



PDJack™ with integrated Power Device controller circuitry plus Ethernet connectivity simplifies PoE Plus implementation for any network device, reducing time-to-market, lowering costs and achieving considerable PCB space savings

Based on the RJ45 connector, the magnetic PDJack™ is the first integrated PD (Power Device) Jack in the market to combine a PoE+ PD controller and bridge rectifiers with gigabit magnetics in one connector and provide a complete drop-in, single port solution.

Situated on the customer printed circuit board (PCB) the PDJack supplies 54 volt power of up to 25.5 watts. Two pins output power and standard signal pins provide Ethernet connectivity. Additional pins allow power-up of external DC to DC converter. The PDJack manages all the communications with the switch/router PoE controllers: negotiating power requirements and managing safe power-up and power down of PD devices such as IP phones, IP cameras, wireless access points, control panels, vision systems and point of sale (POS) units.

PoE Plus according to the IEEE standard requires Cat5 cable or higher. For additional information visit: www.molex.com/product/poe.html

Magnetic Jacks – PoE Plus Integrated PDJack™

85791 PoE Plus, single port Integrated controller PDJack



PoE Plus Integrated PDJack™

Features and Benefits

PoE integrated circuit included

All PoE functionality achieved within connector; no PoE circuitry required on customer PCB
No PoE knowledge or experience required by the customer
Up to 75% board space saving vs. discrete solution

Bridge rectifiers to accommodate all Power Sourcing Equipment (PSE) types

As required for IEEE compliance to support functions of all PoE PSE types

Detection and classification circuitry fully IEEE802.3at compliant

Eliminates complex design and testing resulting in faster time-to-market, reduced investment, lower direct and associated purchasing and production costs

Robust ESD and EMI (electro-magnetic interference) design

Fully shielded connector with integrated electro-static discharge (ESD) protection

Efficient thermal design

Suitable for wide operating temperature range and passive airflow environments

Gigabit Ethernet magnetics with common-mode choke

Designed to operate with industry-leading PHY chip vendors at 10/100/1000 Mbps

Connectors are available in Class 0, 1, 2, 3 and 4

Allows customers to limit the power output of the connector up to 25.5 watts

Through-hole pins

Suitable for wave-soldering

Additional Product Features

BOM Comparison: Discrete and PoE Enabled solution vs. PoE Integrated PDJack™ solution

Components for 12V PoE PD power supply			
	Discrete	PoE Enabled	PoE Integrated PDJack™
RJ45 Jack	X		
PD chip	X	X	
PD ref components	X	X	
Bridge rectifiers	X	X	
54VDC - 12VDC circuit	X	X	X
Isolation components	X	X	X
PoE transformer	X		
PHY and BST comp's	X		

Applications

Telecommunication

IP phones/telephony
IP cameras
Wireless access points
Broadband/microwave antenna

Commercial

Point of sale (POS) devices
Home automation interface panels

Industrial

Control panels
(climate control, door access)
Human Machine Interface (HMI)
Vision systems
Sensors

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Microwave and 3G indoor antenna



Set-top box



Security systems

Specifications

REFERENCE INFORMATION

Packaging: Tray
UL File No.: Pending
Mates with: Plugs according to
IEC 60603-7 series 95043,
44915, 85568
Designed in: Millimetres
RoHS: Yes

MECHANICAL

Connector insertion and
removal force: 20
Locking force: 50N min.
Durability: 750 cycles

PHYSICAL

Housing:
Nagase-D-Valox 420 SED Black
UL94-0\5V
Shield: Stainless steel
Contact: Phosphor Bronze (CuSn8)
Plating:
Contact area —1.27um Gold (Au)
over 1.9um Nickel (Ni)
Solder tail area —3um Tin (Sn)
PCB thickness: 1.57mm

ELECTRICAL

HiPot isolation: 2250V DC
OCL: 350μH at 20mA min.
Insertion loss: -0.80 at 100 MHz (*typical*)
Return loss: -13.5 at 100 MHz (*typical*)
NEXT: -33 at 100 MHz (*typical*)
CMR: -40 at 100 MHz (*typical*)
Output voltage:
42.5 to 57V for PoE Plus
37 to 57V for PoE

Ordering Information

Class	Power Output (W) (max.)	Operating Temperature°C	Order No.
0	13	0 to 70	85791-0020
1	3.84		85791-1020
2	6.49		85791-2020
3	13		85791-3020
4	25.5	0 to 55	85791-4020