

# RJ45, Single Port, 10/100/1G/5G Base-T Magnetics Module



**ARJM11 Series**

Request Samples



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**21.30 x 15.90 x 13.60mm**  
**RoHS/RoHS II Compliant**  
**MSL Level = 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

- Single port 10/100/1G/5G Base-T LAN
- Network Interface Cards
- Switches/Routers
- Network attached storage
- Servers, NIC's
- Media converters

## Electrical Specifications

Parameters	Minimum	Typical	Maximum	Units	Notes
Turn Ratio (±3%)	1CT:1CT				100kHz, 0.1V
Inductance	350			μH	100kHz, 0.1V, 8mADC
	200				For 2.5G Base-T only
	160				For 5G Base-T only
Operating Temperature	-40		+85	°C	See options
Storage Temperature	-40		+85	°C	
HiPOT	2250			VDC	VDC for 60 sec.
100 Base-T					
Insertion Loss			-1.0	dB	0.3-100MHz
Return Loss	-18			dB	1-30MHz
	-13				30-60MHz
	-10				60-100MHz
Crosstalk	-30			dB	1-1000MHz
CMRR	-30			dB	1-100MHz
100 Base-T PoE, PoE+					
Insertion Loss			-1.1	dB	0.5-100MHz
Return Loss	-18			dB	0.5-30MHz
	-15				30-60MHz
	-12				60-80MHz
Crosstalk	-35			dB	0.5-40MHz
	-30				40-100MHz
CMRR	-30			dB	0.5-100MHz
DC Resistance			1.0	Ω	Secondary (cable) side
POE Balanced DC line current			350	mA	@57VDC continuous
			500		@57VDC for 200ms
POE+ Balanced DC line current			600	mA	@57VDC continuous
			720		@57VDC for 200ms

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Parameters	Minimum	Typical	Maximum	Units	Notes
<b>1000 Base-T</b>					
Insertion Loss	-		-1.1	dB	0.3-100MHz
Return Loss	-16			dB	1-30MHz
	-13				30-60MHz
	-10				60-100MHz
Crosstalk	-30			dB	1-100MHz
CMRR	-30			dB	1-100MHz
<b>2.5G Base-T</b>					
Insertion Loss			-1.0	dB	1-50MHz
			-1.5		50-125MHz
Return Loss	-18			dB	1-40MHz
	$-18+15\log(f/40)\dagger$				40-250MHz
Crosstalk	-35			dB	1-40MHz
	$-35+15\log(f/40)\dagger$				40-125MHz
CMRR	-30			dB	1-200MHz
<b>5G Base-T</b>					
Insertion Loss	-0.5			dB	1-50MHz
	-1.0				50-125MHz
	-2.0				125-200MHz
	-2.5				200-250MHz
Return Loss	-20			dB	1-50MHz
	$-20+15\log(f/40)\dagger$				50-250MHz
Crosstalk	-25			dB	1-125MHz
	-20				125-250MHz
CMRR	-23			dB	1-250MHz

†f represents the test frequency specified in MHz

**ARJM11 Series is RoHS/RoHS II Compliant**

**MSL level: 1**

**UL Certification Number: E503350**



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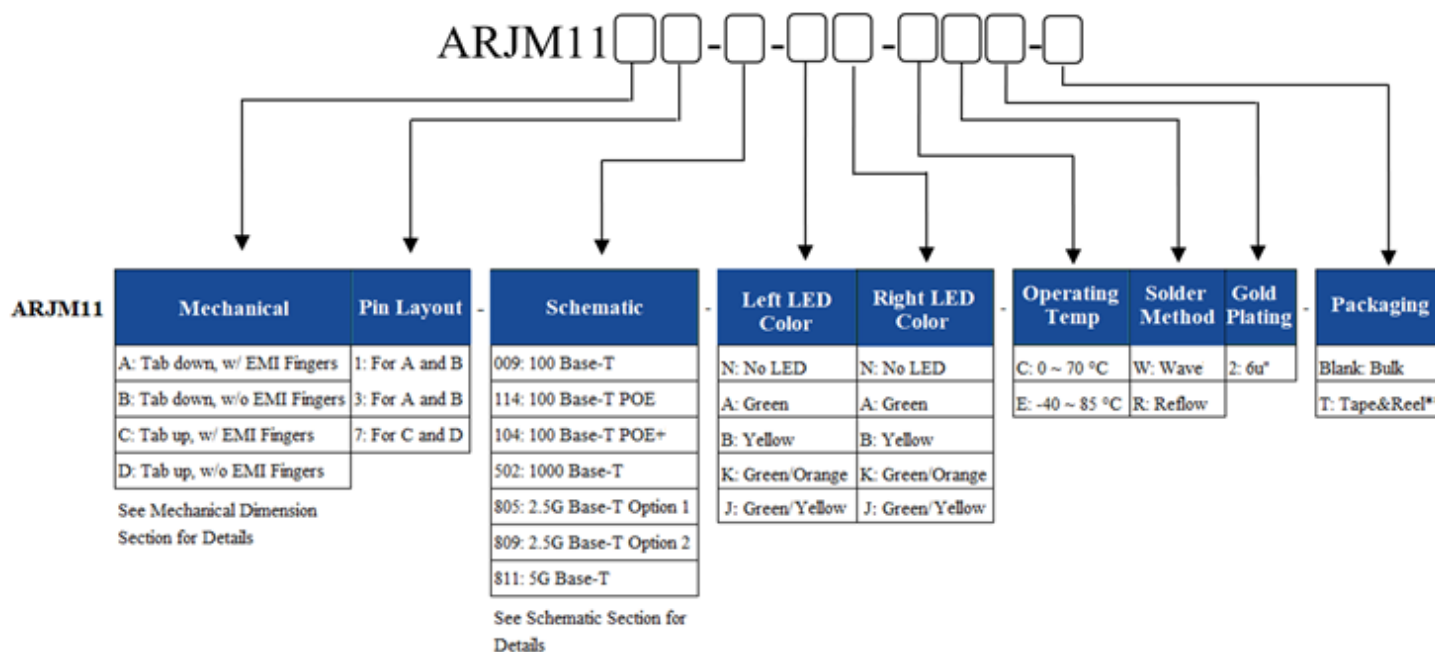


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## Part Number Identification



Not all combinations are supported. Please see the tables on the next pages for available part numbers.

\*\*Part numbers containing 'R' in the suffix refers to the reflow soldering method. These devices are available in bulk/tray and T&R packaging. See available parts list below and the Packaging section for more detail.

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## Available Part Numbers

### 100 Base-T Standard Part Numbers

Part Number	Speed	Tab Direction	LED (Left:Right)	Operating Temp	Solder Method	Pkg Format
ARJM11A1-009-AB-ER2	100 Base-T	Tab Down	G : Y	-40°C ~ 85°C	Reflow	B, C
ARJM11A1-009-AB-EW2	100 Base-T	Tab Down	G : Y	-40°C ~ 85°C	Wave	A
ARJM11A1-009-AB-EW4	100 Base-T	Tab Down	G : Y	-40°C ~ 85°C	Wave	A
ARJM11A1-009-NN-ER3	100 Base-T	Tab Down	No LED	-40°C ~ 85°C	Reflow	B, C
ARJM11A1-009-NN-EW2	100 Base-T	Tab Down	No LED	-40°C ~ 85°C	Wave	A
ARJM11A3-009-AB-ER2	100 Base-T	Tab Down	G : Y	-40°C ~ 85°C	Reflow	B, C
ARJM11B1-009-AB-EW2	100 Base-T	Tab Down	G : Y	-40°C ~ 85°C	Wave	A
ARJM11B1-009-NN-ER2	100 Base-T	Tab Down	No LED	-40°C ~ 85°C	Reflow	B, C
ARJM11B1-009-NN-EW2	100 Base-T	Tab Down	No LED	-40°C ~ 85°C	Wave	A
ARJM11C7-009-AB-EW2	100 Base-T	Tab Up	G : Y	-40°C ~ 85°C	Wave	A
ARJM11C7-009-KB-EW2	100 Base-T	Tab Up	G/O : Y	-40°C ~ 85°C	Wave	A
ARJM11C7-009-NN-EW2	100 Base-T	Tab Up	No LED	-40°C ~ 85°C	Wave	A
ARJM11D7-009-AB-EW2	100 Base-T	Tab Up	G : Y	-40°C ~ 85°C	Wave	A
ARJM11D7-009-NN-EW2	100 Base-T	Tab Up	No LED	-40°C ~ 85°C	Wave	A

### 100 Base-T POE and POE+ Standard Part Numbers

Part Number	Speed	Tab Direction	LED (Left:Right)	Operating Temp	Solder Method	Pkg Format
ARJM11C7-104-AB-EW2	100 Base-T POE+	Tab Up	G : Y	-40°C ~ 85°C	Wave	B, C
ARJM11C7-104-BA-EW2	100 Base-T POE+	Tab Up	Y : G	-40°C ~ 85°C	Wave	B, C
ARJM11C7-114-BA-EW2	100 Base-T POE	Tab Up	Y : G	-40°C ~ 85°C	Wave	B, C
ARJM11C7-114-NN-CW2	100 Base-T POE	Tab Up	No LED	0°C ~ 70°C	Wave	B, C
ARJM11D7-104-AB-EW2	100 Base-T POE+	Tab Up	G : Y	-40°C ~ 85°C	Wave	B, C
ARJM11D7-114-AB-ER2	100 Base-T POE	Tab Up	G : Y	-40°C ~ 85°C	Reflow	B, C
ARJM11D7-114-AB-EW2	100 Base-T POE	Tab Up	G : Y	-40°C ~ 85°C	Wave	B, C
ARJM11D7-114-NN-EW4	100 Base-T POE	Tab Up	No LED	-40°C ~ 85°C	Wave	B, C



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### 1000 Base-T Standard Part Numbers

Part Number	Speed	Tab Direction	LED (Left:Right)	Operating Temp	Solder Method	Pkg Method
ARJM11A1-502-AB-CW2	1000 Base-T	Tab Down	G : Y	0°C ~ 70°C	Wave	A
ARJM11A1-502-AB-ER2	1000 Base-T	Tab Down	G : Y	-40°C ~ 85°C	Reflow	B, C
ARJM11A1-502-AB-EW2	1000 Base-T	Tab Down	G : Y	-40°C ~ 85°C	Wave	A
ARJM11A1-502-JJ-EW2	1000 Base-T	Tab Down	G/Y : G/Y	-40°C ~ 85°C	Wave	A
ARJM11A1-502-NN-EW2	1000 Base-T	Tab Down	No LED	-40°C ~ 85°C	Wave	A
ARJM11B1-502-AB-EW2	1000 Base-T	Tab Down	G : Y	-40°C ~ 85°C	Wave	A
ARJM11B1-502-NN-EW2	1000 Base-T	Tab Down	No LED	-40°C ~ 85°C	Wave	A
ARJM11C7-502-AB-ER2	1000 Base-T	Tab Up	G : Y	-40°C ~ 85°C	Reflow	B, C
ARJM11C7-502-AB-EW2	1000 Base-T	Tab Up	G : Y	-40°C ~ 85°C	Wave	A
ARJM11C7-502-KB-EW2	1000 Base-T	Tab Up	G/O : Y	-40°C ~ 85°C	Wave	A
ARJM11C7-502-NN-EW2	1000 Base-T	Tab Up	No LED	-40°C ~ 85°C	Wave	A
ARJM11D7-502-AB-EW2	1000 Base-T	Tab Up	G : Y	-40°C ~ 85°C	Wave	A
ARJM11D7-502-NN-EW2	1000 Base-T	Tab Up	No LED	-40°C ~ 85°C	Wave	A

### 2.5 Base-T Standard Part Numbers

Part Number	Speed	Tab Direction	LED (Left:Right)	Operating Temp	Solder Method	Pkg Format
ARJM11A1-805-AB-EW2	2.5G Base-T	Tab Down	G : Y	-40°C ~ 85°C	Wave	A
ARJM11B1-805-AB-EW2	2.5G Base-T	Tab Down	G : Y	-40°C ~ 85°C	Wave	A
ARJM11B1-805-KB-CW2	2.5G Base-T	Tab Down	G/O : Y	0°C ~ 70°C	Wave	A
ARJM11B1-805-KB-EW2	2.5G Base-T	Tab Down	G/O : Y	-40°C ~ 85°C	Wave	A
ARJM11C7-809-AB-EW2	2.5G Base-T	Tab Up	G : Y	-40°C ~ 85°C	Wave	A
ARJM11D7-809-AB-EW2	2.5G Base-T	Tab Up	G : Y	-40°C ~ 85°C	Wave	A

### 5G Base-T Standard Part Numbers

Part Number	Speed	Tab Direction	LED (Left:Right)	Operating Temp	Solder Method	Pkg Format
ARJM11A1-811-AB-EW2	5G Base-T	Tab Down	G : Y	-40°C ~ 85°C	Wave	A
ARJM11B1-811-AB-EW2	5G Base-T	Tab Down	G : Y	-40°C ~ 85°C	Wave	A
ARJM11C7-811-AB-EW2	5G Base-T	Tab Up	G : Y	-40°C ~ 85°C	Wave	A
ARJM11D7-811-AB-EW2	5G Base-T	Tab Up	G : Y	-40°C ~ 85°C	Wave	A



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**RoHS/RoHS II Compliant**  
MSL Level = 1

## Materials

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**1. Housing:**

Material:  
PBT, UL94V-0  
Standard Color: Black

**2. Contact Pin:**

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

**3. Insert:**

Material:  
PBT, UL94V-0

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

**4. LED:**

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

**5. Metal Shell:**

Material: Brass  
Plating (1): Nickel

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

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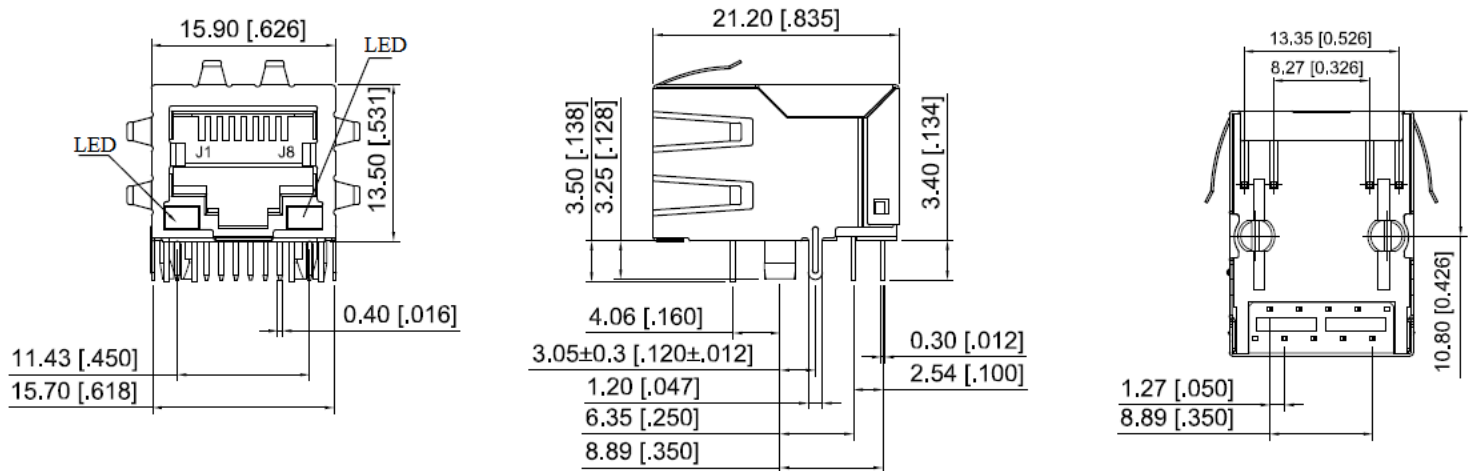
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21.30 x 15.90 x 13.60mm  
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MSL Level = 1

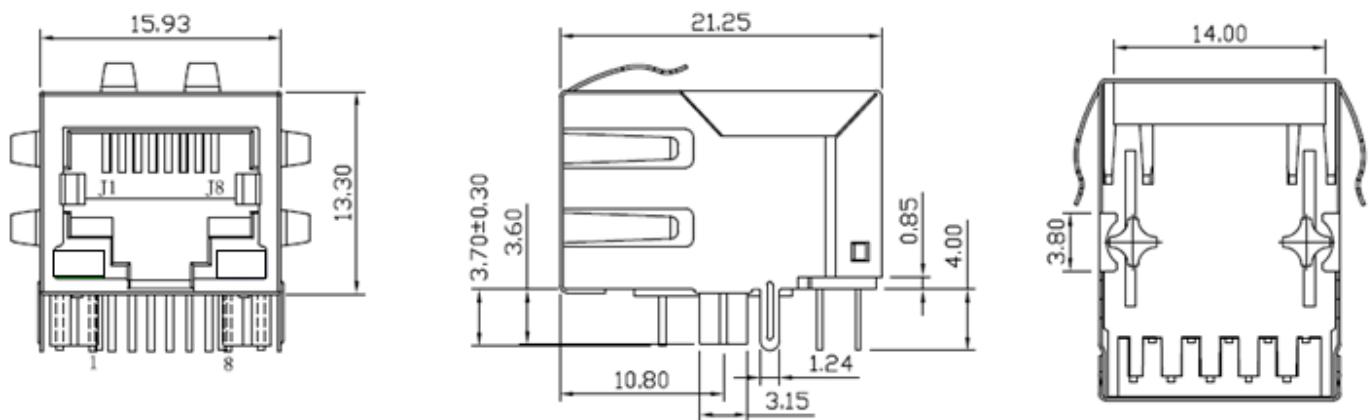
## Mechanical Specifications

### A: Tab Down, w/ EMI Fingers (Wave)



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

### A: Tab Down, w/ EMI Fingers (Reflow)



Dimensions are in mm. Tolerances are  $\pm 0.25$ mm unless noted otherwise.



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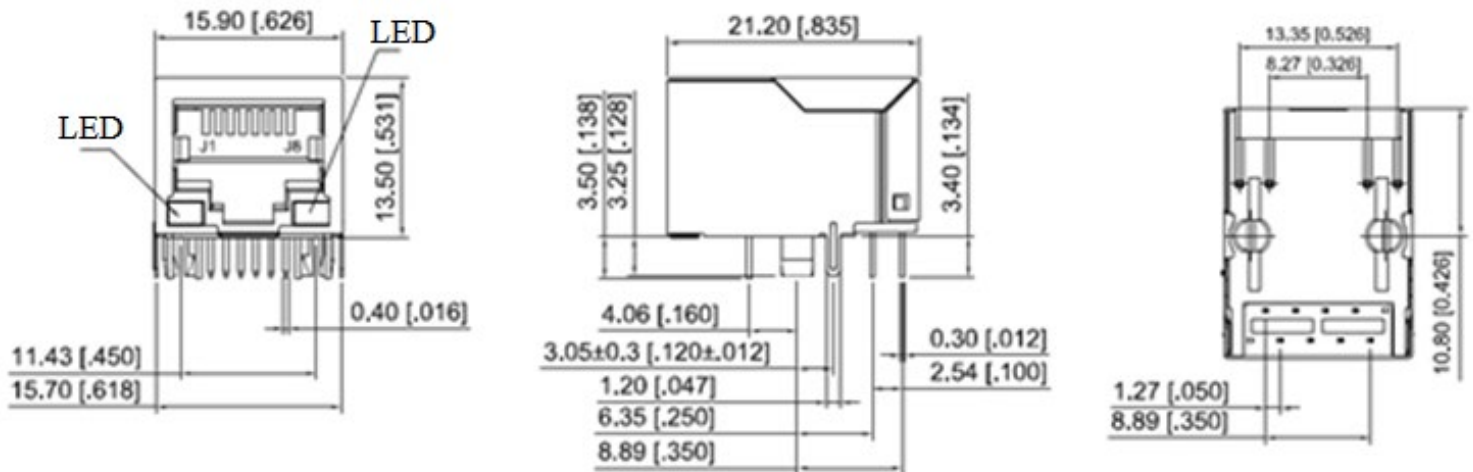


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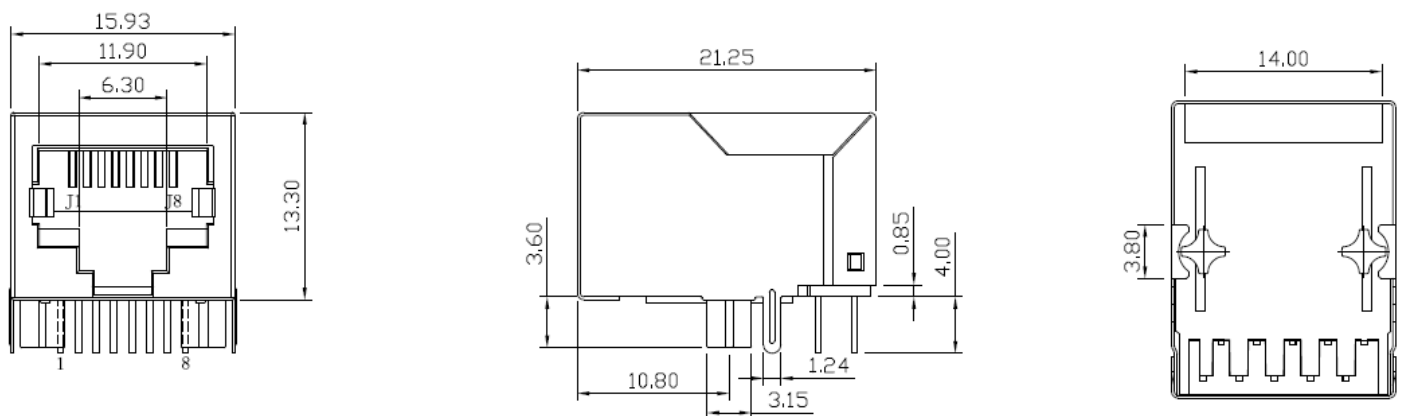
21.30 x 15.90 x 13.60mm  
RoHS/RoHS II Compliant  
MSL Level = 1

### B: Tab Down, w/o EMI Fingers (Wave)



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

### B: Tab Down, w/o EMI Fingers (Reflow)



Dimensions are in mm. Tolerances are  $\pm 0.25$ mm unless noted otherwise.



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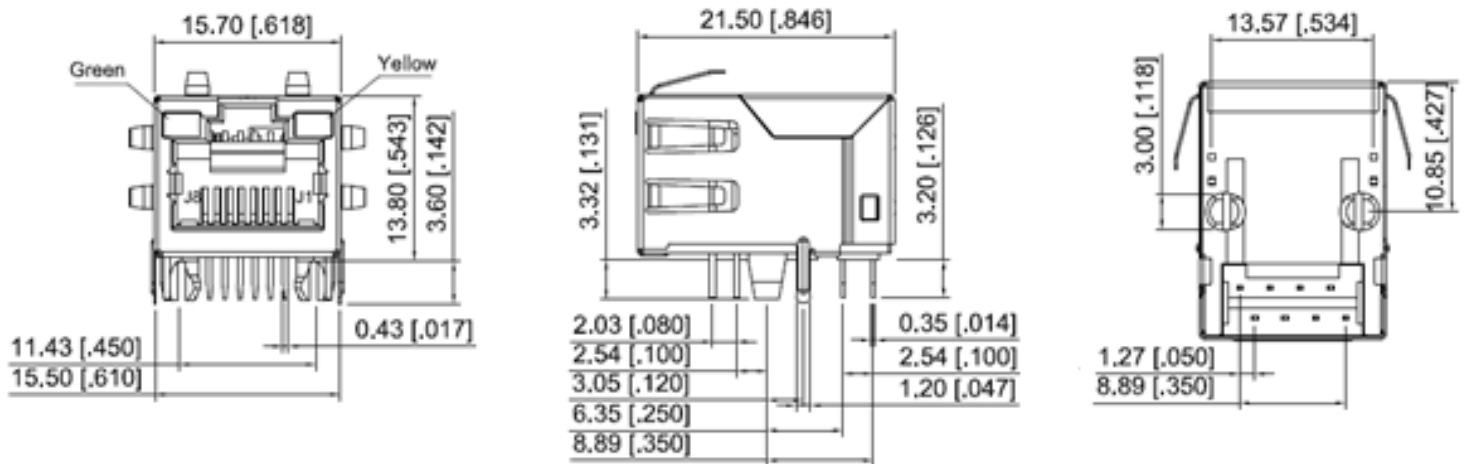


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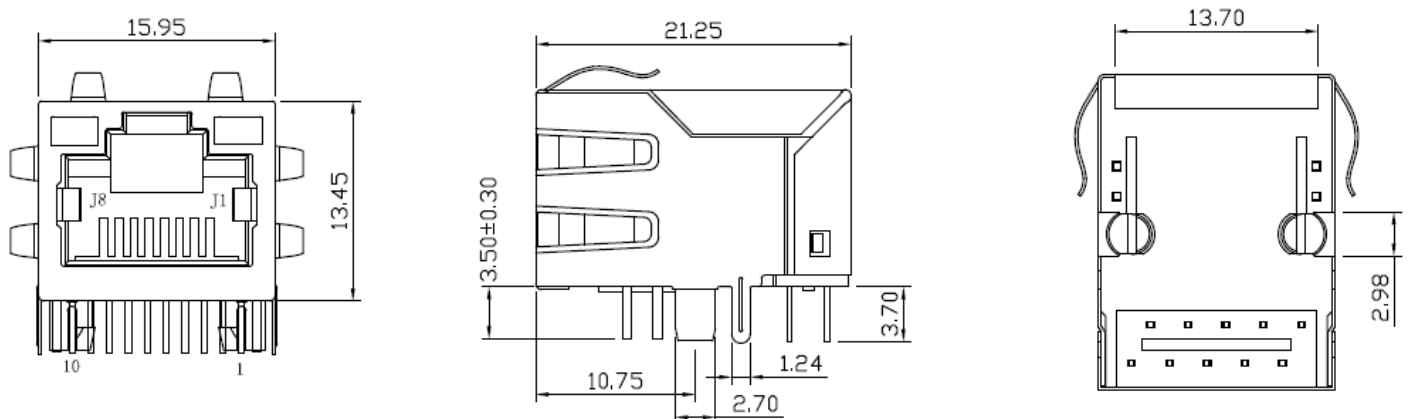
21.30 x 15.90 x 13.60mm  
RoHS/RoHS II Compliant  
MSL Level = 1

### C: Tab Up, w/ EMI Fingers (Wave)



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

### C: Tab Up, w/ EMI Fingers (Reflow)



Dimensions are in mm. Tolerances are  $\pm 0.25$ mm unless noted otherwise.

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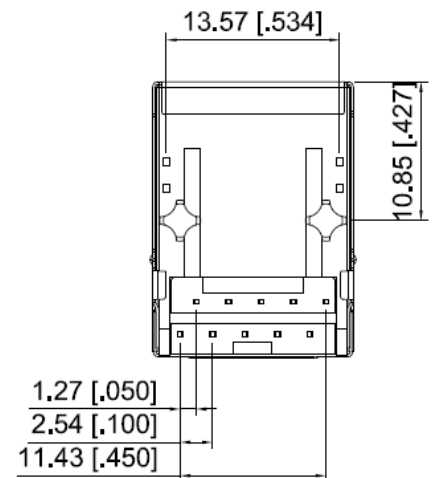
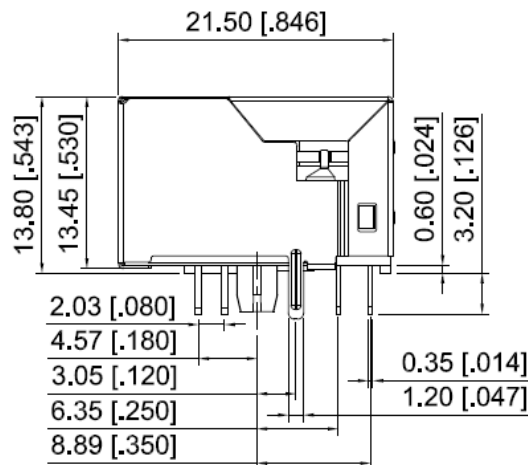
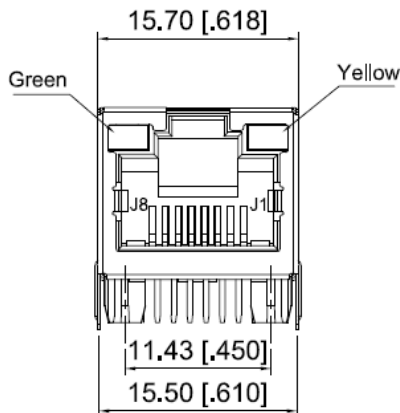
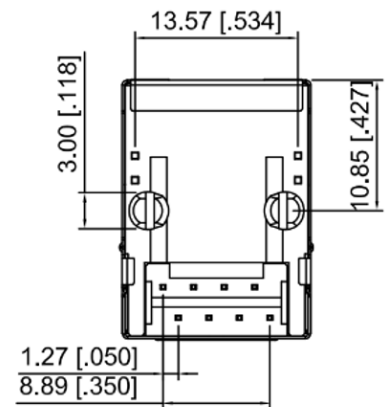
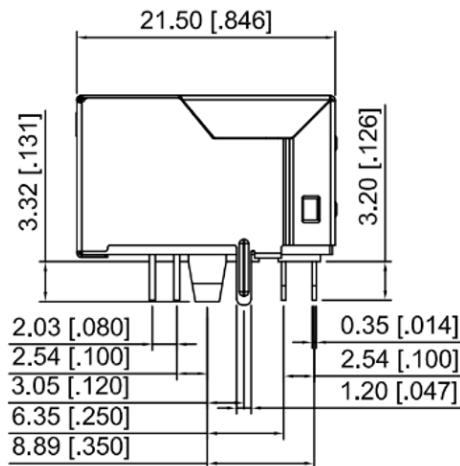
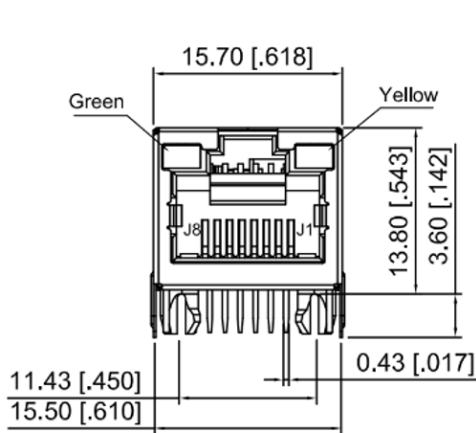


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21.30 x 15.90 x 13.60mm  
RoHS/RoHS II Compliant  
MSL Level = 1

### D: Tab Up, w/o EMI Fingers 8 Pin and 10 Pin (Wave)



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

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**ARJM11 Series**

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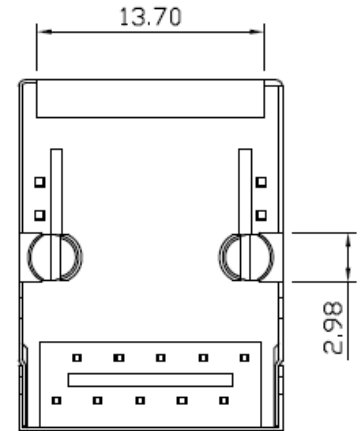
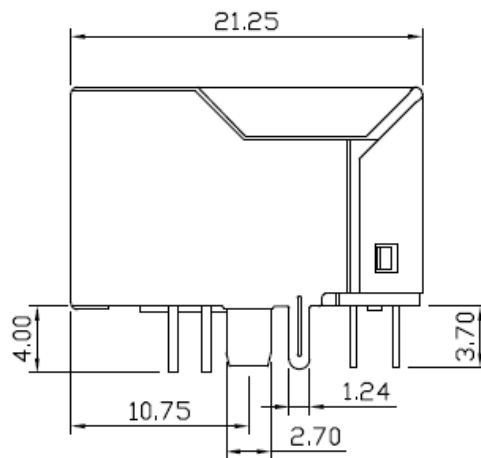
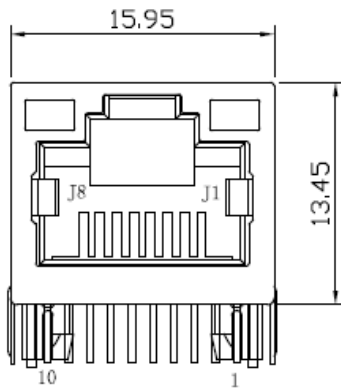


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21.30 x 15.90 x 13.60mm  
**RoHS/RoHS II Compliant**  
MSL Level = 1

**D: Tab Up, w/o EMI Fingers (Reflow)**



Dimensions are in mm. Tolerances are  $\pm 0.25$ mm unless noted otherwise.



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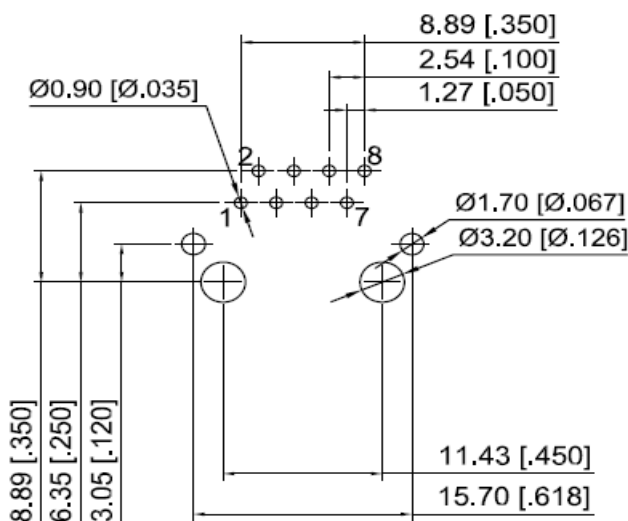


21.30 x 15.90 x 13.60mm  
RoHS/RoHS II Compliant  
MSL Level = 1

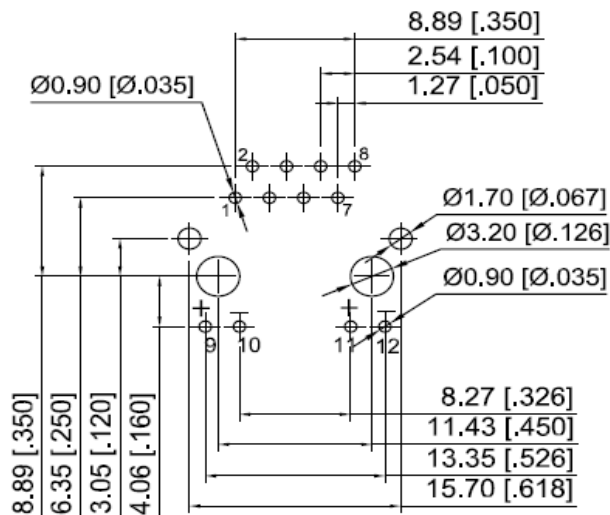
## Recommended Layout

### Pin Layout = 1 (Horizontal LEDs/ No LEDs)

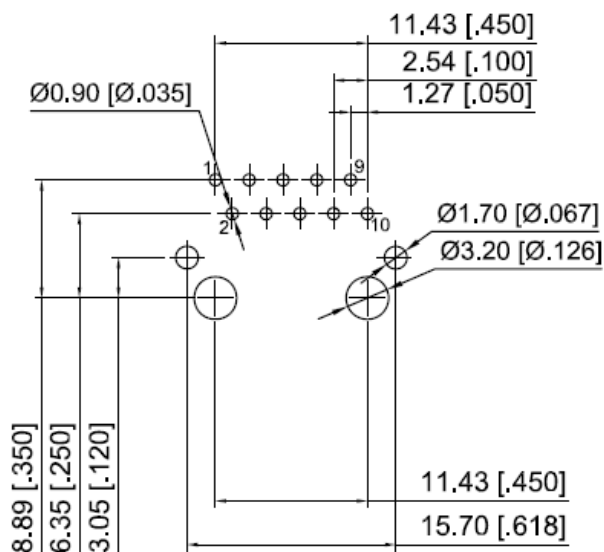
8 Pins, no LED  
For 100 Base-T



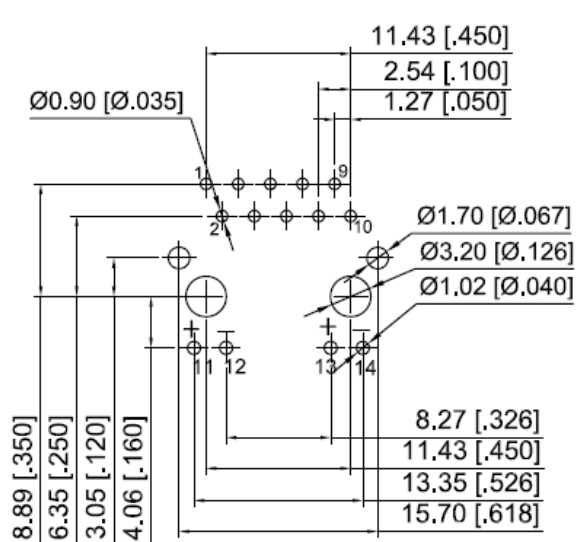
8 Pins, w/ LED  
For 100 Base-T



10 Pins, no LED  
For 100 PoE/1000/2.5G/5G Base-T



10 Pins, w/ LED  
For 100 PoE/1000/2.5G/5G Base-T



Dimensions: mm[inch] Layout tolerances are  $\pm 0.05$  [0.002] mm unless noted otherwise.



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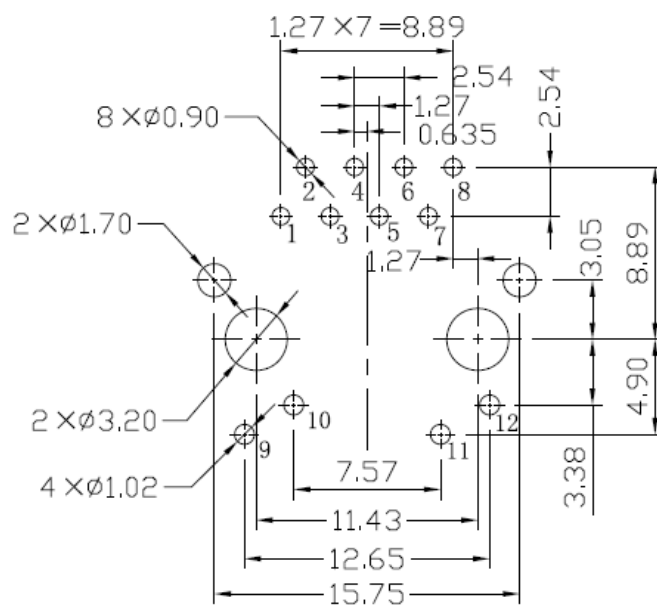
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21.30 x 15.90 x 13.60mm  
RoHS/RoHS II Compliant  
MSL Level = 1

Pin Layout = 3 (diagonal LEDs)

8 Pins, w/ LEDs  
For 100 Base-T



Suggested PCB Layout (Top View)

Dimensions: mm. Layout tolerances are  $\pm 0.05$ mm unless noted otherwise.

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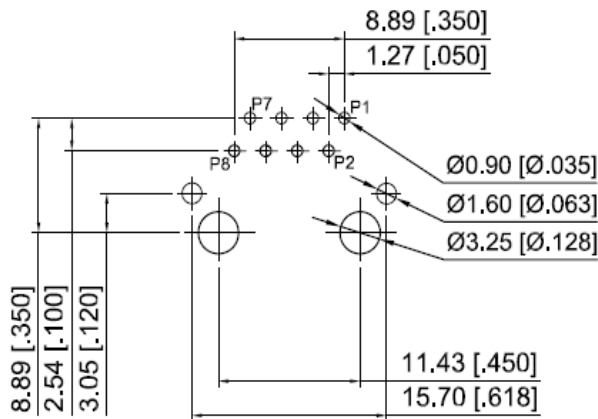
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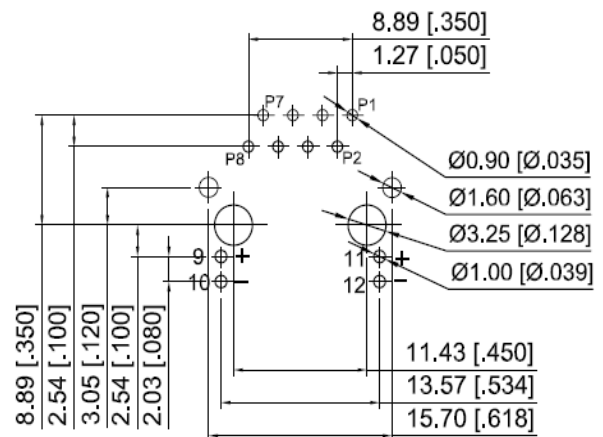
21.30 x 15.90 x 13.60mm  
RoHS/RoHS II Compliant  
MSL Level = 1

### Pin Layout = 7 (Vertical LEDs/ No LEDs)

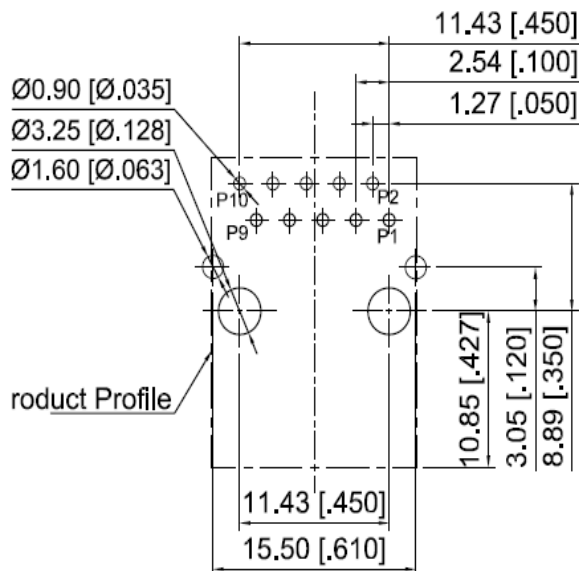
#### 8 Pins, no LED For 100 Base-T



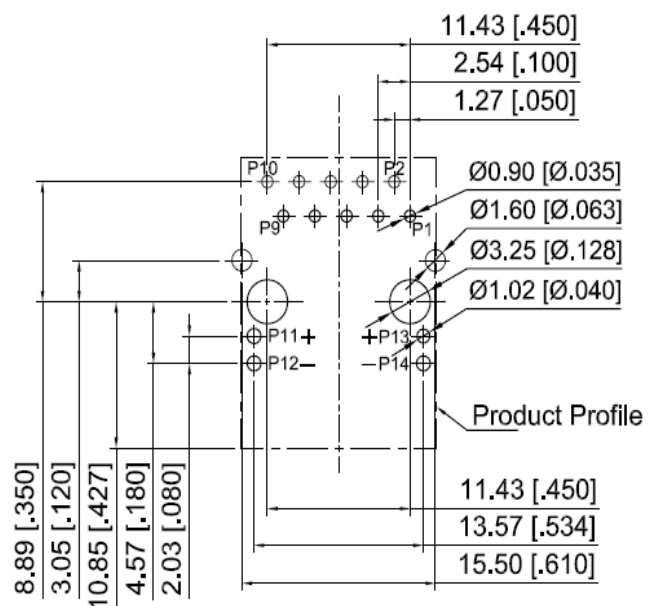
#### 8 Pins, w/ LED For 100 Base-T



#### 10 Pins, no LED For 100/1000/2.5G/5G Base-T



#### 10 Pins, w/ LED For 100/1000/2.5G/5G Base-T



Dimensions: mm. Layout tolerances are  $\pm 0.05$ mm unless noted otherwise.



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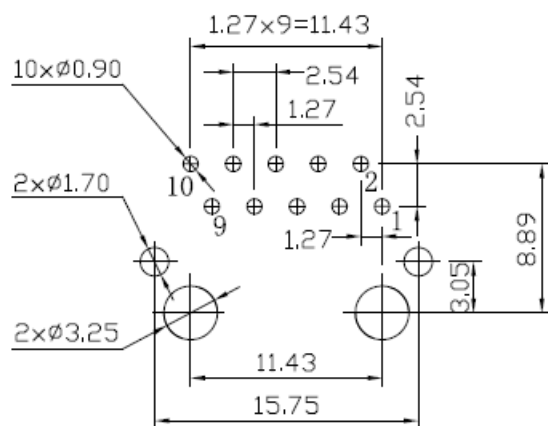


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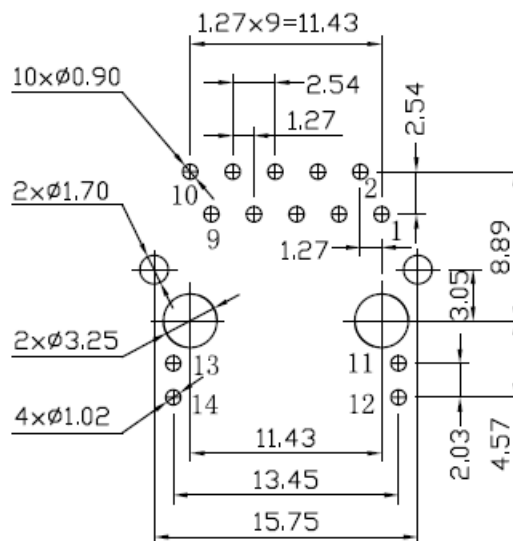


21.30 x 15.90 x 13.60mm  
RoHS/RoHS II Compliant  
MSL Level = 1

**10 Pins, no LED**  
For 100 Base-T w/ POE, POE+



**10 Pins, w/ LED**  
For 100 Base-T w/ POE, POE+



Dimensions are in mm. Layout tolerances are  $\pm 0.05\text{mm}$  unless noted otherwise.

# RJ45, Single Port, 10/100/1G/5G Base-T Magnetics Module



**ARJM11 Series**

Request Samples



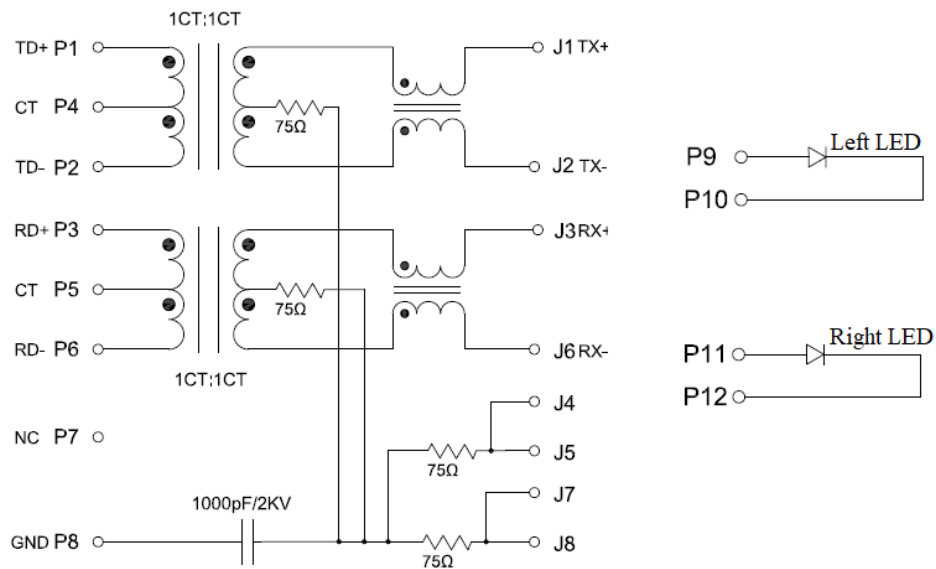
Check Inventory



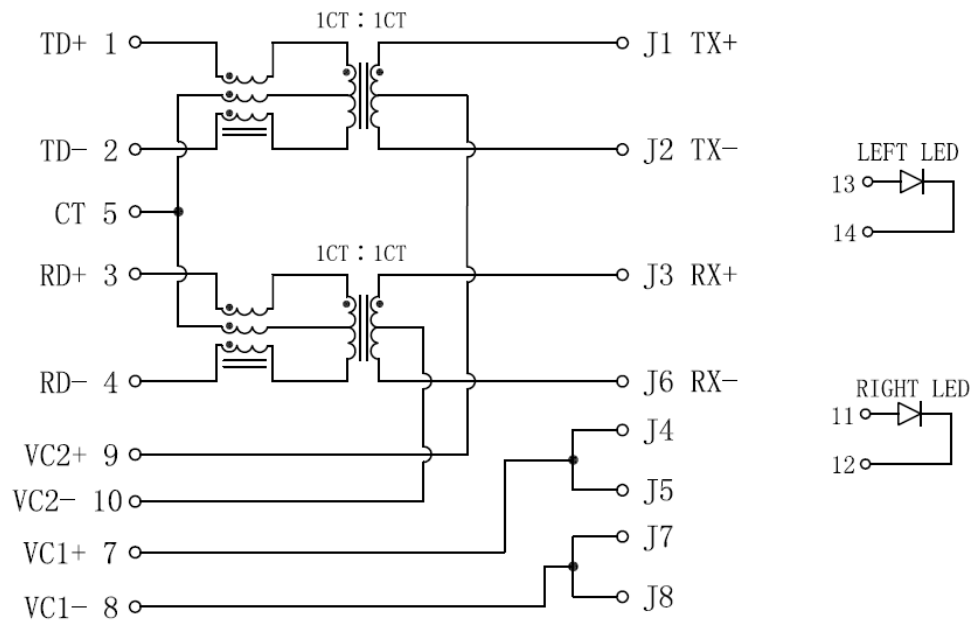
21.30 x 15.90 x 13.60mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Schematic

009 (100 Base-T)



104 (100 Base-T & PoE+)





# RJ45, Single Port, 10/100/1G/5G Base-T Magnetics Module



**ARJM11 Series**

Request Samples

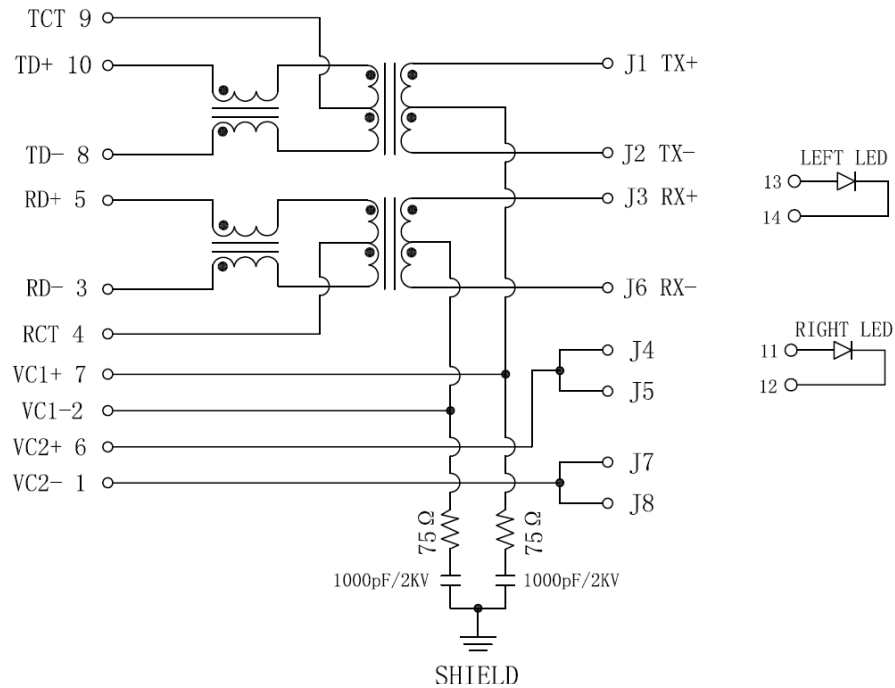


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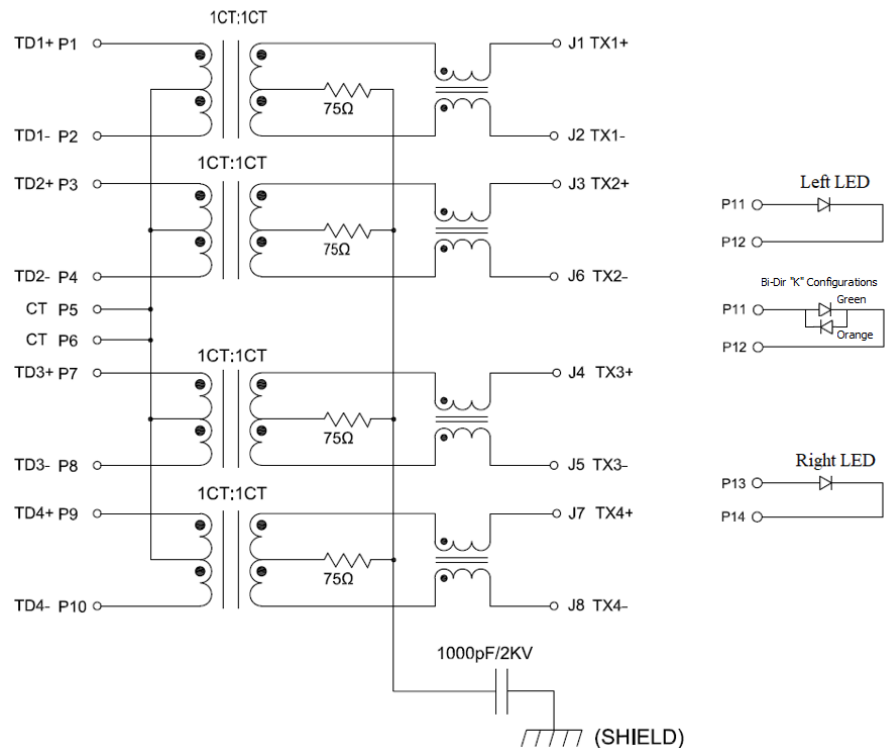


**21.30 x 15.90 x 13.60mm**  
**RoHS/RoHS II Compliant**  
**MSL Level = 1**

114 (100 Base-T & PoE)



502 (1000 Base-T)



# RJ45, Single Port, 10/100/1G/5G Base-T Magnetics Module



**ARJM11 Series**

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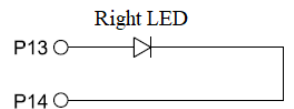
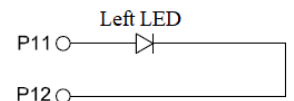
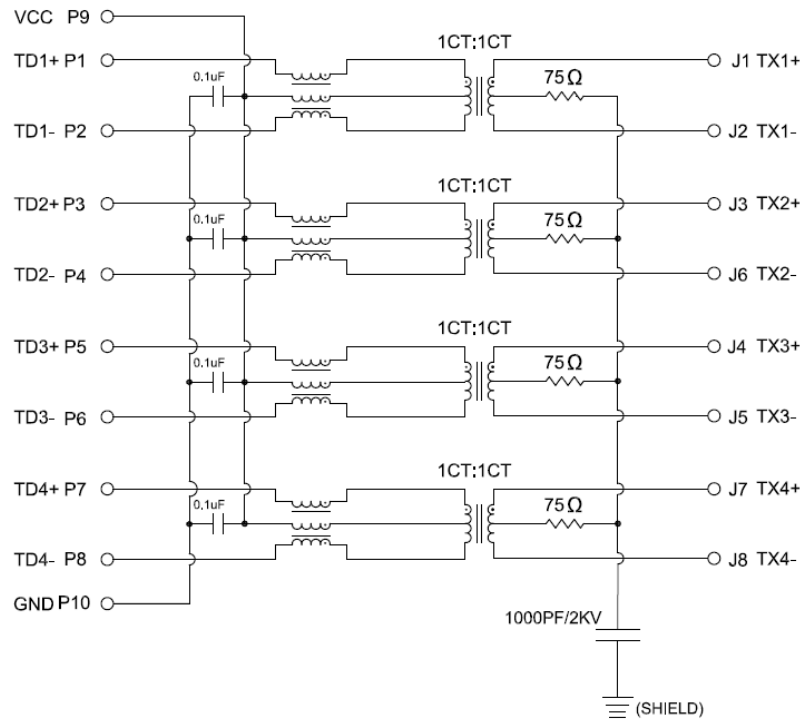


Check Inventory

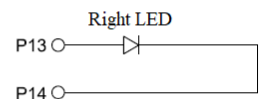
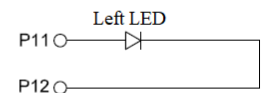
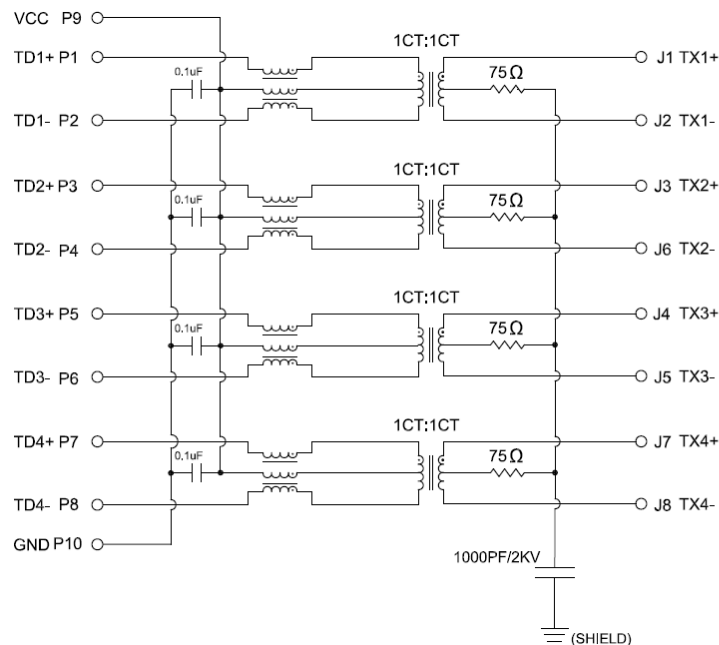


21.30 x 15.90 x 13.60mm  
RoHS/RoHS II Compliant  
MSL Level = 1

805 (2.5G Base-T)



809 (2.5G Base-T)  
811 (5G Base-T)



5101 Hidden Creek Ln Spicewood TX 78669  
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For terms and conditions of sales, please visit:  
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REVISED: 04-08-25

ABRACON IS  
ISO9001-2015  
CERTIFIED

# RJ45, Single Port, 10/100/1G/5G Base-T Magnetics Module



**ARJM11 Series**

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21.30 x 15.90 x 13.60mm  
**RoHS/RoHS II Compliant**  
MSL Level = 1

## LED SPECIFICATIONS FOR ALL SCHEMATICS 20mA Forward Current

Color	Green	Yellow	Orange
Wavelength	565nm Typ	585nm Typ	605nm Typ
Forward Voltage	2.2V Typ	2.1V Typ	2.1V Typ

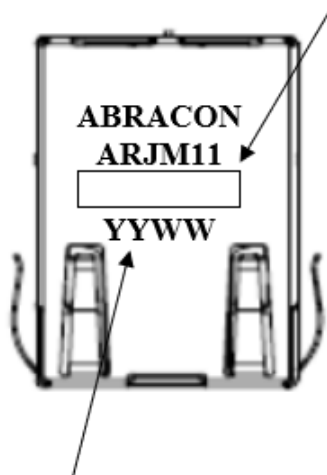
## Device Marking

Part number excluding packaging  
characters “-T”

XX-XXX-XX-XXX

e.g.

A1-009-AB-EW2



YY: Year: E.g. 21 for 2021

WW: Week: E.g. 05 for  
the 5<sup>th</sup> week of the year.

# RJ45, Single Port, 10/100/1G/5G Base-T Magnetics Module



ARJM11 Series

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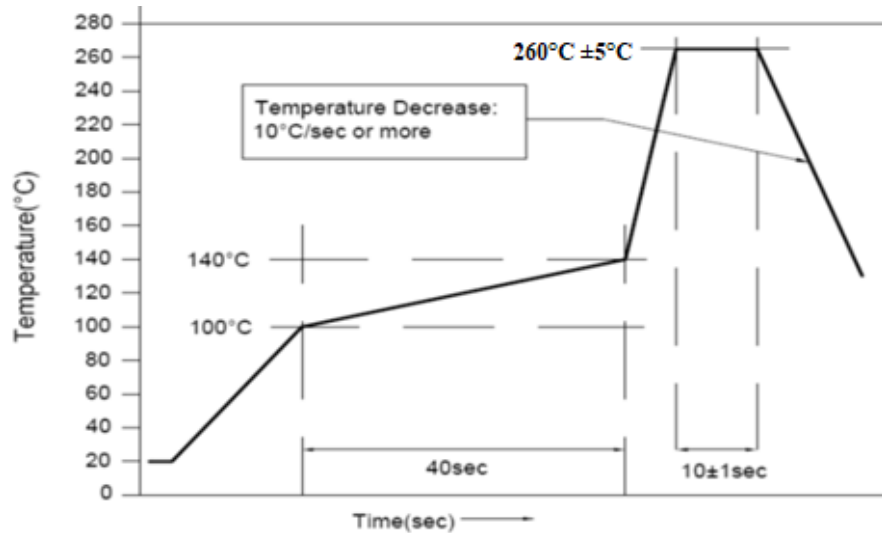
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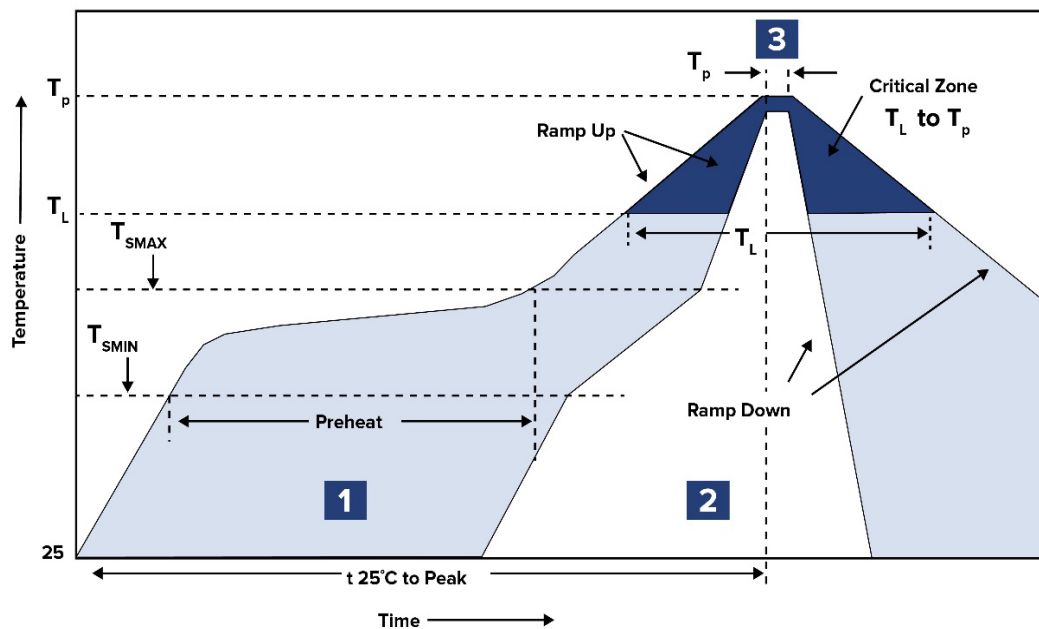
21.30 x 15.90 x 13.60mm  
RoHS/RoHS II Compliant  
MSL Level = 1

## Soldering Profile

### Wave Method



### Reflow Method



Zone	Description	Temperature	Times
1	Preheat	$T_{SMIN} \sim T_{SMAX} = 150^\circ\text{C} \sim 180^\circ\text{C}$	120 ~ 180 sec.
2	Reflow	$T_L = 217^\circ\text{C}$	60 ~ 150 sec.
3	Peak heat	$T_P = 260^\circ\text{C} \pm 5^\circ\text{C}$	10 sec. MAX

# RJ45, Single Port, 10/100/1G/5G Base-T Magnetics Module



**ARJM11 Series**

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Check Inventory



21.30 x 15.90 x 13.60mm  
**RoHS/RoHS II Compliant**  
MSL Level = 1

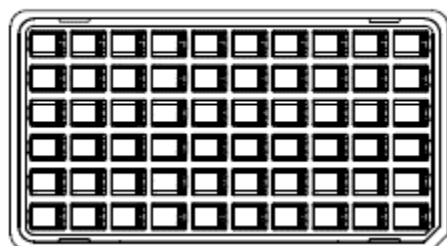
## Packaging

**Bulk/Tray (50pcs/tray)**

**Format A – 40 trays/carton, Weight: 5.7g/pc, Carton Gross Weight: 15.2Kg**

**Format B – 24 trays/carton, Weight: 5.7g/pc, Carton Gross Weight: 9.0Kg**

**Bottom Tray**



**Top Tray**

