



**THE DATASHEET OF  
AK09973D**



# RJ45 1000 Base-T Single Port, PoE++, w/ LEDs, Extend Temp



**ARJ-139**

## Features

- Compliant with IEEE802.3 standard
- Designed for Network Interface Cards (NIC), LAN-on-Motherboard (LOM)
- High performance for maximum EMI suppression
- 350µH minimum OCL with 8mA bias current
- RoHS peak wave solder temperature 260°C

## Applications

- Support 1000 Base-T applications w/ Bi-Color LEDs
- PoE++(max 1A) with Extended Temperature (-40°C~85°C)
- Applicable for Ethernet Switch, Servers, & Access Point Routers
- Provides signal conditioning, EMI suppression and signal isolation

## Electrical Specifications

Parameters	Minimum	Typical	Maximum	Units	Notes
Operating Temperature	-40		+85	°C	
Storage Temperature	-40		+85	°C	
Turn Ratio (± 5%)	1CT:1CT				Tx
	1CT:1CT				Rx
Inductance (OCL)	350			µH	100KHz/0.1V@8mA
DC Resistance (DCR)			1.5 / 0.750	Ω	MDI-PHY side / Cable side
Insertion Loss		-1.0		dB	1-100MHz
Return Loss	-20			dB	1-10MHz
	-16				30MHz
	-12				60-80MHz
Cross Talk		-40		dB	1-10MHz
		-35			32-65MHz
		-30			65-100MHz
CMR		-30		dB	1-125MHz
		-20			125-500MHz
PoE Current Capacity		720	1000	mA	@ 57V
Hi-Pot	1500Vrms/0.5mA/2Sec				Pri to Sec

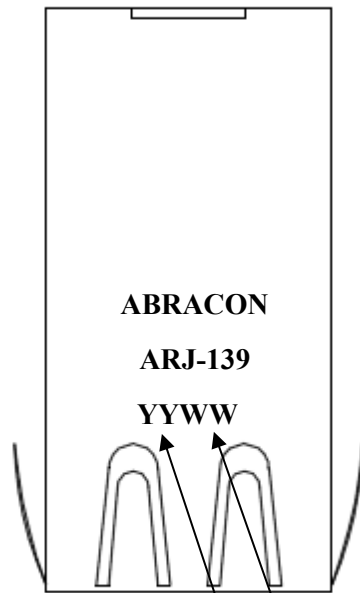
**ARJ-139 is RoHS Compliant**

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## Marking



W: Week: E.g. 15 for the 15<sup>th</sup> week of the year.

Y: Year: E.g. 15 for 2015

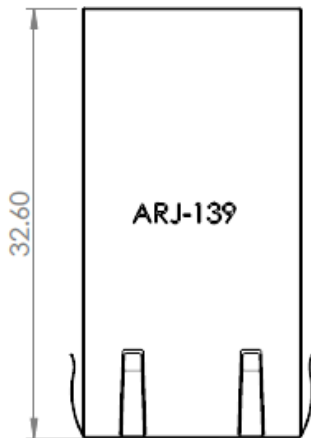
Marking Method = Laser Marking

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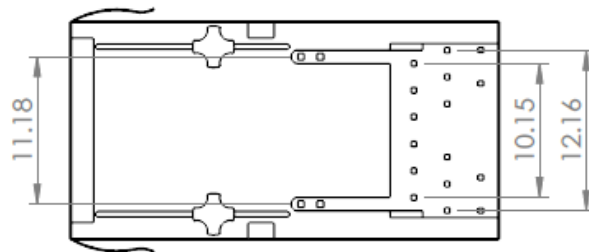


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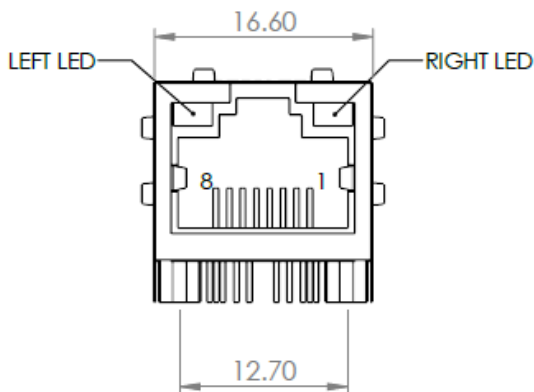
## Mechanical Specifications



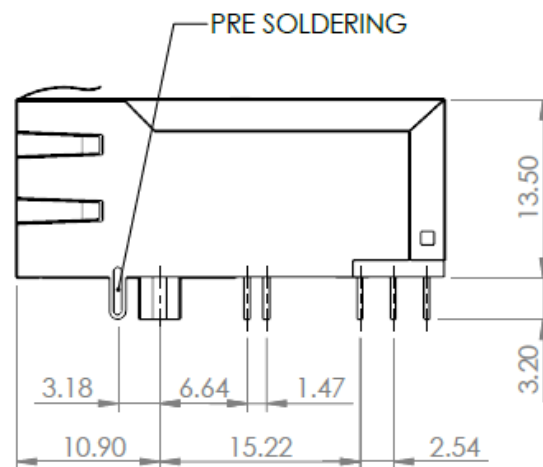
**TOP VIEW**



**BOTTOM VIEW**



**FRONT VIEW**



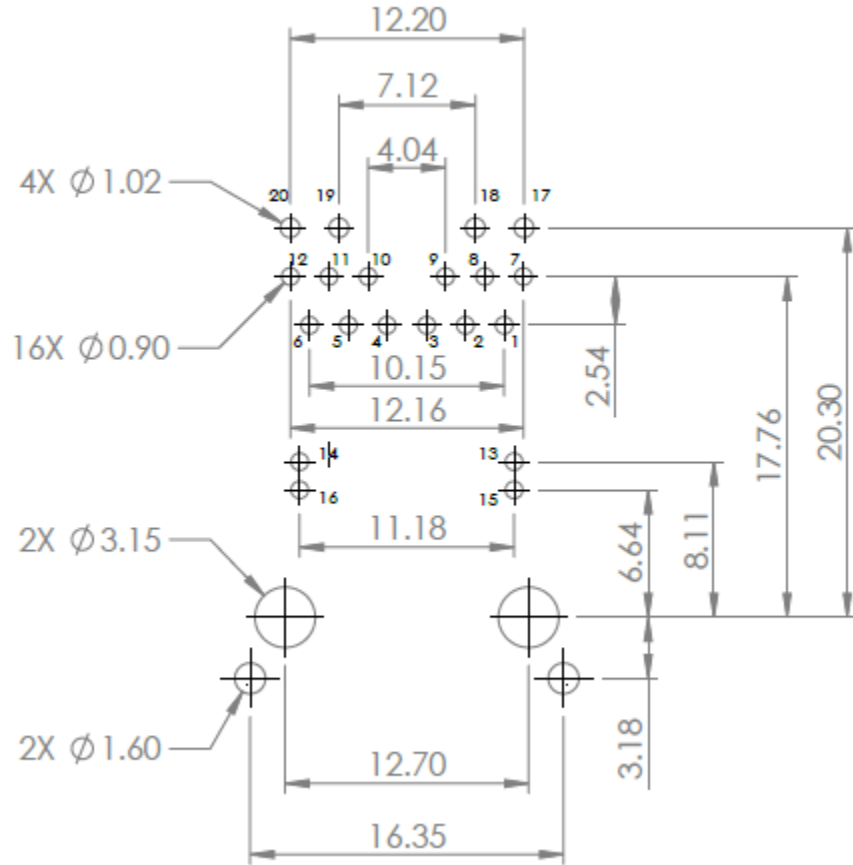
**SIDE VIEW**

**Dimensions: mm**  
**All tolerances are  $\pm 0.25$  unless otherwise specified.**



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## RECOMMENDED LAND PATTERN



Dimensions: mm

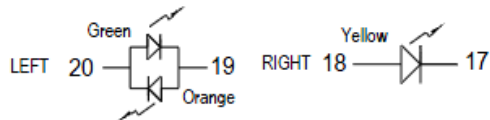
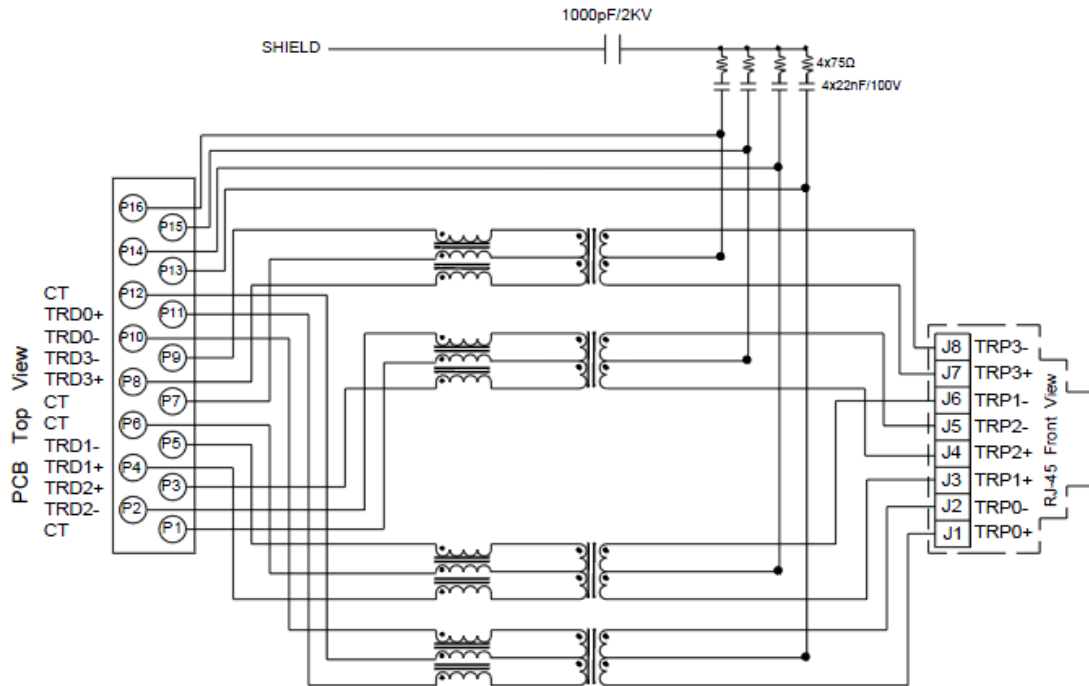
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## Schematics



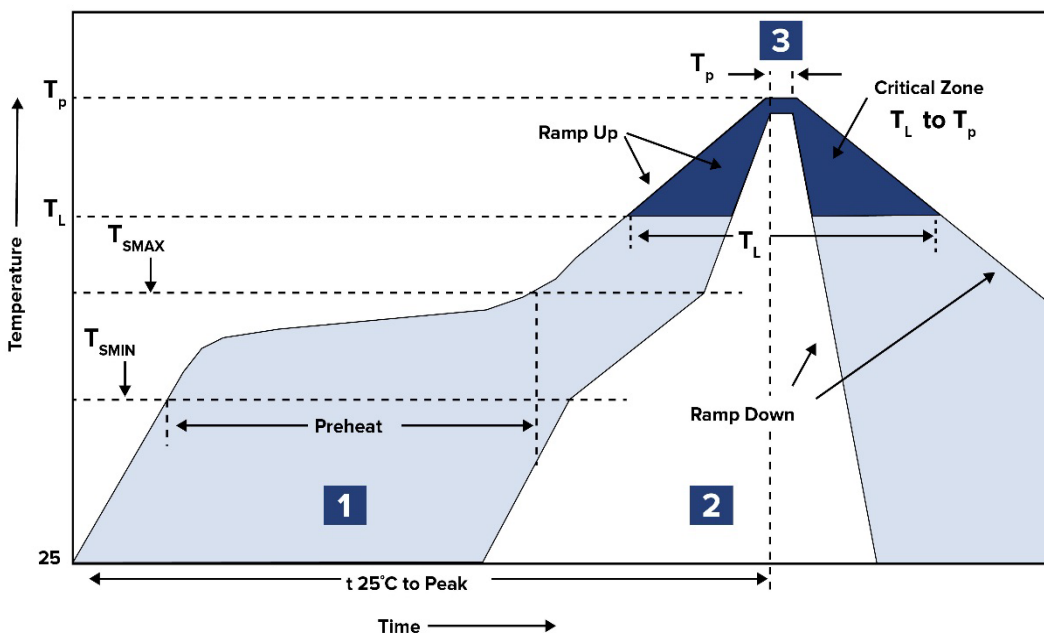
Standard LED	Wavelength	Forward*V(MAX)	TYP
Green	565nm	2.5v	2.2v
Yellow	585nm	2.5v	2.1v
Orange	610nm	2.5v	2.1v

With a forward current of 20mA



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## Reflow Profile



Zone	Description	Temperature	Times
1	Preheat	$T_{SMIN} \sim T_{SMAX}$ 120°C ~ 180°C	60 ~ 120 sec.
2	Reflow	$T_L$ 180°C	120 sec. Max
3	Peak heat	$T_P$ 250°C±10°C	5 sec. Max

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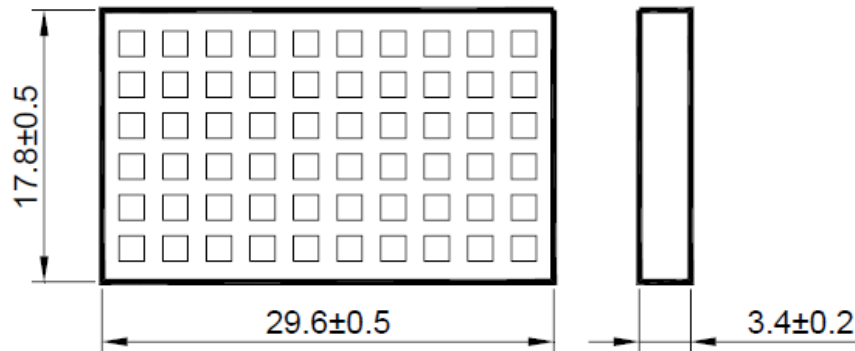
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## Packaging

**Packing: 60pcs/tray**

**Weight: 9.40 grams / pcs**

**Packaging material: PET**



**Outer carton unit (optional): 840 pcs/ 14 Trays/box**

**Dimensions: mm**

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**REVISION G : 8/5/2025**

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