

# RJ45 2x2 Multiport 100/1000/2.5G/5G Base-T



ARJM22



31.1 x 28.1 x 25.5 mm  
UL Certification Number: E503350  
RoHS/RoHS II Compliant  
MSL = 1

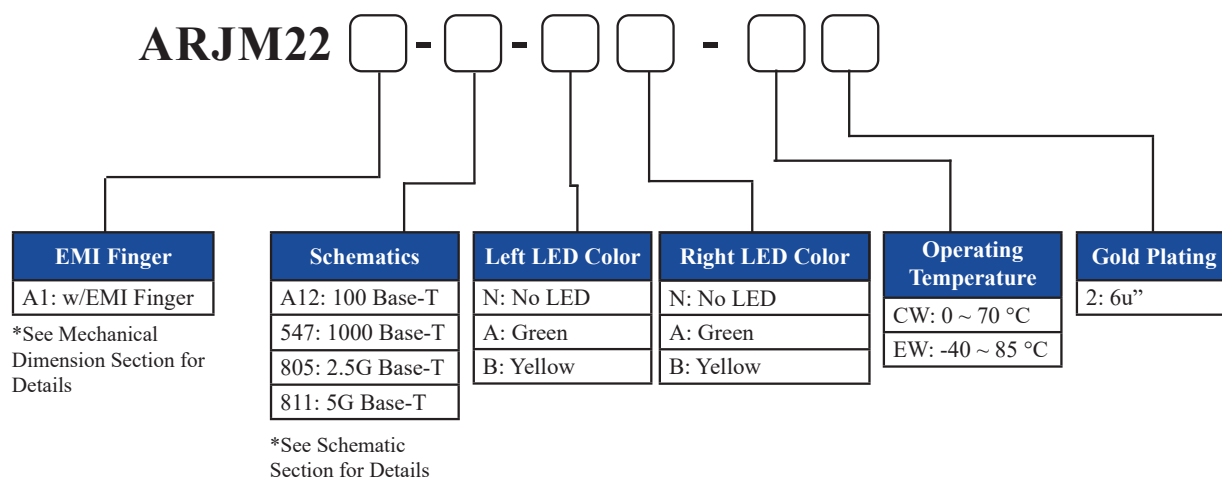
## Features

- IEEE 802.3 compliant and UL certified
- High performance integrated magnetics for EMI suppression
- Suitable for CAT5 and CAT6 UTP cabling
- RoHS peak wave solder temperature rating 265°C
- Extended operating temperature -40 to 85°C option

## Applications

- 10, 100, 1000, 2.5G and 5G Base-T Ethernet
- Servers, switches and routers

## Options and Part Identification



## Example Configurations

**ARJM22 A1-547 -AB- CW2**

(2 x 2, w/ EMI, 1000Base-T, w/LED G/Y, commercial grade, 6u" Gold)

\*For additional schematics, gold plating, and LED configurations, contact Abracon Sales.



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## Electrical Specifications

| Parameters               | Minimum | Typical | Maximum              | Units              | Notes                               |
|--------------------------|---------|---------|----------------------|--------------------|-------------------------------------|
| Turn Ratio ( $\pm 3\%$ ) | 1CT:1CT |         |                      |                    | 100kHz, 0.1V                        |
| Inductance               | 350     |         |                      | $\mu\text{H}$      | 100kHz, 0.1V, 8mADC                 |
|                          | 200     |         |                      |                    | For 2.5G Base-T only                |
|                          | 160     |         |                      |                    | For 5G Base-T only                  |
| Leakage Inductance       |         |         | 0.5                  | $\mu\text{H}$      | 100kHz, 0.1V                        |
|                          |         |         | 0.3                  |                    | For 2.5G Base-T and 5G Base-T       |
| DC Resistance            |         |         | 1.5                  | $\Omega$           |                                     |
| Hipot                    | 2250    |         |                      | VDC                | 1mA Max<br>Complies with IEEE 802.3 |
| Operating Temperature    | -40     |         | +85                  | $^{\circ}\text{C}$ | See options                         |
| Storage Temperature      | -40     |         | +85                  | $^{\circ}\text{C}$ |                                     |
| 100 Base-T               |         |         |                      |                    |                                     |
| Insertion Loss           | -1.1    |         |                      | dB                 | 0.5-100MHz                          |
| Return Loss              |         |         | -18                  | dB                 | 0.5-30MHz                           |
|                          |         |         | $-18+20\log(f/30)^*$ |                    | 30.1-60MHz                          |
|                          |         |         | -12                  |                    | 60.1-80MHz                          |
| Crosstalk                |         |         | -35                  | dB                 | 0.5-40MHz                           |
|                          |         |         | $-33+20\log(f/50)^*$ |                    | 40.1-100MHz                         |
| CMRR                     |         |         | -30                  | dB                 | 0.5-100MHz                          |
| 1000 Base-T              |         |         |                      |                    |                                     |
| Insertion Loss           | -1.1    |         |                      | dB                 | 0.5-100MHz                          |
| Return Loss              |         |         | -18                  | dB                 | 0.5-40MHz                           |
|                          |         |         | $-12+20\log(f/80)^*$ |                    | 40.1-100MHz                         |
| Crosstalk                |         |         | -35                  | dB                 | 0.5-40MHz                           |
|                          |         |         | $-33+20\log(f/50)^*$ |                    | 40.1-100MHz                         |
| CMRR                     |         |         | -30                  | dB                 | 0.5-100MHz                          |
| 2.5G Base-T              |         |         |                      |                    |                                     |
| Insertion Loss           | -0.5    |         |                      | dB                 | 1-50MHz                             |
|                          | -1.0    |         |                      |                    | 50-125MHz                           |
| Return Loss              |         |         | -20                  | dB                 | 1-40MHz                             |
|                          |         |         | $-20+15\log(f/40)^*$ |                    | 40-200MHz                           |
| Crosstalk                |         |         | -30                  | dB                 | 25-125MHz                           |
| 5G Base-T                |         |         |                      |                    |                                     |
| Insertion Loss           | -0.5    |         |                      | dB                 | 1-50MHz                             |
|                          | -1.0    |         |                      |                    | 50-125MHz                           |
|                          | -2.0    |         |                      |                    | 125-250MHz                          |
| Return Loss              |         |         | -20                  | dB                 | 1-40MHz                             |
|                          |         |         | $-20+15\log(f/40)^*$ |                    | 40-250MHz                           |
| Crosstalk                |         |         | -30                  | dB                 | 1-125MHz                            |
|                          |         |         | -25                  |                    | 125-250MHz                          |

\*f represents the test frequency specified in MHz

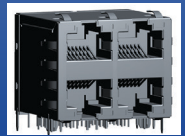


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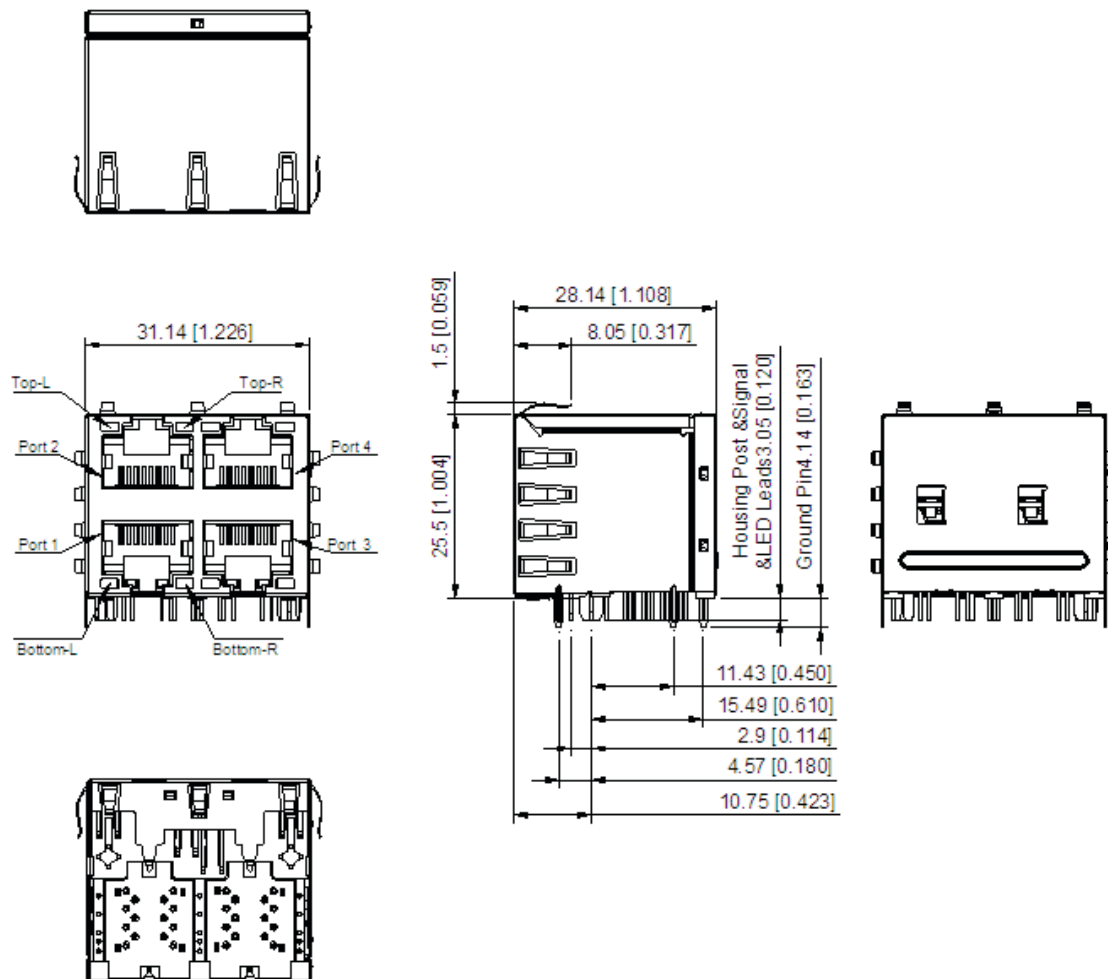
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MSL = 1

## Mechanical Dimensions

A1: 2 x 2, w/ EMI Fingers



Dimensions: mm[inch] (Unless otherwise specified, all tolerances are  $\pm 0.25$ [0.010])



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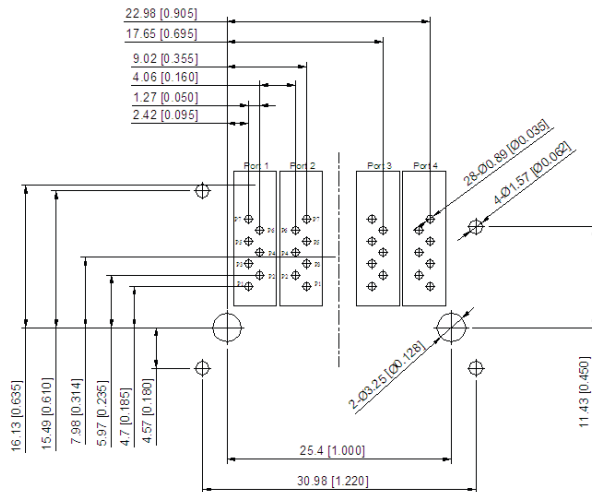


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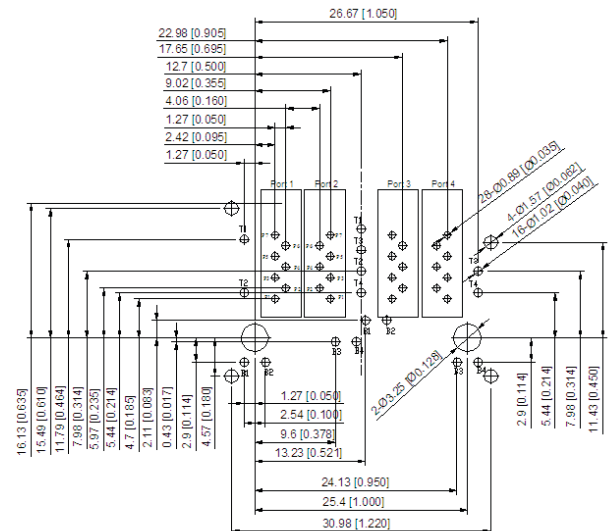
## Mechanical Dimensions

### Recommended Land Pattern

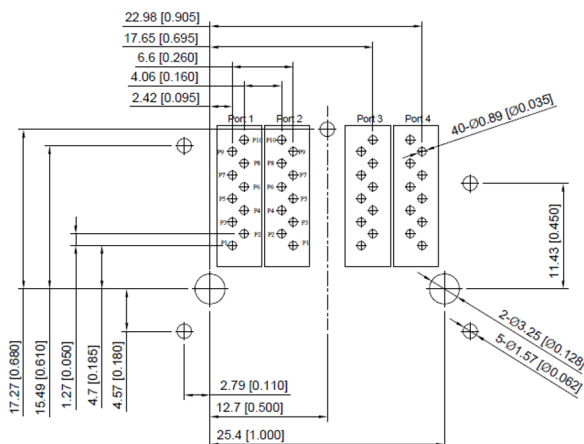
8 Pins, no LED  
For 100 Base-T



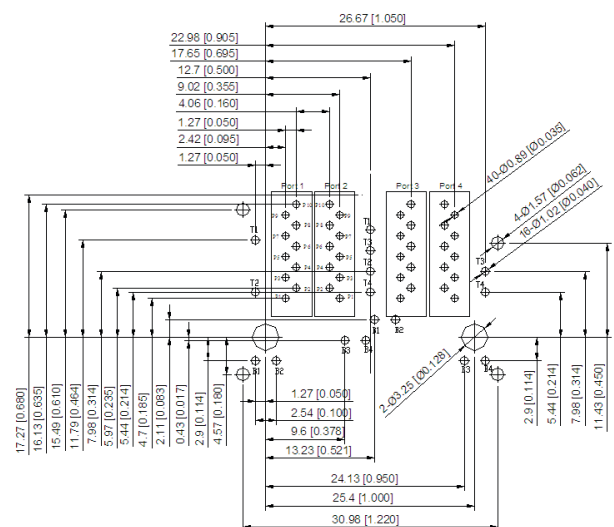
8 Pins, w/ LED  
For 100 Base-T



10 Pins, no LED  
For 1000/2.5G/5G Base-T



10 Pins, w/ LED  
For 1000/2.5G/5G Base-T



Dimensions: mm[inch]

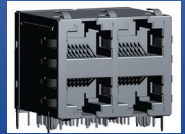


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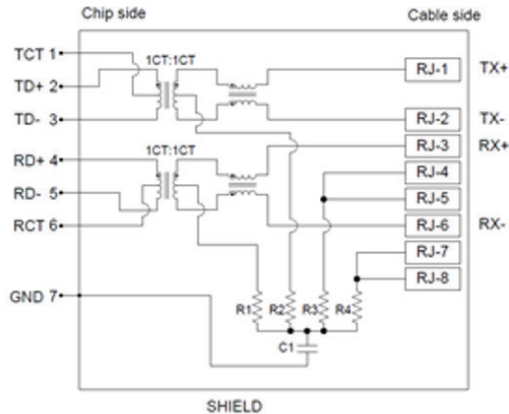
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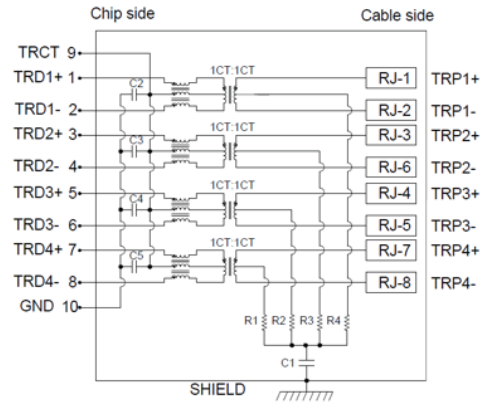
## Schematic

### A12 (100 Base-T)



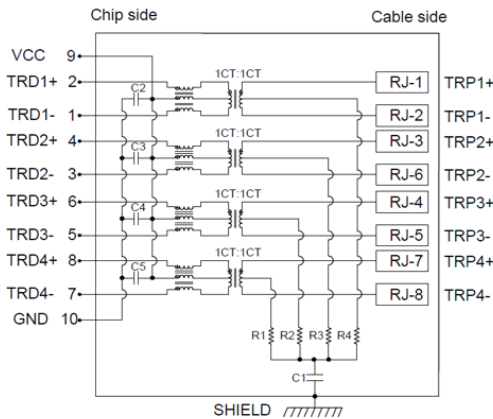
Note:  
R1-R4=75 OHMS, Resistors.  
C1=2KV 1000pF, Capacitor.

### 805 (2.5G Base-T)



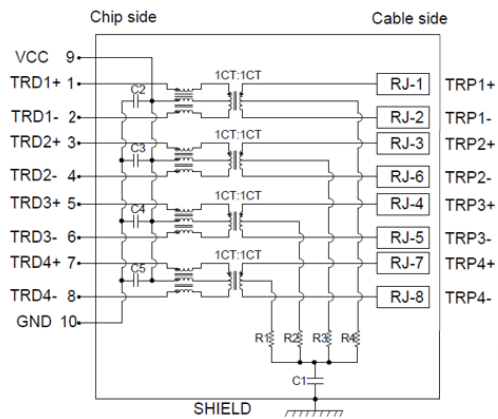
Note:  
R1-R4=75 OHMS, Resistors.  
C1=2KV 1000pF, Capacitor.  
C2-C5=100V 100nF, Capacitor.

### 547 (1000 Base-T)



Note:  
R1-R4=75 OHMS, Resistors.  
C1=2KV 1000pF, Capacitor.  
C2-C5=50V 470pF, Capacitor.

### 811 (5G Base-T)



Note:  
R1-R4=75 OHMS, Resistors.  
C1=2KV 1000pF, Capacitor.  
C2-C5=50V 100nF, Capacitor.

Contact Abracon Sales for additional configurations.



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## Materials

### Housing:

Material:  
PBT, UL94V-0  
Standard Color: Black

### Insert:

Material:  
PBT, UL94V-0  
Contact Material: Phosphor Bronze  
Plating (1): Nickel  
Plating (2): Gold, 6u"

### Metal Shell:

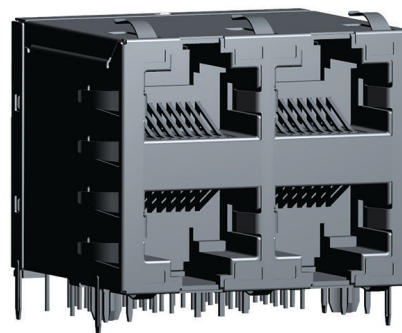
Material: Brass  
Plating (1): Nickel

### Contact Pin:

Material: Phosphor Bronze  
Plating (1): Nickel  
Plating (2): 100%Sn

### LED:

Material: Diffused Epoxy Lens, 0.5x0.5mm Carbon Steel wireframe leads



**Note:** Abracon LLC will not alter any material composition, without prior written notification.

**LED Specification. @20mA Forward Current**  
**AB (Left: Green – Right: Yellow) :**

| LED-L                                                                                                | LED-R                                                                                                 |
|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Green<br>L1—  —L2 | Yellow<br>L3—  —L4 |

| Color           | Green     | Yellow    |
|-----------------|-----------|-----------|
| Wavelength      | 565nm Typ | 585nm Typ |
| Forward Voltage | 2.2V Typ  | 2.1V Typ  |

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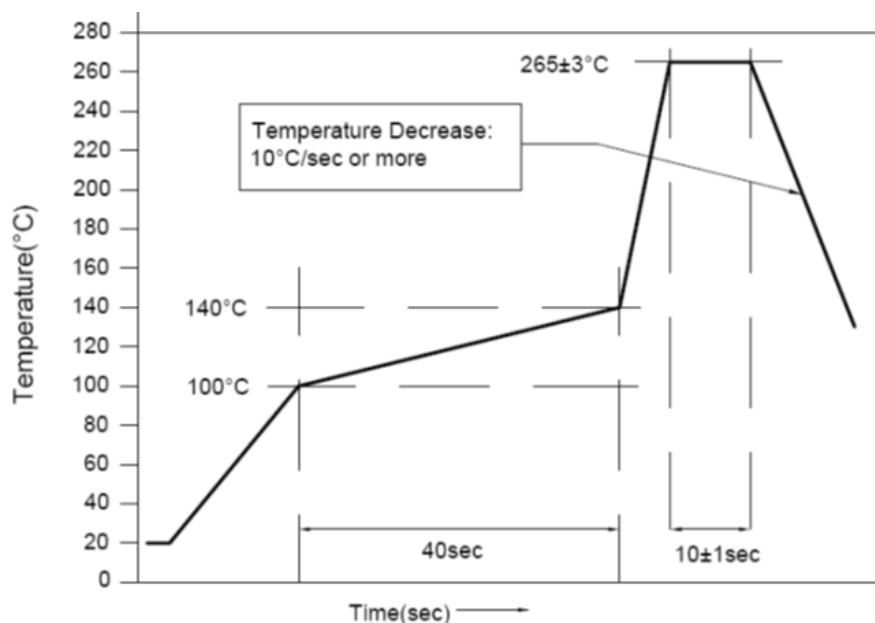


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MSL = 1

## Wave Soldering Profile



## Packaging

| Series | Approximate Weight / Pc | Approximate Weight / Carton | Qty / Carton (pcs) | Carton Dimensions (LxWxH) |
|--------|-------------------------|-----------------------------|--------------------|---------------------------|
| ARJM22 | 20.40 g                 | 5688 g                      | 224                | 340 x 215 x 275 mm        |

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