

# APPROVAL SHEET

**AMDIP Series – 2520(1008)- RoHS Compliance**

**MULTILAYER CERAMIC DIPLEXER**

**Halogens Free Product**

**ISM 2.4 GHz & 5 GHz Band RF Application**

**Automotive**

**Qualified to AEC-Q200**

**Preliminary**

**P/N: AMDIP2520070L4T**

\*Contents in this sheet are subject to change without prior notice.

## FEATURES

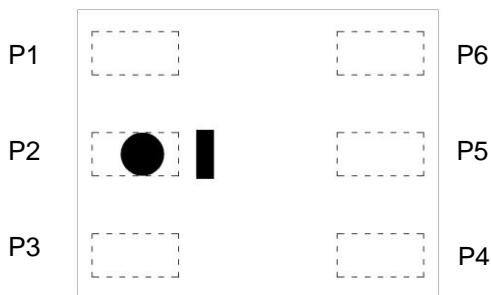
1. Miniature footprint: 2.5 X 2.0 X 0.7 mm<sup>3</sup>.
2. LTCC Process
3. Low Insertion Loss
4. High Rejection @ 2.17 GHz

## APPLICATIONS

1. ISM 2.4GHz/ 5GHz band RF application

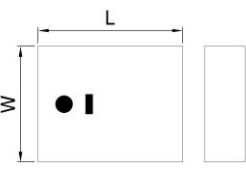

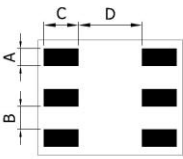
## CONSTRUCTION

Top view



PIN	Connection	PIN	Connection
1	GND	4	High Freq. port
2	GND	5	GND
3	Low Freq. port	6	Common port

## DIMENSIONS

Figure	Symbol	Dimension (mm)
Top view 	L	2.50 ± 0.15
	W	2.00 ± 0.15
	T	0.70 ± 0.10
Side view 	A	0.30 ± 0.10
Bottom view 	B	0.40 ± 0.10
	C	0.60 ± 0.10
	D	1.10 ± 0.10

**ELECTRICAL CHARACTERISTICS**

AMDIP2520070L4T	Specification	
Frequency range	2400~2500 MHz	5150~5850 MHz
Insertion Loss	2.4 dB max. at +25°C 2.7 dB max. at -55°C ~ +125°C	1.2 dB max. at +25°C 1.5 dB max. at -55°C ~ +125°C
Attenuation	30 dB min. @ 824~915MHz 30 dB min. @ 1545~1610MHz 24 dB min. @ 1710~1990MHz 15 dB min. @ 2110~2170MHz 30 dB min. @ 4800~5000MHz 20 dB min. @ 7200~7500MHz	25 dB min. @ 1545~1610MHz 25 dB min. @ 2400~2500MHz 15 dB min. @ 10300~11700MHz
VSWR	2.2 max.	
Impedance	50Ω	
Moisture sensitivity levels	LEVEL 1 (Refer to : IPC/JEDEC J-STD-020)	

**Operating & Storage Condition (Component)**

Operation Temperature Range: -55°C ~ +125°C

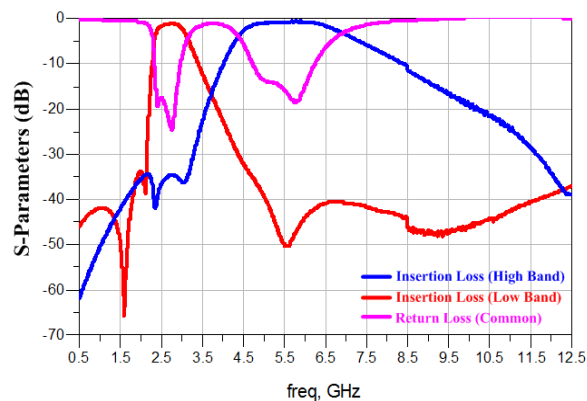
Storage Temperature Range: -55°C ~ +125°C

**Storage Condition before Soldering (Included packaging material)**

Storage Temperature Range: +5 ~ +40 °C

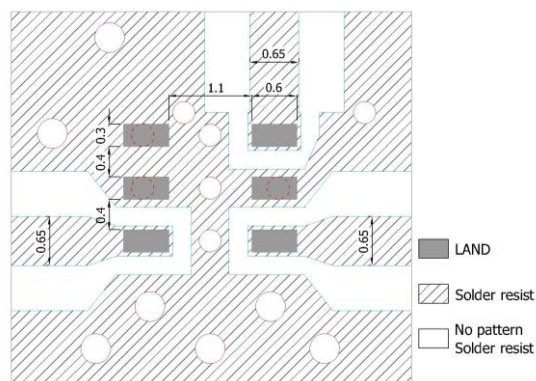
Humidity: 30 to 70% relative humidity

**Typical Electrical Chart**



**SOLDER LAND PATTERN**

**Figure**



Unit: mm

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

## RELIABILITY TEST

TEST	PROCEDURE / TEST METHOD	REQUIREMENT
Resistance to soldering heat (R.S.H) <b>MIL-STD-202</b> <b>method 210</b>	Un-mounted chips completely immersed for 10±1 second in a SAC solder bath at 270°C ±5°C	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -55 ~ 125°C. Loss of metallization on the edges of each electrode shall not exceed 25
Solderability <b>J-STD-002</b>	a)4hrs / 155°C *dry then solder dipping 235°C/5sec b)Steam 8 hrs then 215°C / 5sec solder dipping c)Steam 8 hrs then 260°C / 7sec solder dipping	95% coverage min., good tinning and no visible damage
Temperature cycling <b>JESD22</b> <b>method JA-104</b>	1000 cycles, -55°C ~ +125°C, dwell time 30min	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -55 ~ 125°C.
Humidity <b>MIL-STD-202</b> <b>method 103</b>	1000+48/-0 hours; 85°C, 85% RH	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -55 ~ 125°C.
High Temperature Exposure <b>MIL-STD-202</b> <b>method 108</b>	1000+48/-0 hours; without load in a temperature chamber controlled 125±3°C	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -55 ~ 125°C.
Mechanical Shock <b>MIL-STD-202</b> <b>method 213</b>	1/2 Sine Pulse / 100g Peak / Velocity 12.3ft/sec	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -55 ~ 125°C.
Board Flex <b>AEC-Q200-005</b>	RF component mounted on a 90mm glass epoxy resin PCB(FR4), bending once 2mm for 60sec	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -55 ~ 125°C.
Terminal strength <b>AEC-Q200-006</b>	Pressurizing force: 1.8Kg, Test time: 60±1sec. Only 0402 for 1.0kg/60sec	No remarkable damage or removal of the terminations
Vibration <b>MIL-STD-202</b> <b>method 204</b>	Test 5g's for 20min., 12 cycles each of 3 orientations	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -55 ~ 125°C.
ESD <b>AEC-Q200-002</b>	Test contact 1.0KV ( 0.5KV for 1005 only)	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -55 ~ 125°C.

**SOLDERING CONDITION**

Typical examples of soldering processes that provide reliable joints without any damage are given in Fig 2,

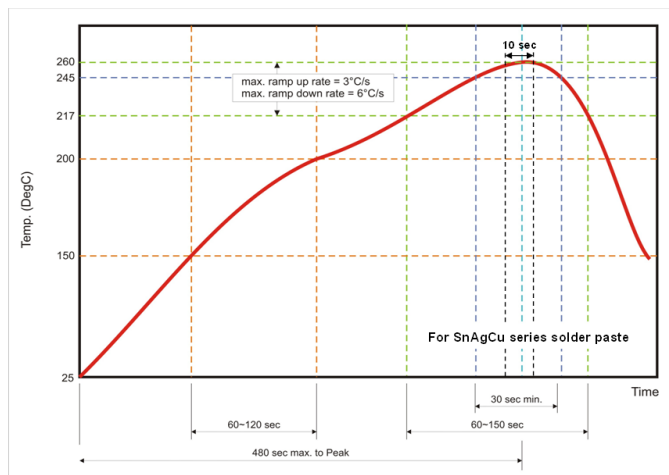


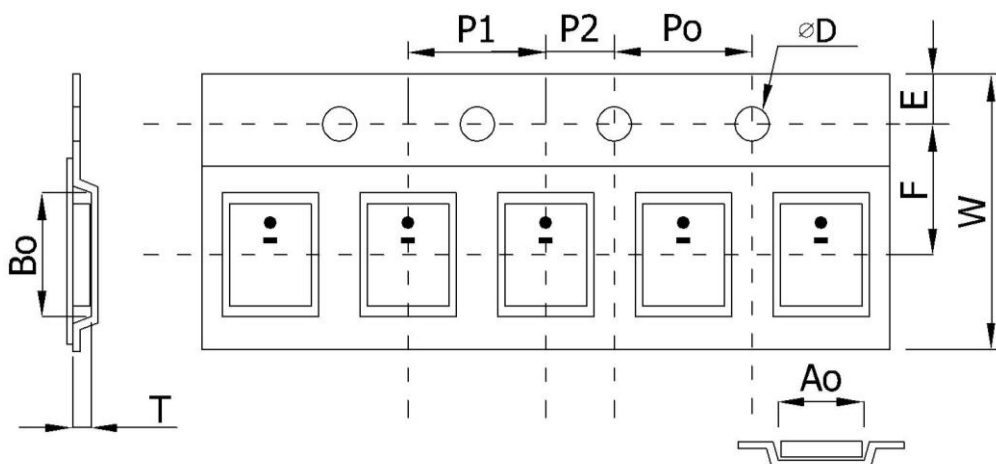
Fig 2. Infrared soldering profile

**ORDERING CODE**

<b>AM</b> Walsin Automotive device	<b>DIP</b> Product Code DIP : Diplexer	<b>252007</b> Dimension code Per 2 digits of Length, Width, Thickness : e.g. : 252010 = Length 25, Width 20, Thickness 07	<b>0</b> Unit of dimension 0 : 0.1 mm 1 : 1.0 mm	<b>L</b> Application L : 2.4GHz/5GHz	<b>4</b> Specification Design Code	<b>T</b> Packing T : Reeled
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Minimum Ordering Quantity: 2000 pcs per reel.

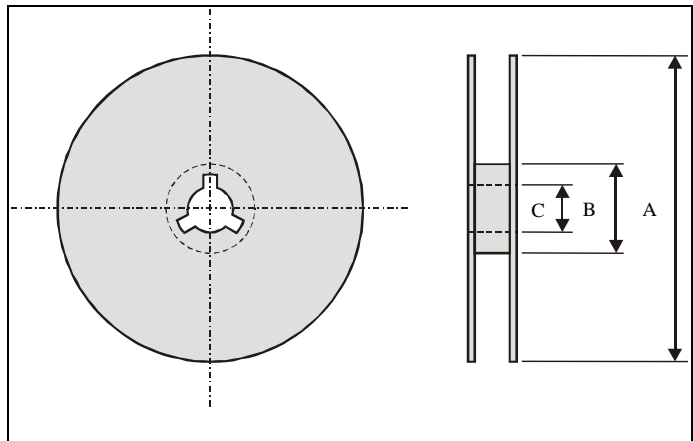
**PACKAGING**



Plastic Tape specifications (unit :mm)

Index	Ao	Bo	φD	T	W
Dimension (mm)	2.27 ± 0.05	2.74 ± 0.05	1.5 ± 0.1	1.18 ± 0.05	8.00 ± 0.10
Index	E	F	Po	P1	P2
Dimension (mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05

**Reel dimensions**



Index	A	B	C
Dimension (mm)	Φ178.0	Φ60.0	Φ13.0

Taping Quantity:2000 pieces per 7" reel

**CAUTION OF HANDLING**

**Limitation of Applications**

Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects, which might directly cause damage to the third party's life, body or property.

- (1) Aircraft equipment
- (2) Aerospace equipment
- (3) Undersea equipment
- (4) Medical equipment
- (5) Disaster prevention / crime prevention equipment
- (6) Traffic signal equipment
- (7) Transportation equipment (vehicles, trains, ships, etc.)
- (8) Applications of similar complexity and /or reliability requirements to the applications listed in the above.

**Storage condition**

- (1) Products should be used in 6 months from the day of WALSIN outgoing inspection.
- (2) Storage environment condition.
  - Products should be storage in the warehouse on the following conditions.
  - Temperature : +5 to +40°C
  - Humidity : 30 to 70% relative humidity
  - Don't keep products in corrosive gases such as sulfur. Chlorine gas or acid or it may cause oxidization of electrode, resulting in poor solderability.
  - Products should be storage on the palette for the prevention of the influence from humidity, dust and son on.
  - Products should be storage in the warehouse without heat shock, vibration, direct sunlight and so on.
  - Products should be storage under the airtight packaged condition.