

APPROVAL SHEET

AMDIP Series – 2012(0805)- RoHS Compliance

MULTILAYER CERAMIC DIPLEXER

Halogens Free Product

2.4 GHz & 5 GHz ISM Band Working Frequency

Automotive

P/N: AMDIP2012050LP7B1U

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

Approval sheet

FEATURES

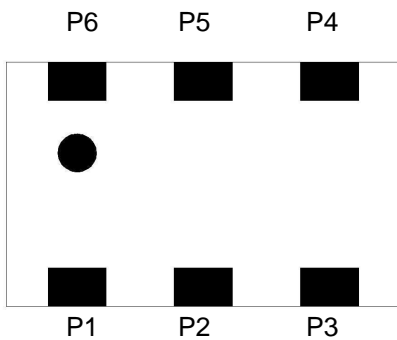
1. Miniature footprint: 2.0 X 1.2 X 0.55 mm³.
2. Low Profile Thickness
3. Low insertion loss
4. High attenuation on 2nd harmonic suppressed
5. LTCC process

APPLICATIONS

1. Dual-band / Dual-mode.2.4 GHz/ 5 GHz WLAN

CONSTRUCTION

Top view



| PIN | Connection | PIN | Connection |
|-----|-------------|-----|-------------------|
| 1 | GND | 4 | Higher Freq. Port |
| 2 | Common Port | 5 | GND |
| 3 | GND | 6 | Lower Freq. Port |

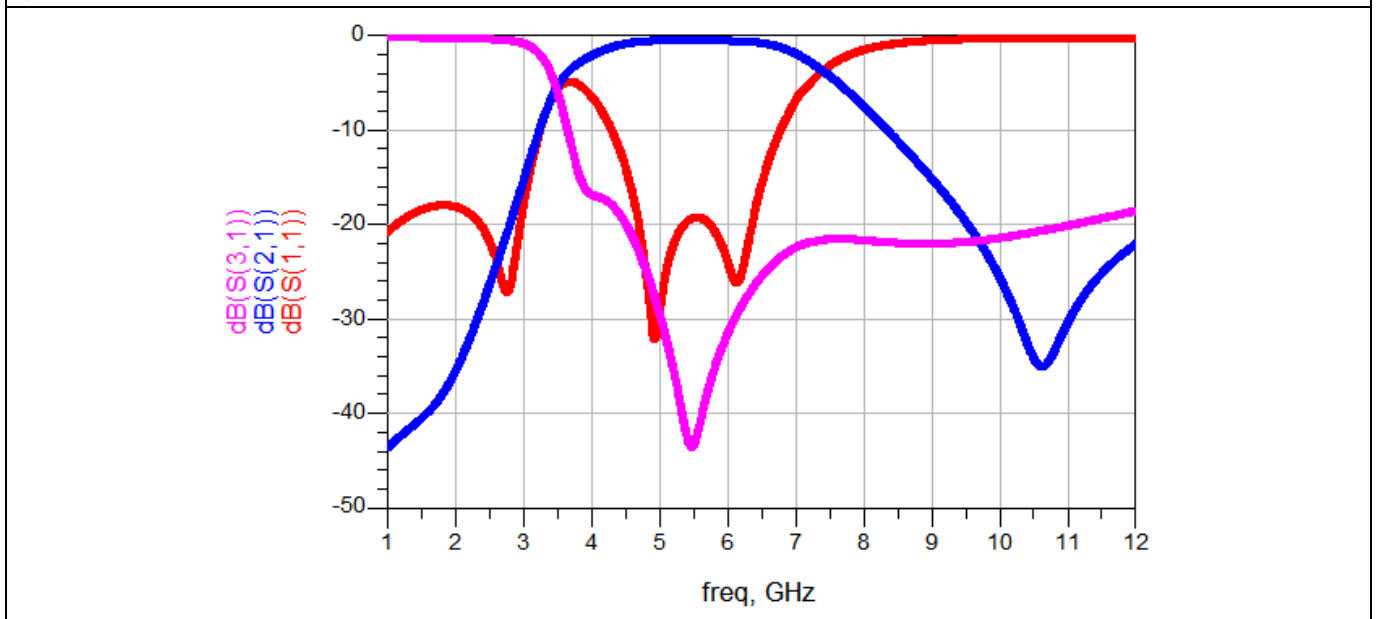
DIMENSIONS

| Figure | Symbol | Dimension (mm) |
|-----------------|--------|----------------|
| Top view | L | 2.00 ± 0.10 |
| | W | 1.25 ± 0.10 |
| Bottom view | T | 0.55 ± 0.15 |
| | A | 0.20 ± 0.15 |
| Side view | B | 0.30 ± 0.15 |
| | C | 0.35 ± 0.15 |
| | D | 0.65 ± 0.15 |
| | E | 0.20 ± 0.10 |

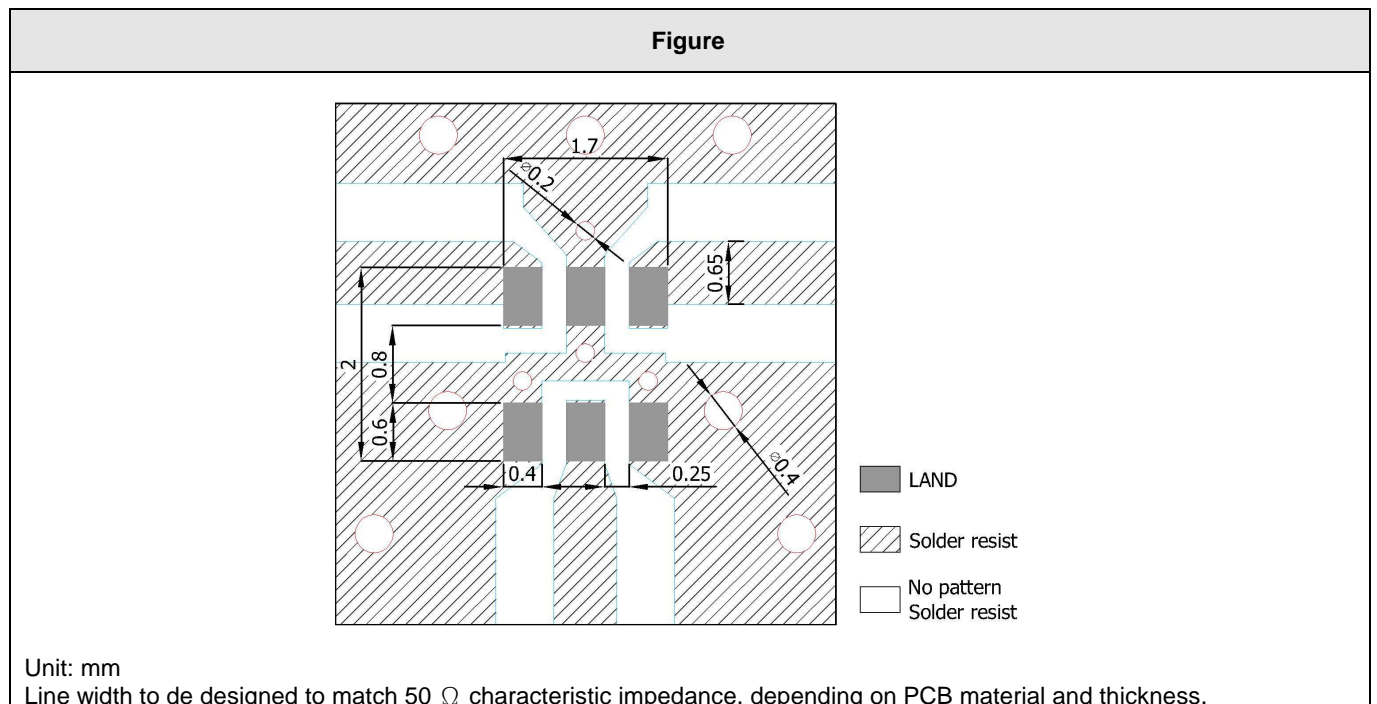
ELECTRICAL CHARACTERISTICS

| AMDIP2012050LP7B1U | Specification | |
|-----------------------------|--|--|
| Frequency range | 2400~2500 MHz | 4900~5950 MHz |
| Insertion Loss | 0.5 dB max. at 25 °C 0.9 dB max. at -55~+125 °C | 0.8 dB max. at 25 °C 1.2 dB max. at -55~+125 °C |
| Attenuation (min.) | 23 dB @ 4800~6000 MHz 20 dB @ 7200~7500 MHz | 25 dB @ 800~2500 MHz 15 dB @ 9800~11900 MHz |
| Isolation | 28dB min. | |
| Impedance | 50Ω | |
| Return Loss | 12dB | |
| Operation Temperature Range | -55°C ~ +125 °C | |
| MSL | MSL is LEVEL 1 (Refer to : IPC/JEDEC J-STD-020) | |

Typical Electrical Chart



SOLDER LAND PATTERN



RELIABILITY TEST

| TEST | PROCEDURE / TEST METHOD | REQUIREMENT |
|---|--|--|
| Resistance to soldering heat (R.S.H) MIL-STD-202 method 210 | Un-mounted chips completely immersed for 10±1second 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 J-STD-002 | 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 JESD22 method JA-104 | 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 MIL-STD-202 method 103 | 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 MIL-STD-202 method 108 | 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 MIL-STD-202 method 213 | 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 AEC-Q200-005 | 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 AEC-Q200-006 | Pressurizing force: 1.8Kg, Test time: 60±1sec. Only 0402 for 1.0kg/60sec | No remarkable damage or removal of the terminations |
| Vibration MIL-STD-202 method 204 | 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 AEC-Q200-002 | 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,

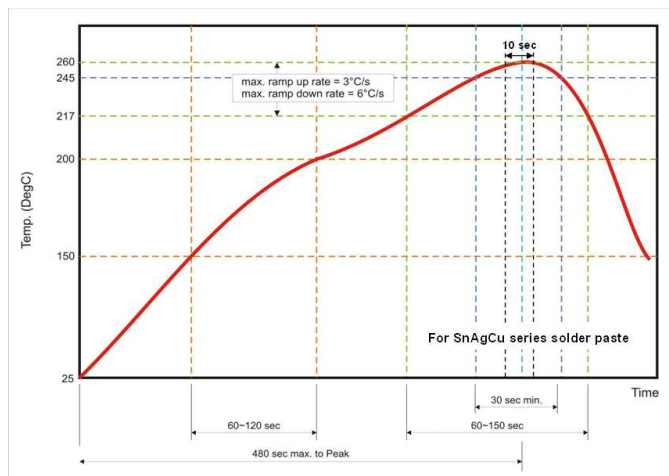


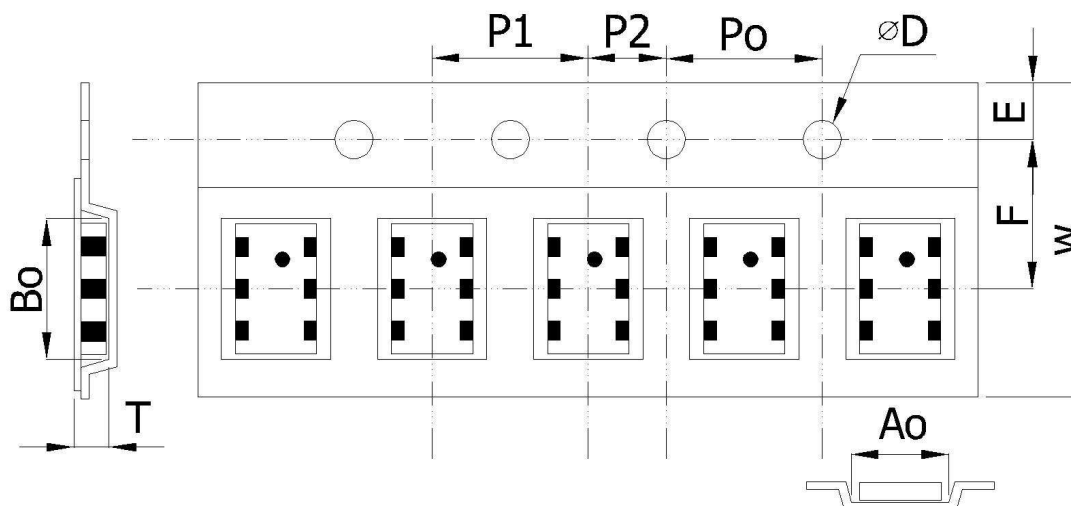
Fig 2. Infrared soldering profile

ORDERING CODE

| | | | | | |
|------------------------------------|---------------------------------------|--|--|--------------------------------------|-------------------------------------|
| AM | DIP | 201205 | 0 | L | P7B1U |
| Walsin Automotive device | Product Code DIP : Diplexer | Dimension code Per 2 digits of Length, Width, Thickness : e.g. : 201205 = Length 20, Width 12, Thickness 05 | Unit of dimension 0 : 0.1 mm 1 : 1.0 mm | Application L :2.4GHz/5GHz | Specification Design code |

Minimum Ordering Quantity: 2000 pcs per reel.

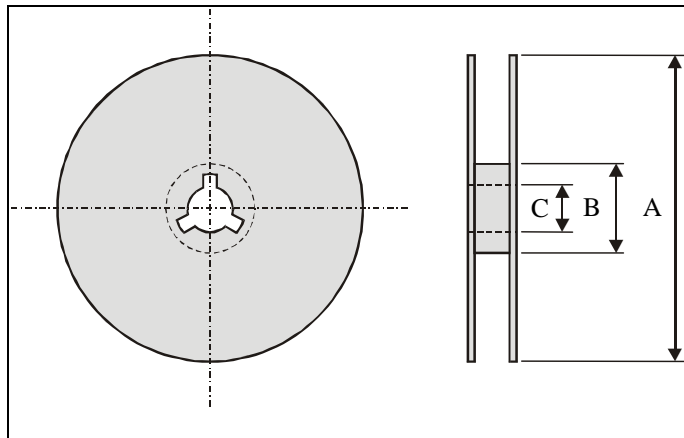
PACKAGING



Plastic Tape specifications (unit :mm)

| | | | | | |
|----------------|-------------|-------------|-------------|-------------|-------------|
| Index | Ao | Bo | φD | T | W |
| Dimension (mm) | 1.40 ± 0.10 | 2.25 ± 0.10 | 1.55 ± 0.05 | 0.75 ± 0.10 | 8.0 ± 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, which can be confirmed.
- (2) Storage environment condition.
 - Products should be storage in the warehouse on the following conditions.
 - Temperature : -10 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.