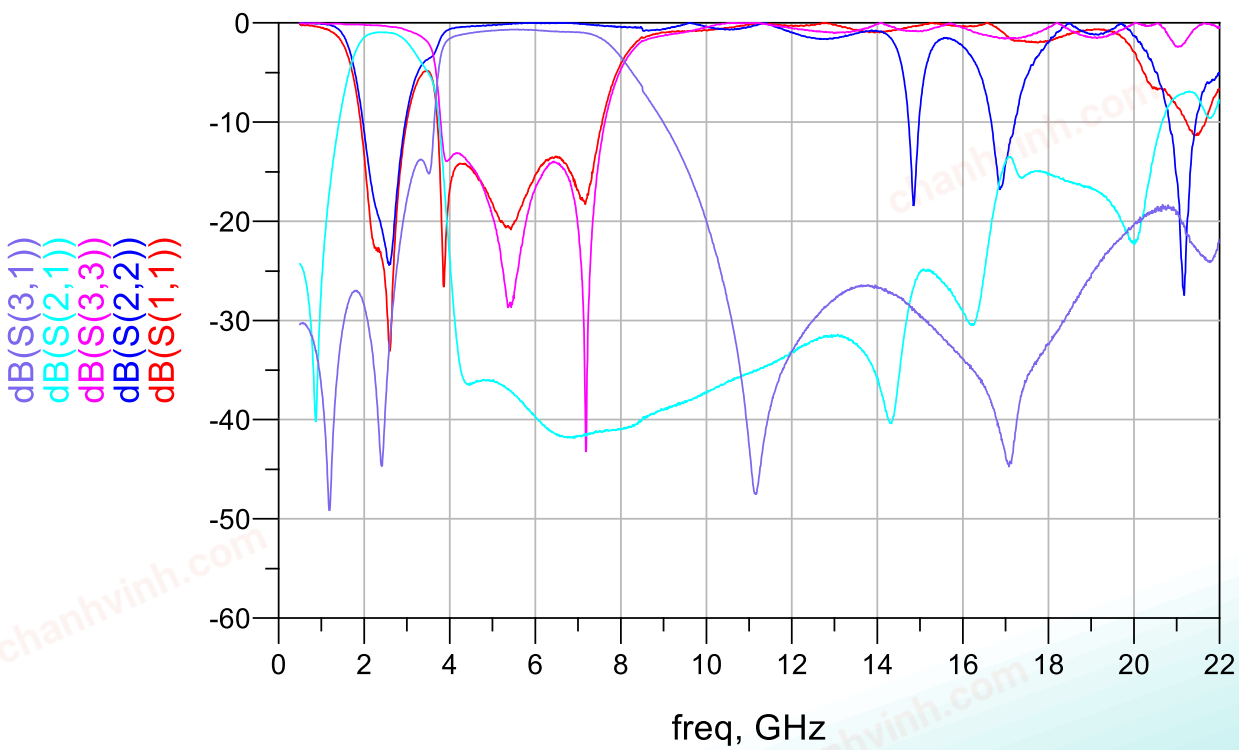
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MEASURING DIAGRAM



Test Instrument：
Agilent E5071C Network Analyzer or equivalent.

ELECTRICAL PERFORMANCES



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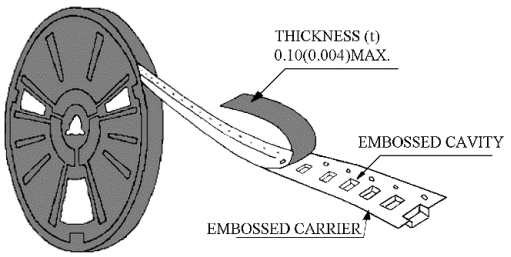
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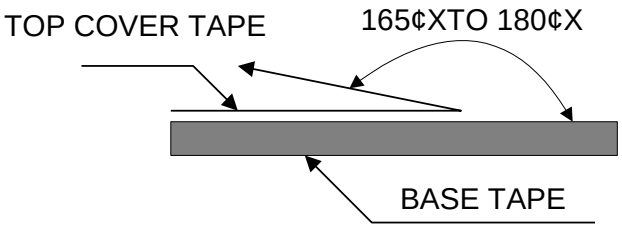
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PACKING SPECIFICATION

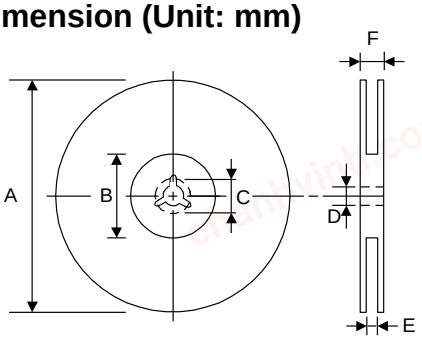
Peel-off force





The force for peeling of cover tape is 10 grams in the arrow direction.

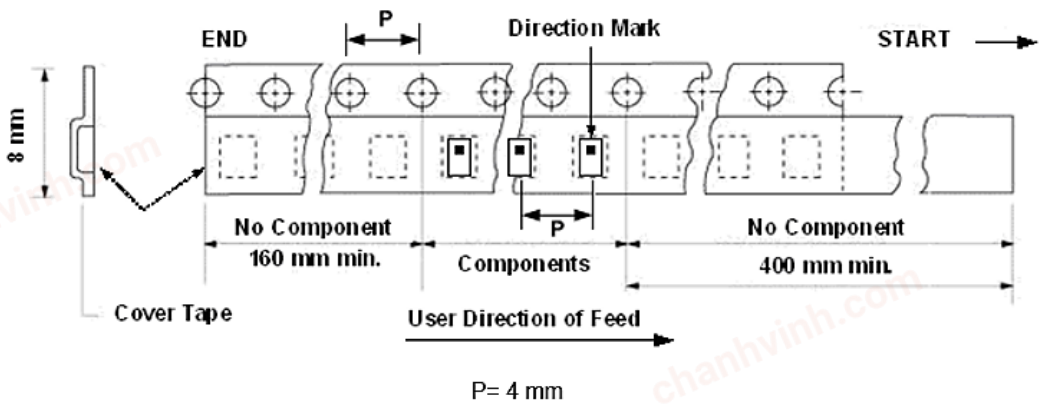
Dimension (Unit: mm)



TYPE	A	B	C	D	E	F
8 mm	178±1	60+0.5 -0	-	13±0.2	9±0.5	12±0.5
12 mm	178±0.3	60±0.2	19.3±0.1	13.5±0.1	13.6±0.1	-

Taping quantity

SERIES	5824 5724	5320 5220	4532	4516	3225	3216 2520	2012 1608	1005 0605
PCS/Reel	5000	3000	1000	2000	2500	3000	4000	10000



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Description: 1608 2.4G&5GHz Diplexer

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RELIABILITY TEST

Test Item	Test condition	Specification
High Temperature Exposure (Storage)	1. Initial measure: Spec: refer Initial spec. 2. Unpowered IEC: 500 hours @ T=+85 ℃ 3. Measurement at 24±2 hours after test.	No apparent damage. Fulfill the electrical spec. after test.
Temperature Cycling	1. Initial measure: Spec: refer Initial spec. 2. Temperature test: Soak Mode=1 (Cycle/hours). IEC: 500 Cycles (-30℃ to +85℃) 3. Measurement at 24+/-2Hours after test condition.	No apparent damage. Fulfill the electrical spec. after test.
Biased Humidity	1. Humidity: 85% R.H., Temperature: 85 ±2 °C. 2. Time: IEC: 500 hours 3. Measurement at 24±2hrs after test condition.	No apparent damage. Fulfill the electrical spec. after test.
Mechanical Shock	1. Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks) 2. Peak value: 1,500g's 3. Duration: 0.5ms 4. Velocity change: 15.4 ft/s 5. Waveform: Half-sine	No apparent damage. Fulfill the electrical spec. after test.
Vibration	1. 5g's for 20 min., 12 cycles each of 3 orientations 2. Note: Use 8"X5" PCB .031" thick 7 secure points on, one long side and 2 secure points at corners of opposite sides. 3. Parts mounted within 2" from any secure point. Test from 10-2000	No apparent damage. Fulfill the electrical spec. after test.
Resistance to Soldering Heat	1. Preheating temperature: 150±10°C. 2. Preheating time: 1~2 min. 3. Solder temperature: 260±5 °C. 4. Dipping time: 5±0.5s.	No apparent damage. Fulfill the electrical spec. after test.
Solder-ability	IEC: Temperature: 245±5°C; Dipping time: 3±0.5s.	At least 95% of a surface of each terminal electrode must be covered by fresh solder.
Board Flex	1. Mounting method: IR-Reflow. PCB Size (L:100 × W:40 × T:1.6mm) 2. Apply the load in direction of the arrow until bending reaches: IEC: 1 mm for all types. keep 60s	No apparent damage.
Terminal Strength (SMD)	Apply Force for 60 seconds. Standard is as follows 0605~1005 >0.1KgF 1109~2016 >0.5KgF 2520~>1KgF	No apparent damage.
Low Temperature Storage	1. Initial measure: Spec: refer Initial spec. 2. Unpowered IEC: 500 hours @ T=-30 ℃ 3. Measurement at 24±2 hours after test.	No apparent damage. Fulfill the electrical spec. after test.
Physical Dimension	Any applicable method using x10 magnification, micrometers, calipers, gauges, contour projectors, or other measuring equipment, capable of determining the actual specimen dimensions.	Fulfill the spec.
3 *Times Reflow	1. Preconditioning: 150 +0/-10℃/1 hr, then keep for 24±1 hrs at room temp. 2. Reflow profile follow MIL-STD 202G 3. Recovery time: 2±0.5 Hours.	No apparent damage. Fulfill the electrical spec. after test.

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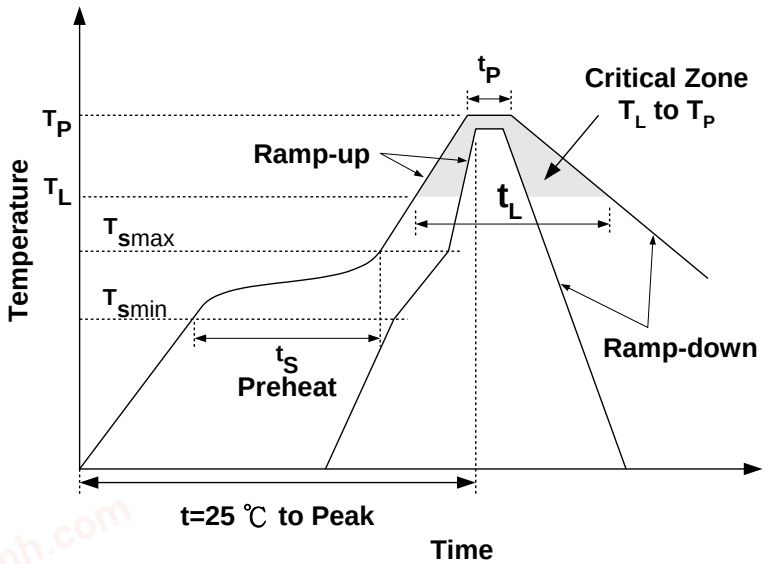
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TEST RECOMMENDED REFLOW SOLDERING PROFILE



Profile Feature		Sn-Pb	Pb-Free
Preheat	t_s	60~120 seconds	60~180 seconds
	T_{smin}	100℃	150℃
	T_{smax}	150℃	200℃
Average ramp-up rate (T_{smax} to T_P)		3℃/second max.	3℃/second max.
Time main above	Temperature (T_L)	183℃	217℃
	Time (t_L)	60~150 seconds	60~150 seconds
Peak temperature (T_P)		230℃	250~260℃
Time within 5℃ of actual peak temperature (t_P)		10 seconds	10 seconds
Ramp-down rate		6℃/sec max.	6℃/sec max.
Time 25℃ to peak temperature		6 minutes max.	8 minutes max.

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REVISION HISTORY

Revision	Date	Description
Version 1	Dec. 13, 2023	- New issue
Version 2	Apr. 25, 2024	- Add reliability test & reflow profile.

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