# Circulator & Isolator

Dapu Telecom has recently launched a series of low insertion loss and low intermodulation distortion circulators /isolators in both SMD and drop-in packages, which also offer good impedance matching performance.

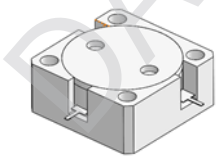
This circulator/isolator is available in frequencies of between 200MHz and 6000MHz and is widely used in wireless base stations, microwave transit stations, radar, medical, satellite communications etc.

With an industry-leading design capability and excellent materials management, Dapu is absolutely committed to providing cost-effective products for customers.

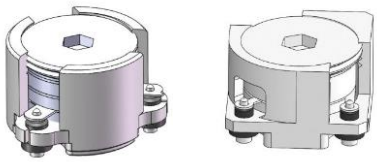
Further details are available on Dapu's website at www.dptel.com.

RoHS

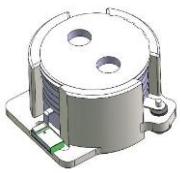
| Parameters | Feature Description |
|---|---|
| Frequency Band | 200MHz ~ 6000MHz |
| Insertion Loss | 0.15dB Min. with single junction |
| Isolation | Up to 32dB |
| Return Loss | Up to 32dB |
| 3rd IMD | Up to -80 dBc |
| Peak Power | Up to 2500W |
| Reflected Power | Up to 200W |
| Operating Temperature | -40~+110°C |
| Size | 5~40mm |
| Direction | CW or CCW |
| Case Style | SMD or Drop-In |



**Drop In**



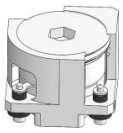
**SMD Circulator**



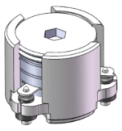
**SMD Isolator**

DAPU CONFIDENTIAL

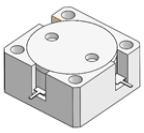
## Circulator Specifications



SMD Square Cirulator



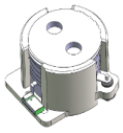
SMD Circle Cirulator



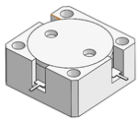
Drop -In Circulator

| Case Type | Size (mm) | Frequency Band (MHz) | Direction | Insertion Loss (dB) | Isolation (dB) | Return Loss (dB) | IMD (dBc) | Forward Power (W) | Peak Power (W) |
|---|---|---|---|---|---|---|---|---|---|
| SMD | 19 | 1475-1511 | CW/CCW | 0.3 | 20 | 20 | -70 | 100 | 300 |
| SMD | 19 | 1805-1880 | CW/CCW | 0.3 | 23 | 23 | -70 | 100 | 300 |
| SMD | 12.7 | 1805-2170 | CCW | 0.4 | 18 | 17.7 | -60 | 50 | 400 |
| SMD | 15 | 1880-2025 | CW/CCW | 0.3 | 20 | 20 | -65 | 80 | 200 |
| SMD | 12.5 | 2110-2170 | CW/CCW | 0.35 | 18 | 18 | -60 | 50 | 200 |
| SMD | 15 | 2110-2170 | CW/CCW | 0.3 | 23 | 23 | -65 | 80 | 200 |
| SMD | 19 | 2110-2170 | CW/CCW | 0.3 | 23 | 23 | -70 | 100 | 300 |
| SMD | 12.5 | 2300-2400 | CW/CCW | 0.3 | 22 | 22 | -60 | 50 | 200 |
| SMD | 10 | 2496-2690 | CW/CCW | 0.3 | 22 | 22 | -60 | 20 | 160 |
| SMD | 9 | 2496-2690 | CW/CCW | 0.35 | 18 | 18 | -60 | 50 | 200 |
| SMD | 7 | 2515-2685 | CW/CCW | 0.55 | 17 | 17 | -60 | 15 | 100 |
| SMD | 18.2 | 2515-2685 | CW | 0.3 | 21 | 21 | -60 | 200 | 2000 |
| SMD | 10 | 2515-2685 | CW/CCW | 0.25 | 22 | 22 | -65 | 50 | 200 |
| SMD | 12.7*12.7 | 2605-2705 | CW/CCW | 0.3 | 22 | 20 | -70 | 100 | 300 |
| SMD | 12.5 | 2620-2690 | CW/CCW | 0.25 | 21 | 21 | -60 | 50 | 200 |
| SMD | 10 | 3400-3500 | CW/CCW | 0.25 | 23 | 23 | -65 | 50 | |
| SMD | 10 | 3400-3600 | CW/CCW | 0.19 | 21 | 22 | -60 | 20 | 160 |
| SMD | 10 | 3400-3600 | CW/CCW | 0.25 | 21 | 21 | -65 | 50 | 200 |
| SMD | 8 | 3400-3600 | CW/CCW | 0.3 | 20 | 20 | -60 | 20 | 100 |
| SMD | 15 | 3400-3600 | CW/CCW | 0.3 | 23 | 23 | -65 | 80 | 200 |
| SMD | 7 | 3400-3700 | CW/CCW | 0.3 | 20 | 20 | -60 | 15 | 100 |
| SMD | 5 | 3400-3700 | CW | 0.8 | 13 | 13 | -50 | 10 | 75 |
| SMD | 10 | 3400-3700 | CW/CCW | 0.2 | 22 | 22 | -60 | 50 | 160 |
| SMD | 9 | 3400-3700 | CW/CCW | 0.35 | 20 | 20 | -60 | 50 | 200 |
| SMD | 10 | 3400-3800 | CW/CCW | 0.3 | 20 | 20 | -60 | 20 | 160 |
| SMD | 10 | 3600-3800 | CW/CCW | 0.23 | 22 | 22 | -60 | 20 | 160 |
| SMD | 8 | 3600-4200 | CW/CCW | 0.45 | 18 | 18 | -60 | 20 | 100 |
| SMD | 10 | 4800-4900 | CW/CCW | 0.25 | 23 | 23 | -65 | 50 | |
| SMD | 8 | 4800-5000 | CW/CCW | 0.35 | 20 | 20 | -60 | 20 | 100 |
| Drop-In | 25.4 | 1805-1880 | CW | 0.2 | 25 | 25 | -70 | 250 | 2500 |
| Drop-In | 25.4*25.4 | 1805-1880 | CW/CCW | 0.25 | 23 | 23 | -70 | 200 | 1200 |
| Drop-In | 19*19 | 1805-1880 | CW/CCW | 0.25 | 23 | 23 | -70 | 200 | 1200 |
| Drop-In | 25.4*25.4 | 2110-2170 | CW/CCW | 0.25 | 23 | 23 | -70 | 200 | 1200 |
| Drop-In | 19*19 | 2110-2170 | CW/CCW | 0.25 | 23 | 23 | -70 | 200 | 1200 |
| Drop-In | 25.4*25.4 | 2300-2400 | CW/CCW | 0.25 | 23 | 23 | -70 | 200 | 1200 |
| Drop-In | 7 | 2496-2690 | CW/CCW | 0.45 | 18 | 18 | -58 | 20 | 100 |
| Drop-In | 19*19 | 2500-2700 | CW | 0.3 | 23 | 23 | -60 | 100 | |
| Drop-In | 8 | 2500-2700 | CW/CCW | 0.35 | 20 | 20 | -60 | 20 | 100 |
| Drop-In | 26*32 | 2605-2705 | CW/CCW | 0.25 | 23 | 23 | -75 | 200 | 650 |
| Drop-In | 38*38 | 380-470 | CW/CCW | 0.5 | 18 | 18 | -55 | 200 | 500 |
| Drop-In | 35*40 | 410-470 | CW | 0.35 | 23 | 23 | -55 | 200 | 1500 |
| Drop-In | 31.8*31.8 | 618-806 | CW/CCW | 0.65 | 15 | 15 | -60 | 200 | 500 |
| Drop-In | 25.4*25.4 | 791-821 | CW/CCW | 0.25 | 21 | 21 | -70 | 200 | 1200 |
| Drop-In | 25.4*25.4 | 869-894 | CW/CCW | 0.25 | 21 | 21 | -70 | 200 | 1200 |
| Drop-In | 25.4*25.4 | 920-960 | CW/CCW | 0.25 | 21 | 21 | -70 | 200 | 1200 |

## Isolator Specifications



SMD Circle Isolator



Drop-In Isolator

| Case Type | Size (mm) | Frequency Band (MHz) | Insertion Loss (dB) | Isolation (dB) | Return Loss (dB) | IMD (dBc) | Forward Power (W) | Peak Power (W) |
|---|---|---|---|---|---|---|---|---|
| SMD | 19 | 1805-1880 | 0.18 | 28 | 25 | -70 | 150 | 1000 |
| SMD | 12.7 | 1805-2170 | 0.5 | 17 | 17 | -55 | 20 | 120 |
| SMD | 25 | 729-756 | 0.25 | 22 | 20 | -65 | 130 | 2000 |
| SMD | 25 | 791-821 | 0.25 | 23 | 22 | -68 | 150 | 1000 |
| SMD | 19 | 925-960 | 0.2 | 24 | 22 | -70 | 200 | 1600 |
| Drop-In | 31.8*38.8 | 1805-2170 | 0.25 | 22/25 | 22 | -75 | 280 | 2000 |
| Drop-In | 31.8*38.8 | 859-960 | 0.22 | 21 | 21 | -68 | 280 | 2200 |
| Drop-In | 25.4*31.8 | 925-960 | 0.25 | 28 | 23 | -75 | 500 | 1200 |

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# Low Power RF Product-5mmSeries

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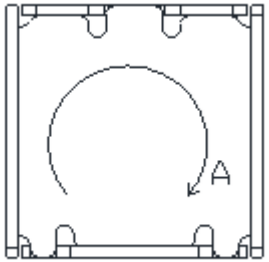
# Low Power RF Product-5mmSeries

## MODEL

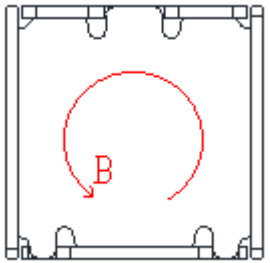
DP-[CLorIL] [05] [20] [AorB] [***]

①Supplier code
②CL:Circulator
IL:Isolator
③Product size
④Product structure
⑤Rotating Direction
(A:CW )or(B:CCW)
⑥Center Frequency

A(CW):Clockwise



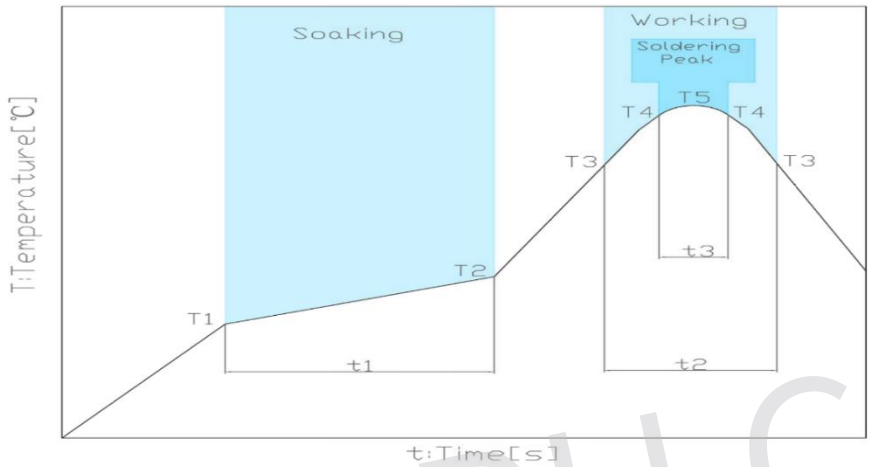

B(CCW):Counter Clockwise




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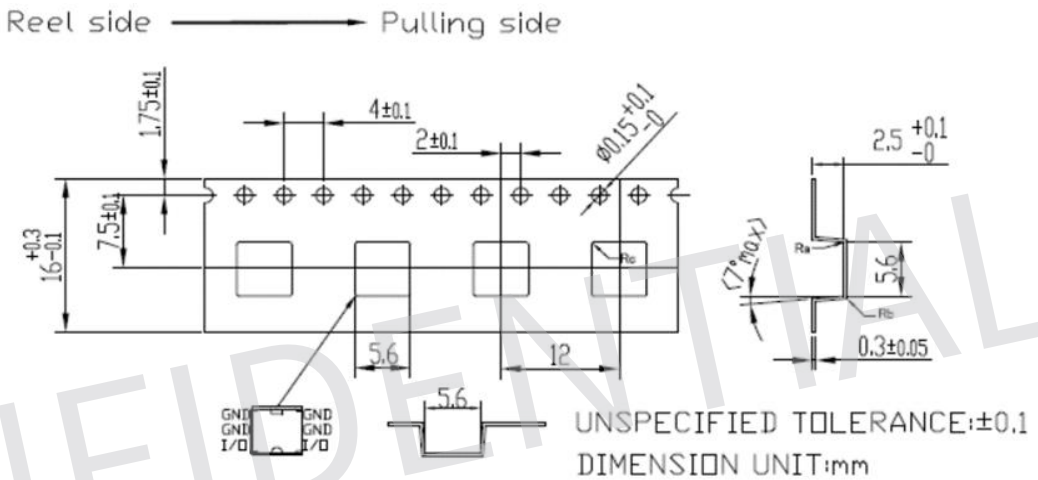
# Low Power RF Product-5mmSeries

## RECOMMENDED LAND PATTERN

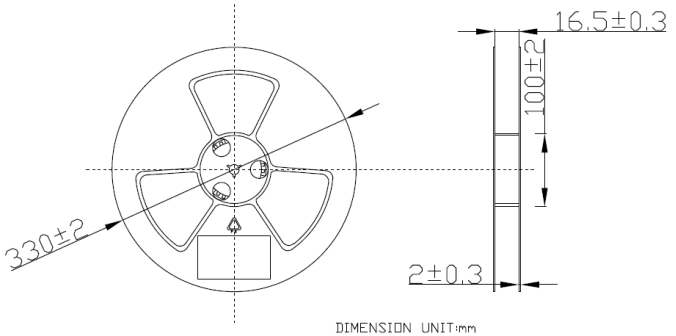



| Soaking | | | Working | | Soldering Peak | | |
|---|---|---|---|---|---|---|---|
| Temp. | | Time | Temp. | Time | Temp. | Time | Temp. |
| T1 | T2 | t1 | T3 | t2 | T4 | t3 | T5 |
| 150℃ | 180℃ | 60 to 120s | 230℃ | 30 to 60s | 250℃ | within 10s | 260℃ max. |

## REEL DIMENSIONS



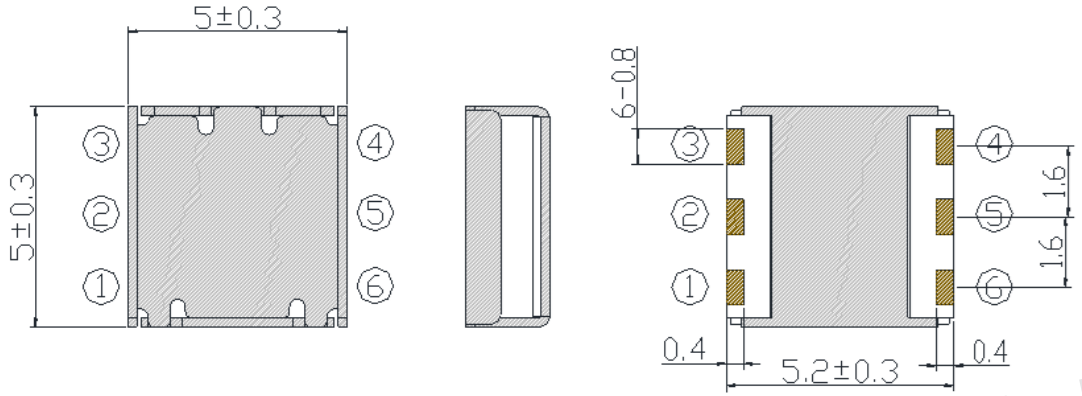

## TAPE DIMENSIONS




1000 PCS/REEL

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## Dimensions




| PIN No. | A(CW) | B(CCW) |
|---|---|---|
| ① | OUT | IN |
| ② | GND | GND |
| ③ | GND | GND |
| ④ | GND | GND |
| ⑤ | GND | GND |
| ⑥ | IN | OUT |

METAL

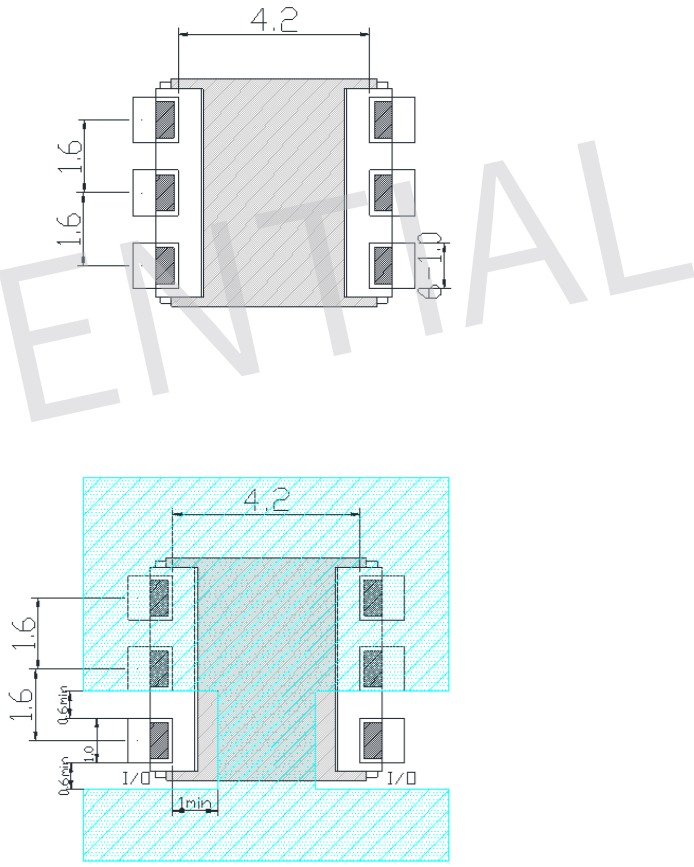
TERMINAL (AU PLATING)

TOLERANCE:±0.2

COPLANARITY:0.1MAX

DIMENSION UNIT:mm

## RECOMMENDED LAND PATTERN




DIMENSION UNIT:mm

DAPU CONFIDENTIAL

## Specification

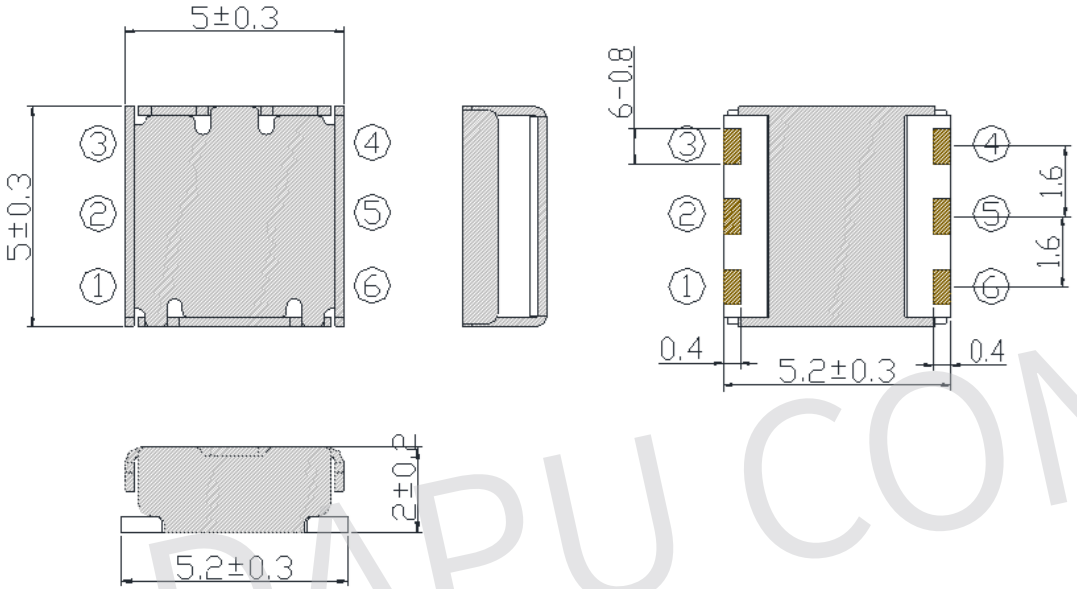
Operating temperature range : -40~85℃
Storage temperature range:-40~+125℃
Characteristic Impedance (ohm) : 50(Nominal)

| Part Number | Frequency | Center frequency | Insertion loss | Isolation | Return loss | Handling power | Reflection power | Size[W*L*T] | |
|---|---|---|---|---|---|---|---|---|---|
| | (MHz) | (MHz) | (dB) | (dB) | (dB) | (W) | (W) | W*L[mm] | T[mm] |
| | - | - | Max. | Min. | Max. | Max. | Max. | ±0.3 | Max. |
| DP-IL0520(A&B)634 | 617-652 | 634.5 | 1.30 | 9 | 11 | 5 | 2 | 5*5 | 2.5 |
| DP-IL0520(A&B)725 | 703-748 | 725.5 | 1.30 | 11 | 11 | 5 | 2 | 5*5 | 2.5 |
| DP-IL0520(A&B)748 | 729-768 | 748.5 | 1.30 | 9 | 11 | 5 | 2 | 5*5 | 2.5 |
| DP-IL0520(A&B)780 | 758-803 | 780.5 | 1.20 | 11 | 11 | 5 | 2 | 5*5 | 2.5 |
| DP-IL0520(A&B)806 | 791-821 | 806 | 1.10 | 11 | 11 | 5 | 2 | 5*5 | 2.5 |
| DP-IL0520(A&B)810 | 760-860 | 810 | 1.50 | 10 | 9 | 5 | 2 | 5*5 | 2.5 |
| DP-IL0520(A&B)847 | 832-862 | 847 | 1.10 | 11 | 11 | 5 | 2 | 5*5 | 2.5 |
| DP-IL0520(A&B)873 | 852-894 | 873 | 1.10 | 10 | 11 | 5 | 2 | 5*5 | 2.5 |
| DP-IL0520(A&B)897 | 880-915 | 897 | 1.00 | 12 | 12 | 5 | 2 | 5*5 | 2.5 |
| DP-IL0520(A&B)942 | 925-960 | 942.5 | 0.90 | 13 | 13 | 5 | 2 | 5*5 | 2.5 |

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# Isolator Series (Over 1GHz)

## Dimensions




| PIN No. | A(CW) | B(CCW) |
|---|---|---|
| ① | OUT | IN |
| ② | GND | GND |
| ③ | GND | GND |
| ④ | GND | GND |
| ⑤ | GND | GND |
| ⑥ | IN | OUT |

METAL

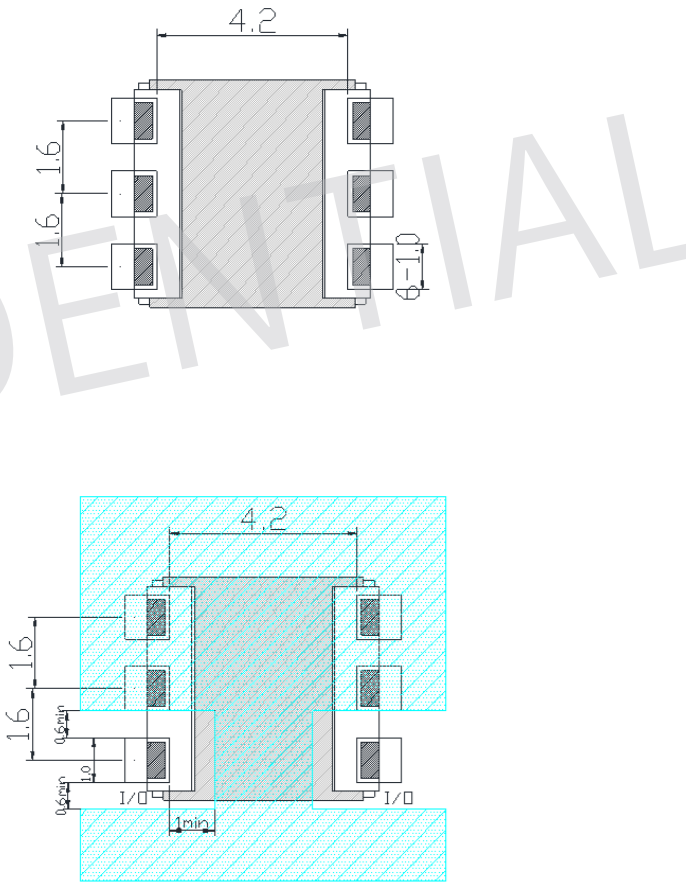
TERMINAL (AU PLATING)

TOLERANCE:±0.2

COPLANARITY:0.1MAX

DIMENSION UNIT:mm

## RECOMMENDED LAND PATTERN




DIMENSION UNIT:mm

DAPU CONFIDENTIAL

# Isolator Series (Over 1GHz)

## Specification

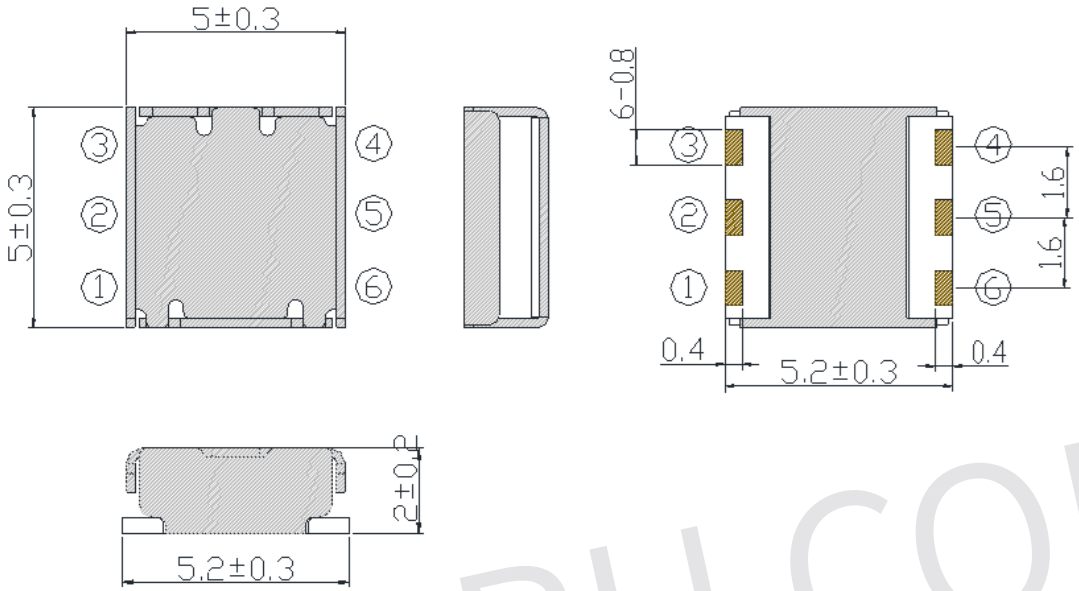
Operating temperature range : -40~85℃
Storage temperature range:-40~+125℃
Characteristic Impedance (ohm) : 50(Nominal)

| Part Number | Frequency (MHz) - | Center frequency (MHz) - | Insertion loss (dB) Max. | Isolation (dB) Min. | Return loss (dB) Max. | Handling power (W) Max. | Reflection power (W) Max. | Size[W*L*T] W*L[mm] ±0.3 | Size[W*L*T] T[mm] ±0.2 |
|---|---|---|---|---|---|---|---|---|---|
| DP-IL0520(A&B)1842 | 1805-1880 | 1842.5 | 0.80 | 14 | 14 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)1900 | 1880-1920 | 1900 | 0.65 | 14 | 14 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)1950 | 1920-1980 | 1950 | 0.65 | 14 | 14 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)1960 | 1930-1990 | 1960 | 0.65 | 14 | 14 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)1962 | 1930-1995 | 1962.5 | 0.70 | 14 | 14 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)2140 | 2110-2170 | 2140 | 0.65 | 14 | 14 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)2155 | 2110-2200 | 2155 | 0.70 | 14 | 14 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)2350 | 2300-2400 | 2350 | 0.70 | 14 | 14 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)2593 | 2496-2690 | 2593 | 0.80 | 12 | 12 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)2600 | 2500-2700 | 2600 | 0.85 | 12 | 12 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)2655 | 2620-2690 | 2655 | 0.65 | 15 | 14 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)3450 | 3300~3600 | 3450 | 0.90 | 10 | 12 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)3500 | 3400~3600 | 3500 | 0.90 | 13 | 12 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)3625 | 3550~3700 | 3625 | 0.90 | 13 | 12 | 5 | 2 | 5*5 | 2 |
| DP-IL0520(A&B)3700 | 3600~3800 | 3700 | 0.90 | 13 | 12 | 5 | 2 | 5*5 | 2 |

DAPU CONFIDENTIAL

# Circulator Series

## Dimensions




| PIN No. | A(CW) | B(CCW) |
|---|---|---|
| ① | OUT | IN |
| ② | GND | GND |
| ③ | 50 Ω Load | |
| ④ | GND | GND |
| ⑤ | GND | GND |
| ⑥ | IN | OUT |

METAL

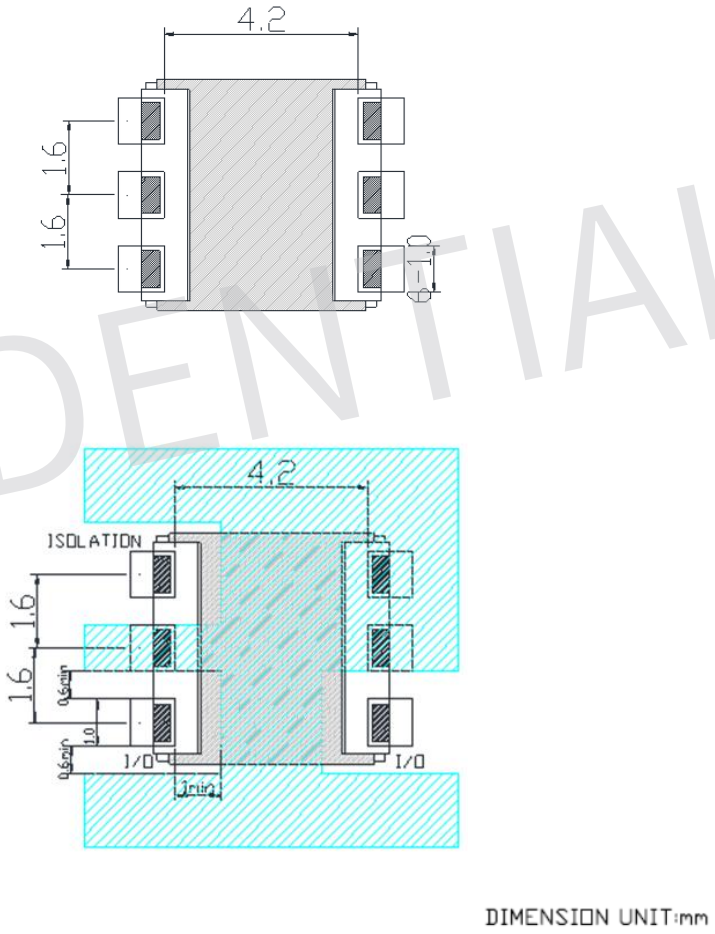
TERMINAL (AU PLATING)

TOLERANCE:±0.2

COPLANARITY:0.1MAX

DIMENSION UNIT:mm

## RECOMMENDED LAND PATTERN




DIMENSION UNIT:mm

DAPU CONFIDENTIAL

# Circulator Series

## Specification

Operating temperature range : -40~85℃
Storage temperature range:-40~+125℃
Characteristic Impedance (ohm) : 50(Nominal)

| Part Number | Frequency | Center frequency | Insertion loss | Isolation | Return loss | Handling power | Size[W*L*T] | |
|---|---|---|---|---|---|---|---|---|
| | (MHz) | (MHz) | (dB) | (dB) | (dB) | (W) | W*L[mm] | T[mm] |
| | - | - | Max. | Min. | Max. | Max. | ±0.3 | ±0.2 |
| DP-CL0520(A&B)1842 | 1805-1880 | 1842.5 | 0.80 | 12 | 12 | 5 | 5*5 | 2 |
| DP-CL0520(A&B)1950 | 1920-1980 | 1950 | 0.70 | 14 | 14 | 5 | 5*5 | 2 |
| DP-CL0520(A&B)2140 | 2110-2170 | 2140 | 0.75 | 14 | 14 | 5 | 5*5 | 2 |
| DP-CL0520(A&B)2350 | 2300-2400 | 2350 | 0.80 | 12 | 12 | 5 | 5*5 | 2 |
| DP-CL0520(A&B)2593 | 2496-2690 | 2593 | 0.90 | 11 | 12 | 5 | 5*5 | 2 |
| DP-CL0520(A&B)2600 | 2500-2700 | 2600 | 0.90 | 11 | 12 | 5 | 5*5 | 2 |
| DP-CL0520(A&B)3450 | 3300-3600 | 3450 | 0.90 | 10 | 12 | 5 | 5*5 | 2 |

PRODUCT CONFIDENTIAL