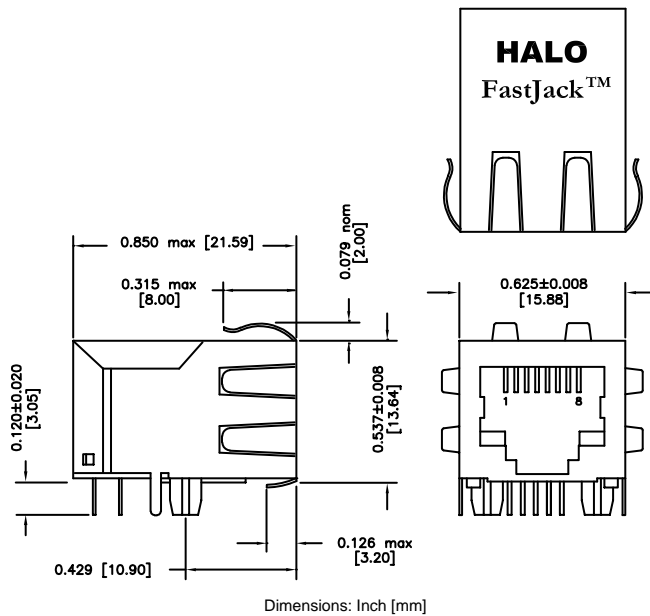


HALO is pleased to offer this complete range of single port Integrated RJ-45 connectors. The FastJack™ series integrates the high performance of HALO magnetics into industry standard connector designs. These single port Fastjacks are available in either tab up or tab down designs, and with or without LEDs. The result is an extremely robust, IEEE802.3 compliant solution. The complete FastJack series is UL60950 and EN60950 compliant.

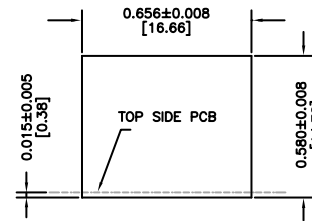


Tab Down Mechanical Drawing

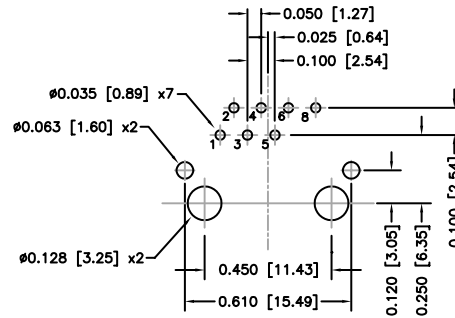


Housing Material: Black thermoplastic, UL94V-0
 Contacts: Phosphor Bronze, selective plating 30 µm Gold over Nickel
 Terminal Finish: Matte Tin over Nickel
 Shield: Copper alloy with Nickel finish
 Durability: 1000 mating cycles

Recommended Panel Cut-out



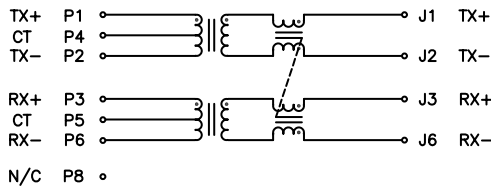
Recommended PCB Layout



Pin 7 Omitted (If No LEDs)

Please see page 3 for LED options.

Circuit A



FastJack™ P/N	Turns Ratio		Pri Inductance (µH)		Cw/w (pF Max)
	TX	RX	TX	RX	
HFJ11-1041ERL	1:2.5	1:1	35 Min	200 Min	15
HFJ11-1043ERL	1:1.41	1:1	140 Typ	140 Typ	15
HFJ11-1066ERL	2:1	1:1	150 Min	150 Min	10
HFJ11-1075ERL	1:2	1:1	25 Typ	140 Typ	15
HFJ11-1081ERL	1:1	1:1	100 Typ	100 Typ	9
HFJ11-1086ERL	1:2	1:1	50 Min	200 Min	11

Isolation Voltage: 1,500 Vrms

Please see individual data sheets for complete electrical specifications.

HALO Single Port FastJacks™ With Integrated Filters

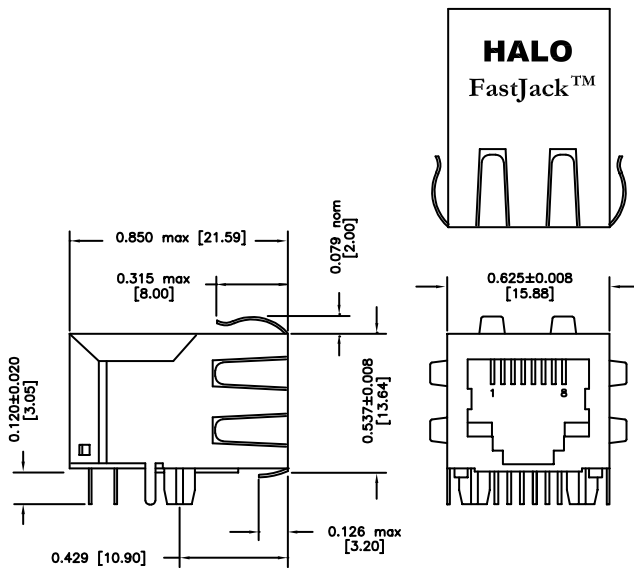
HALO ELECTRONICS, INC.

HALO is pleased to offer this series of small footprint 10BASE-T FastJacks™, with integrated filters. This series is ideal for low cost Ethernet Controller chip applications requiring signal filtering. IEEE 802.3 compliant and real estate effective. Check the HALO 10BASE-T selector guide for the FastJack™ that is correct for your design. The complete FastJack series is UL60950 and EN60950 compliant.



Single Port FastJacks™
With Integrated Filters

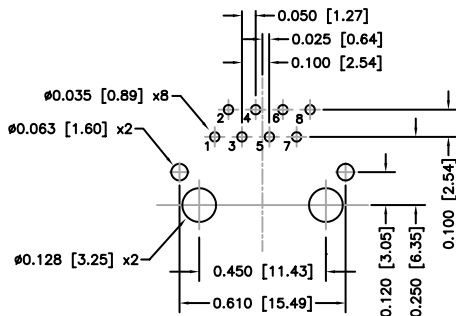
Tab Down Mechanical Drawing



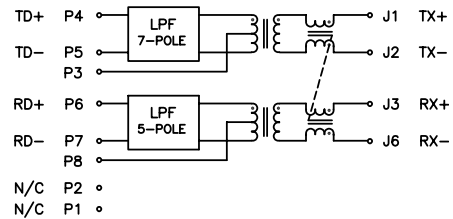
Dimensions: Inch [mm]

Housing Material: Black thermoplastic, UL94V-0
Contacts: Phosphor Bronze, selective plating 30 µin Gold over Nickel
Terminal Finish: Matte Tin over Nickel
Shield: Copper alloy with Nickel finish
Durability: 1000 mating cycles

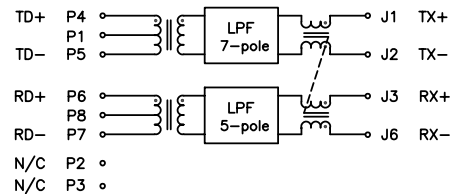
Recommended PCB Layout



Filter Circuit A



Filter Circuit B



Please see page 1 for
recommended panel cut-out

Please see page 18 for LED options.

Electrical Specifications @ 25°C

Operating Temp: 0 to +70°C
Isolation Voltage: 1,500 Vrms
Insertion Loss (5-10MHz): -1dB max
Return Loss (5-10MHz): -15dB min
Attenuation @ 30MHz
Transmit: -30dB min
Receive: -18dB min
Cut Off Freq. 17MHz typ
Crosstalk (1-10MHz): -30dB min



HALO Part Number	Circuit	Turns Ratio		Pri Impedance	
		TX	RX	TX	RX
HFJ11-S101ERL	A	1CT:1	1CT:1	100Ω	100Ω
HFJ11-S114ERL	B	1CT:1.41	1CT:1	50Ω	100Ω

10BASE-T

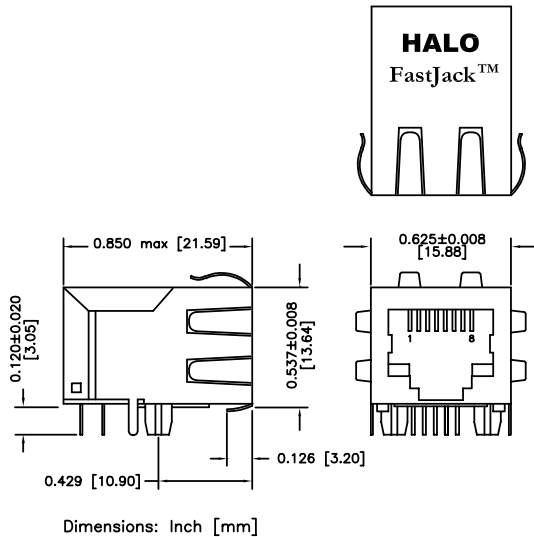
Vendor	Silicon P / N	FastJack™ Part Number Tab Down
AMD	Am79C984A, 985, 988A, 989	HFJ11-1081ERL
Cirrus Logic	CS8900-CQ/IQ, CS8920, CS8904-CM5	HFJ11-1043ERL
Cirrus Logic	CS8900-CQ3/IQ3, CS8904-CM3	HFJ11-1041ERL
Intel	LXT901/1A, 907/7A, LXT914/915	HFJ11-1043ERL
Intel	LXT905, LXT908	HFJ11-1075ERL
LSI	80C24/25	HFJ11-1066ERL
NSC	DP83907, DP83953	HFJ11-1086ERL
RealTek	RTL8019	HFJ11-S101ERL
SMSC	LAN91C95/96 (5V)	HFJ11-S101ERL
SMSC	LAN91C96 (3.3V)	HFJ11-S114ERL
Uvicom	IP2022	HFJ11-S114ERL

HALO FastJack™ Single Port ELECTRONICS, INC. 10/100BASE-TX RJ-45 Connectors

HALO is pleased to offer this complete range of single port Integrated RJ-45 connectors. The FastJack™ series integrates the high performance of HALO magnetics into an industry standard connector design. The result is an extremely robust, IEEE802.3 compliant, solution. Single and multi-port FastJacks™ are available for most 10BASE-T and 10/100BASE-TX IC's.

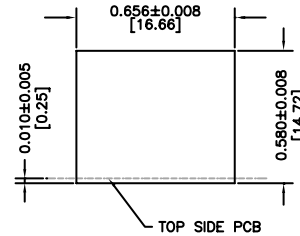


Mechanical Drawing

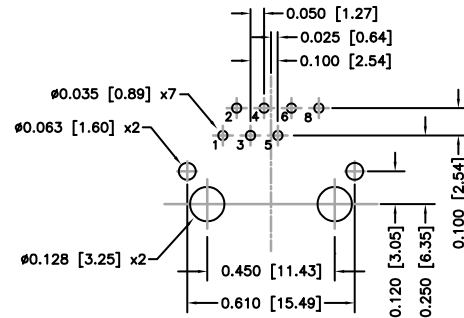


Transformer Electrical Specifications @25°C
 Isolation: 1,500 Vrms
 OCL @100KHz, 8mA: 350 μH min
 CMR (0.1-100MHz): -40dB typ
 Crosstalk (0.1-100MHz): -40dB min

Recommended Panel Cut-out



Recommended PCB Layout



(Pin 7 omitted except for HFJ11-LG1G)



RoHS compliant versions are available.
 Specify RoHS compliant product by adding the suffix "RL".

10/100BASE-TX

FastJack™, Full Flexibility Schematics			Turns Ratio	
Circuit B	Circuit C	Circuit D	TX	RX
HFJ11-S050E	HFJ11-2250E	HFJ11-2450E	1:1	1:1
HFJ11-S120E	HFJ11-2220E	HFJ11-2420E	2:1	1:1
HFJ11-S141E	HFJ11-2241E	HFJ11-2441E	1:1.41	1:1
HFJ11-S131E	HFJ11-2231E	HFJ11-2431E	1.41:1	1:1
HFJ11-S139E	HFJ11-2239E	HFJ11-2439E	1.25:1	1:1

High Frequency, CMR Chokes

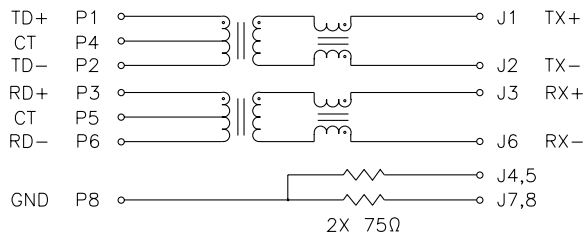
FastJack™ P/N	Circuit	Turns Ratio
HFJ11-LG1GE	E	1:1, 1:1, 1:1, 1:1

- LED options are also available. Please refer to the [LED option data sheet](#) for more information.
- Please see individual data sheets for complete electrical specifications.

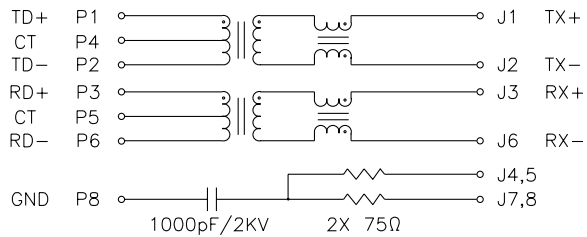
HALO is pleased to offer this complete range of single port Integrated RJ-45 connectors. The FastJack™ series integrates the high performance of HALO magnetics into an industry standard connector design. The result is an extremely robust, IEEE802.3 compliant, solution. Single and multi-port FastJacks™ are available for most 10BASE-T and 10/100BASE-TX IC's.



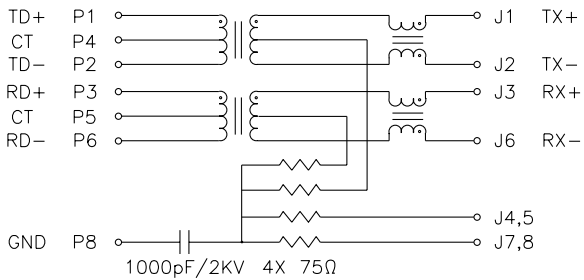
**Circuit B
Low Cost 10/100BASE-TX**



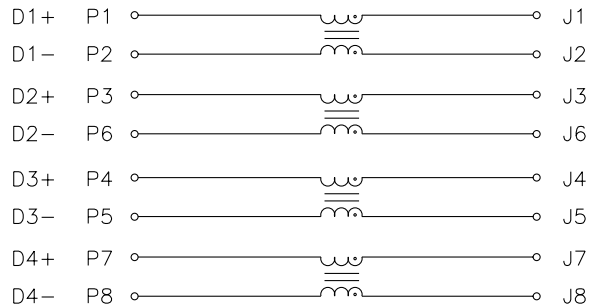
**Circuit C
10/100 BASE-TX**



**Circuit D
10/100BASE-TX**



**Circuit E
CMR Chokes**



Please see individual data sheets for complete electrical specifications.

10BASE-T

Vendor	Silicon P / N	FastJack™ Part Number		
		Single	Ganged*	Stacked/Ganged*
AMD	Am79C984A, 985, 988A, 989	HFJ11-1081E	HFJ1x-1081E	HFJ2x-1081E
Cirrus Logic	CS8900-CQ/IQ, CS8920, CS8904-CM5	HFJ11-1043E	HFJ1x-1043E	HFJ2x-1043E
Cirrus Logic	CS8900-CQ3/IQ3, CS8904-CM3	HFJ11-1041E	HFJ1x-1041E	HFJ2x-1041E
Intel	LXT901/1A, 907/7A, LXT914/915	HFJ11-1043E	HFJ1x-1043E	HFJ2x-1043E
Intel	LXT905, LXT908	HFJ11-1075E	HFJ1x-1075E	HFJ2x-1075E
LSI	80C24/25	HFJ11-1066E	HFJ1x-1066E	HFJ2x-1066E
NSC	DP83907, DP83953	HFJ11-1086E	HFJ1x-1086E	HFJ2x-1086E
RealTek	RTL8019	HFJ11-S101E	-	-
SMSC	LAN91C95/96 (5V)	HFJ11-S101E	-	-
SMSC	LAN91C96 (3.3V)	HFJ11-S114E	-	-
Ubicom	IP2022	HFJ11-S114E	-	-

10/100BASE-TX

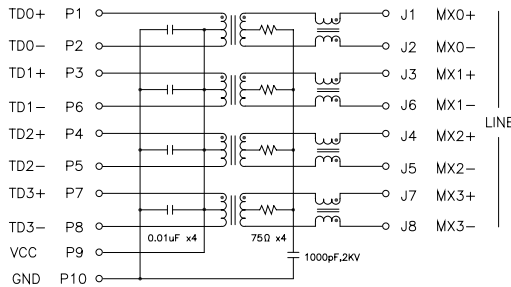
Vendor	Silicon P / N	FastJack™ Part Number		
		Single	Ganged*	Stacked/Ganged*
AMD	79C873/4/5	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
AMD	79C973/5	HFJ11-2441E	HFJ1x-2441E	HFJ2x-2441E
ASIX	AX88796L	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
Broadcom	AC101, AC104, AC205/6/7/8	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
Broadcom	BCM52xx, BCM531x	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
Crystal	CS8952	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
Davicom	DM9000	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
IDT	QS6611	HFJ11-2431E	HFJ1x-2431E	HFJ2x-2431E
IDT	QS6612	HFJ11-2439E	HFJ1x-2439E	HFJ2x-2439E
Intel	82558/9, LXT970/1/2/3, LXT976X/978X	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
Intel	LXT974A, LXT975A, LXT980/2/3	HFJ11-2420E	HFJ1x-2420E	HFJ2x-2420E
Kendin	KS8761	HFJ11-2431E	HFJ1x-2431E	HFJ2x-2431E
Kendin	KS8721, KS8737, KS899x	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
LSI	80C220/80C221	HFJ11-2420E	HFJ1x-2420E	HFJ2x-2420E
LSI	80223/84220	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
Marvell	88E3061/81/82/83, 88E6050/1/2	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
Marvell	88E6021, 88E6023	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
NSC	DP83223/83843/83846A/83847	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
RealTek	RTL8139C, RTL8201	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
SMSC	LAN91C111, LAN91C113	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
ST Micro	STE10/100A, STE100P	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
ST Micro	STE400P, STE800P*	HFJ11-2431E	HFJ1x-2431E	HFJ2x-2431E
TDK	78Q2120/1	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E
T.I.	TNETE2101	HFJ11-2450E	HFJ1x-2450E	HFJ2x-2450E

* For Ganged and Stacked/Ganged connectors replace x with the number of ports per row.

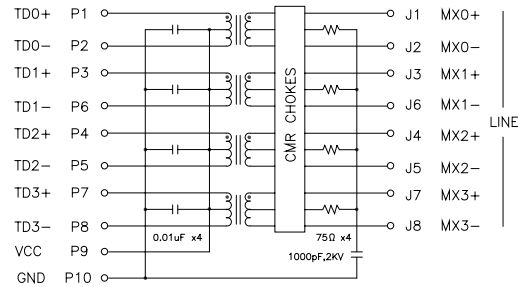


HALO Electronics is pleased to offer this new series of small footprint Gigabit single and Ganged FastJack™, integrated connectors. This series is ideal for hi-density switch applications requiring the highest performance in a minimal amount of real estate. HALO's Gigabit FastJacks™ are compatible with all leading silicon vendors' Phy's. Please contact your local HALO Representative for more information.

Standard Choke Circuit



Enhanced Choke Circuit



Electrical Specifications @ 25°C

Operating Temp:	0 to +70°C	Return Loss (min):	
Isolation Voltage:	1,500 Vrms	1-40Mhz	-18dB
OCL (100KHz, 0.1Vrms, 8mA):	350uH min	60Mhz	-14.5dB
CMR (0.1-100MHz):	-40dB typ	80Mhz	-12dB
Insertion Loss (0.1-100MHz):	-1.1dB Max	100Mhz	-10dB
Crosstalk (0.1-100MHz):	-[33-20log(F/100Mhz)]dB typ		

Patented Construction

US Pat Nbrs: 5,656,985; 6,297,721 B1; 6,297,720 B1; 6,320,489 B1; 6,344,785 B1



RoHS compliant versions are available.
Specify RoHS compliant product by adding the suffix "RL".

CMR Choke	Port Count		
	Single	Double	Quad
Standard Choke	HFJ11-1G01E	HFJ12-1G01E	HFJ14-1G01E
Enhanced Choke ¹	HFJ11-1G02E	HFJ12-1G02E	HFJ14-1G02E

Notes:

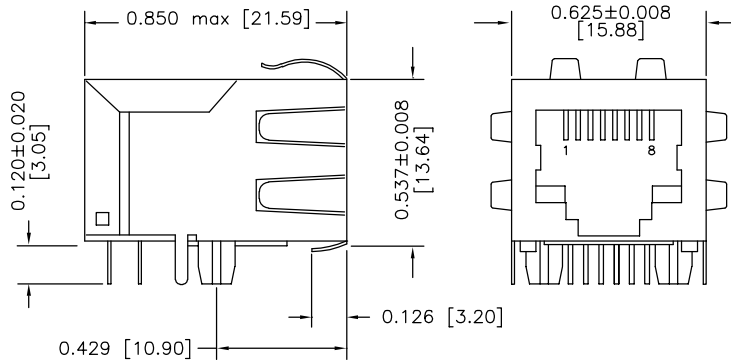
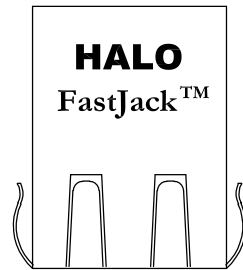
1. The Enhanced CMR Choke circuit provides a low impedance path to ground for improved noise immunity performance when needed. Impedance test data available upon request.

Please see individual data sheets for complete electrical specifications.

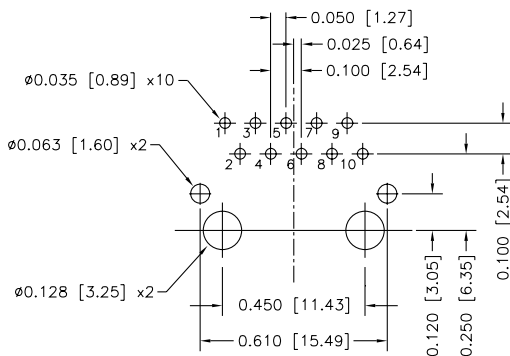
HALO Electronics is pleased to offer this new series of small footprint Gigabit single and Ganged FastJack™, integrated connectors. This series is ideal for hi-density switch applications requiring the highest performance in a minimal amount of real estate. HALO's Gigabit FastJacks™ are compatible with all leading silicon vendors' Phy's. Please contact your local HALO Representative for more information.



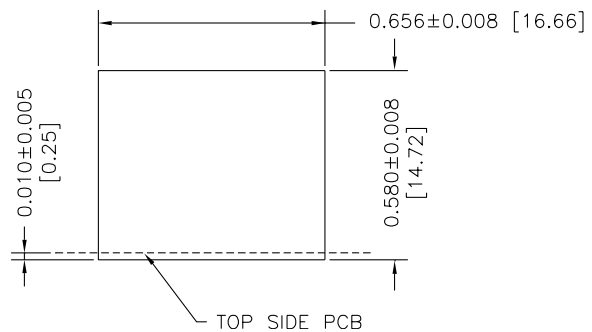
Single



Dimensions: Inch [mm]



Recommended PDB Pattern

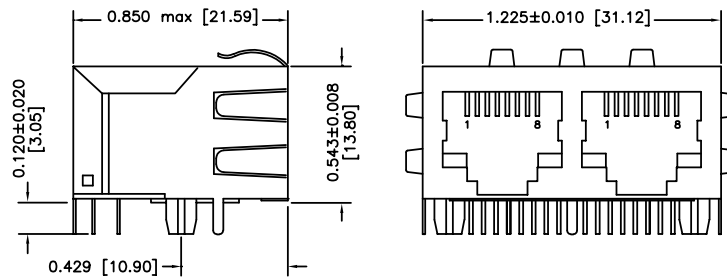
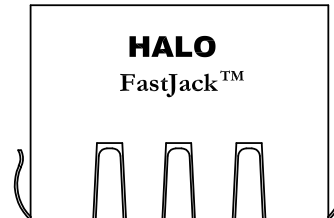


Recommended Panel Cut-out

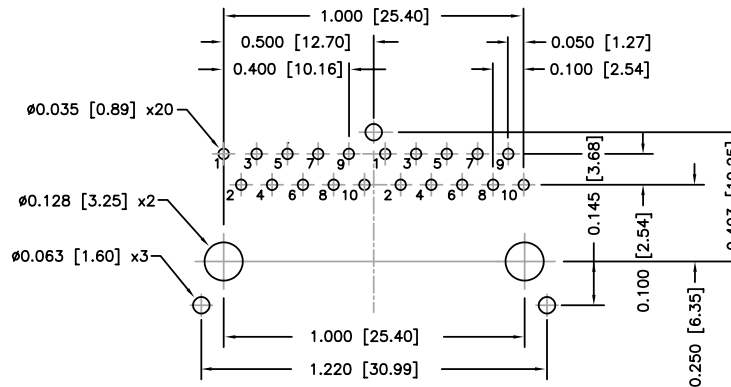


HALO Electronics is pleased to offer this new series of small footprint Gigabit single and Ganged FastJack™, integrated connectors. This series is ideal for hi-density switch applications requiring the highest performance in a minimal amount of real estate. HALO's Gigabit FastJacks™ are compatible with all leading silicon vendors' Phy's. Please contact your local HALO Representative for more information.

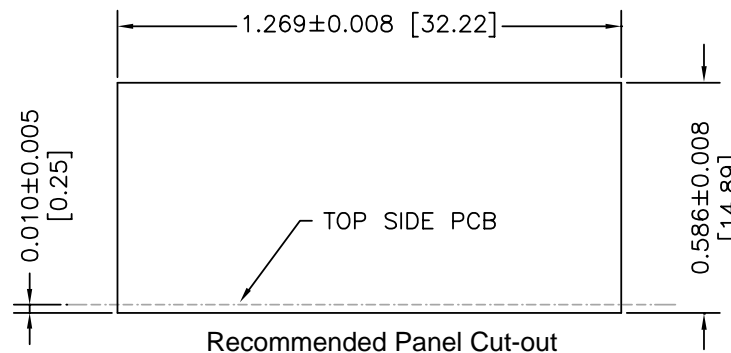
Double



Dimensions: Inch [mm]



Recommended PDB Pattern

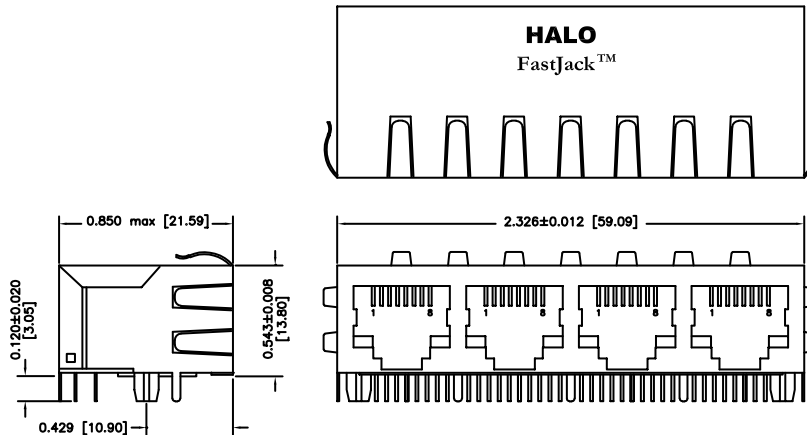


Recommended Panel Cut-out

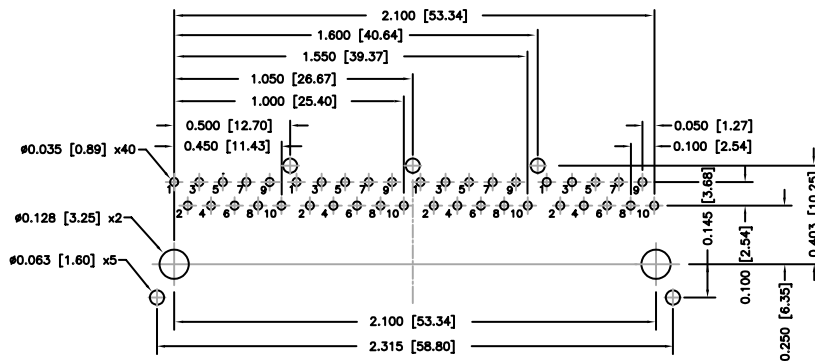


HALO Electronics is pleased to offer this new series of small footprint Gigabit single and Ganged FastJack™, integrated connectors. This series is ideal for hi-density switch applications requiring the highest performance in a minimal amount of real estate. HALO's Gigabit FastJacks™ are compatible with all leading silicon vendors' Phy's. Please contact your local HALO Representative for more information.

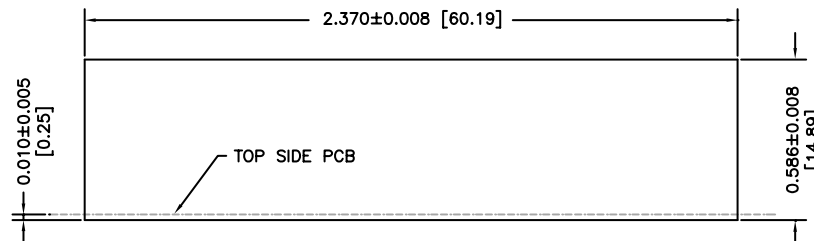
Quad



Dimensions: Inch [mm]



Recommended PDB Pattern

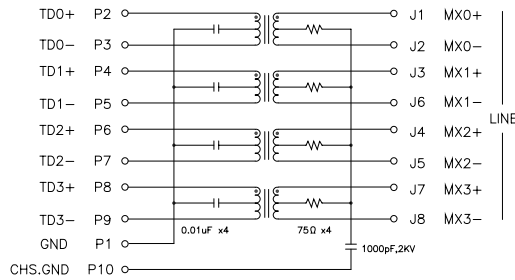


Recommended Panel Cut-out

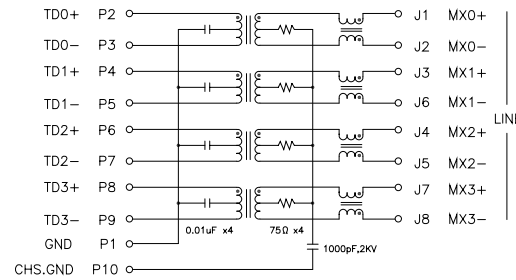
HALO Electronics is pleased to offer this new series of small footprint, low cost, Gigabit FastJack™ integrated connectors. This series has been designed and tested for the Cicada family of SimpliPhy™ products. Optimized to provide the highest return loss and insertion loss performance when used with the Cicada Phy.



Circuit A



Circuit B



Electrical Specifications @ 25°C

Operating Temp:	0 to +70°C
Isolation Voltage:	1,500Vrms
Turns Ratio:	1CT:1CT +/-2%
OCL (100KHz, 0.1Vrms, 8mA)	350µH min
Insertion Loss (0.1-100MHz)	-1.1dB Max
CMR (0.1-100MHz):	-40dB typ
Crosstalk (0.1-100MHz)	-[33-20log(F/100MHz)]dB typ



RoHS compliant versions are available.
Specify RoHS compliant product by adding the suffix "RL".

Circuit	Port Count		
	Single	1x2	1x4
A	HFJ11-1G40E	HFJ12-1G40E	HFJ14-1G40E
B	HFJ11-1G41E	HFJ12-1G41E	HFJ14-1G41E

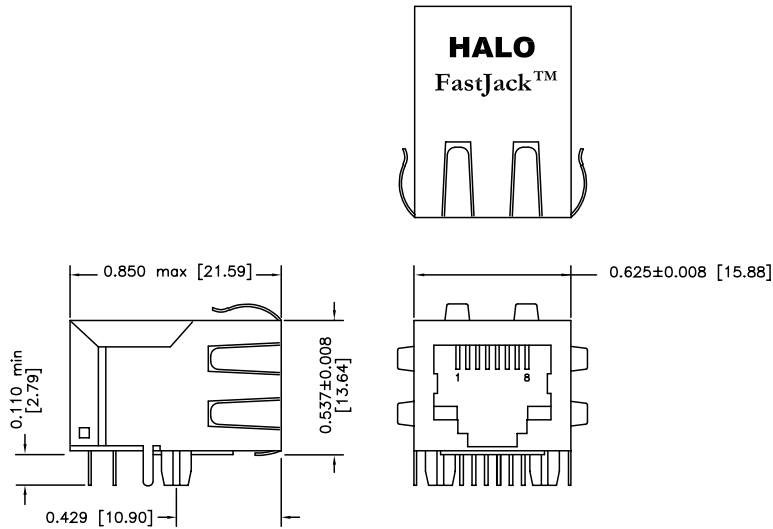
- Optional LED's are available for single and ganged FastJacks™. Please consult the LED option page for color selection and part number codes.

Please refer to the individual data sheets for more information

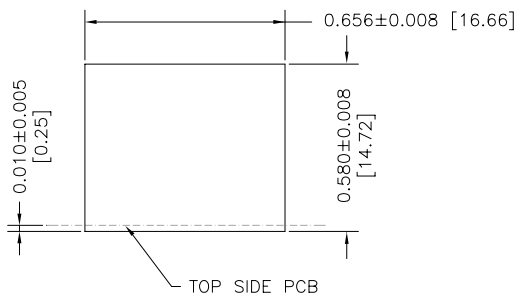


Single Port

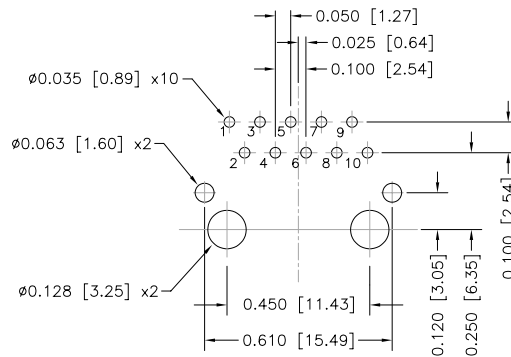
Mechanical Drawing



Recommended Panel Cutout

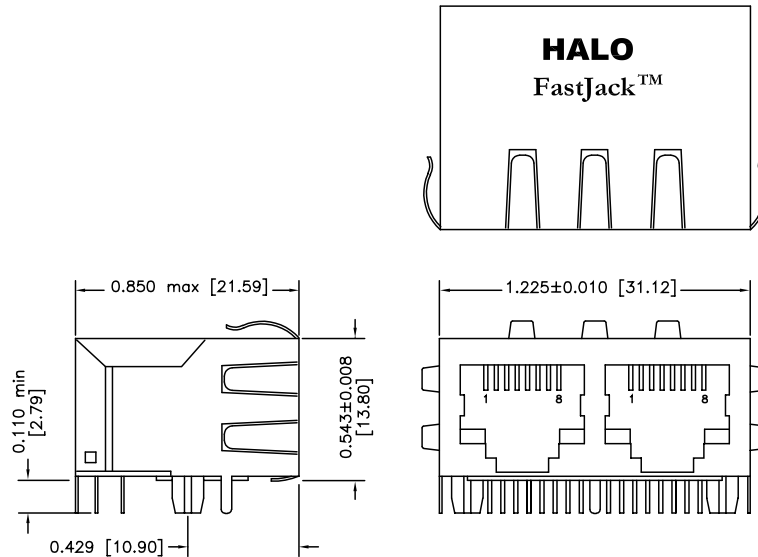


Recommended PC Layout

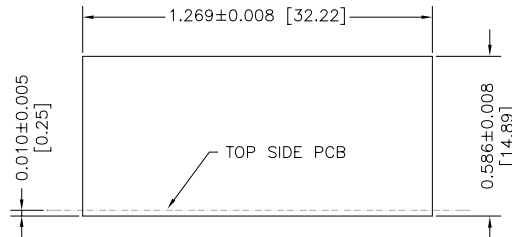




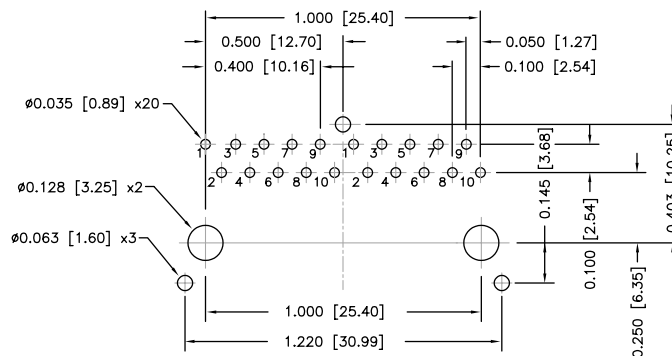
**Double Port
Mechanical Drawing**



Recommended Panel Cutout



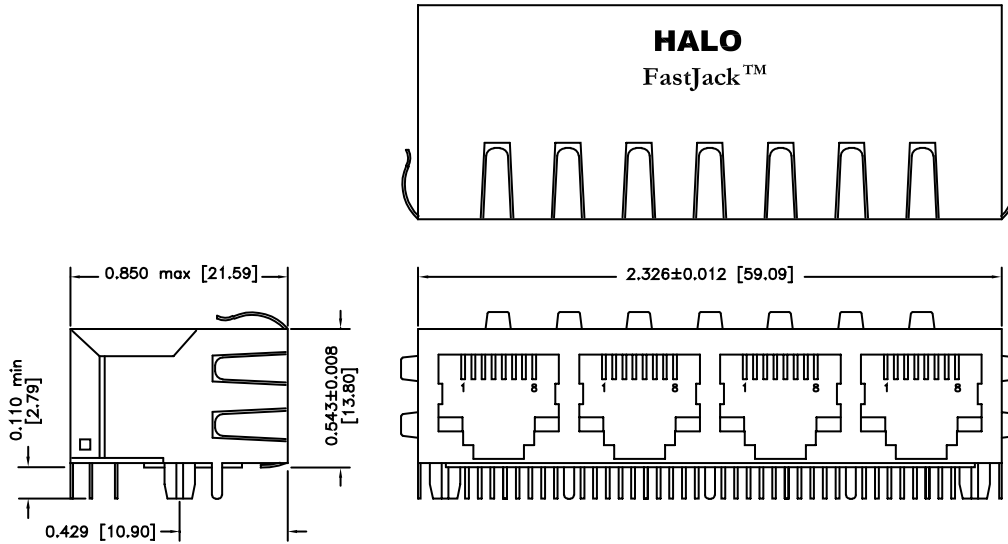
Recommended PC Layout



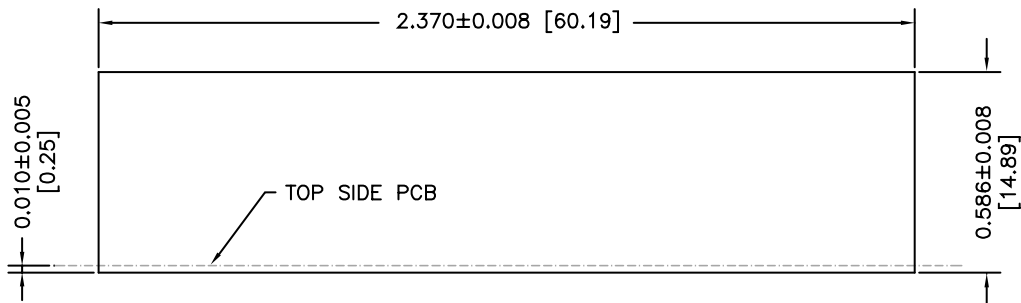


Quad Port

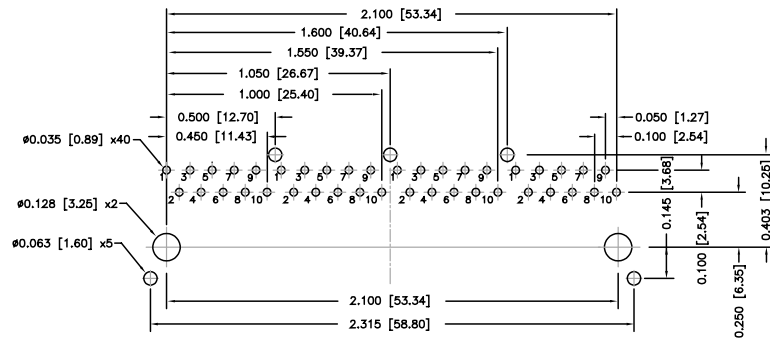
Mechanical Drawing



Recommended Panel Cutout



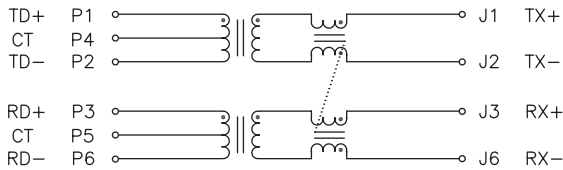
Recommended PC Layout



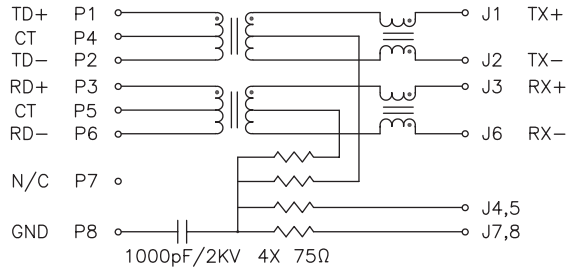
HALO is pleased to offer this complete family of single port vertical Integrated RJ-45 connectors. The Vertical FastJack™ series integrates the high performance of HALO magnetics into an industry standard vertical connector design. The result is an extremely robust, IEEE802.3 compliant solution. Vertical FastJacks™ are available for most 10BASE-T, 10/100BASE-TX and Gigabit PHY's.



10BASE-T
Circuit A



10/100BASE-TX
Circuit B



Optional LED Circuit



LED FORWARD VOLTAGE/CURRENT: 2.1V/10mA typ

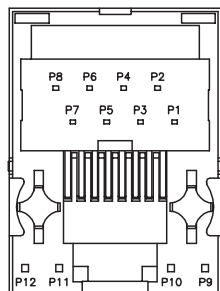
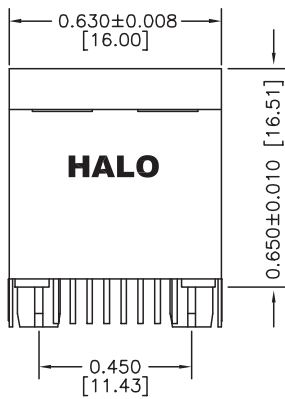
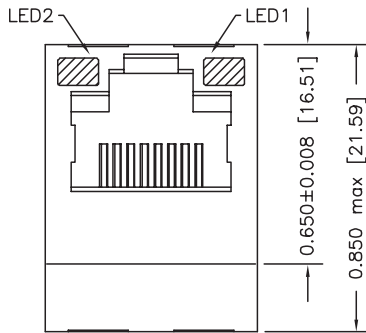
LED Option Color Table		
Suffix	LED1	LED2
L11	Green	Green
L12	Green	Yellow
L21	Yellow	Green

Additional LED options are available.
Please consult the factory

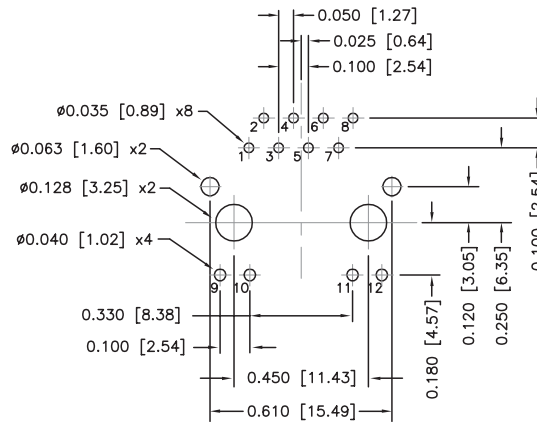
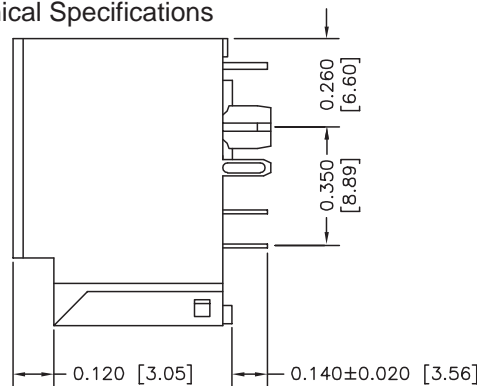
10BASE-T			10/100BASE-TX		
FastJack™	Turns Ratio		FastJack™	Turns Ratio	
Circuit A	TX	RX	Circuit B	TX	RX
HFJV1-1041	1:2.5	1:1	HFJV1-2450	1:1	1:1
HFJV1-1043	1:1.41	1:1	HFJV1-2441	1:1.41	1:1
HFJV1-1066	2:1	1:1	HFJV1-2439	1.25:1	1:1
HFJV1-1075	1:2	1:1	HFJV1-2431	1.41:1	1:1
HFJV1-1081	1:1	1:1	HFJV1-2420	2:1	1:1
HFJV1-1086	1:2	1:1			

Please see individual data sheets for complete electrical specifications.

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Mechanical Specifications



RECOMMENDED P.C. BOARD PATTERN (COMP. SIDE)
DIMENSIONS: Inch [mm]



FastJack™ Ethernet Selector Guide

10BASE-T		
Vendor	Silicon P / N	Vertical FastJack™ P/N
AMD	Am79C984A, 79C985, 79C988A, 79C989	HFJV1-1081
Cirrus Logic	CS8900-CQ/IQ, CS8920, CS8904-CM5	HFJV1-1043
Cirrus Logic	CS8900-CQ3/IQ3, CS8904-CM3	HFJV1-1041
Intel	LXT901/1A, LXT907/7A, LXT914/915	HFJV1-1043
Intel	LXT905, LXT908	HFJV1-1075
LSI	80C24/25	HFJV1-1066
RealTek	RTL8019, RTL8029	HFJV1-S101*
NSC	DP83907, DP83953	HFJV1-1086
SMSC	LAN91C95, LAN91C96 (5V)	HFJV1-S101*
SMSC	LAN91C96 (3.3V)	HFJV1-S114*

*Contact Factory for 10BASE-T Filter data sheets

10/100BASE-TX		
Vendor	Silicon P / N	Vertical FastJack™ P/N
AMD	79C873, 79C8744, 79C875	HFJV1-2450
AMD	79C973, 79C975	HFJV1-2441
Broadcom	AC101, AC104, AC205/6/7/8	HFJV1-2450
Broadcom	BCM520x, BCM522x, BCM531x	HFJV1-2450
Crystal	CS8952	HFJV1-2450
IDT	QS6611	HFJV1-2431
IDT	QS6612	HFJV1-2439
Intel	82558/9, LXT970/1/2/3, LXT976X/978X	HFJV1-2450
Intel	LXT974A, LXT975A, LXT980/2/3	HFJV1-2420
Kendin	KS8761	HFJV1-2431
Kendin	KS8737, KS8995/E, KS8993/7/9	HFJV1-2450
LSI	80C220/80C221	HFJV1-2420
LSI	80223/84220	HFJV1-2450
Marvell	88E306x, 88E605x	HFJV1-2450
NSC	DP83223, DP83843/83846A, DP83847	HFJV1-2450
RealTek	RTL8100/1, 8139, 8150, 8201/4/8, 8305/9	HFJV1-2450
SMSC	91C9111	HFJV1-2450
ST Micro	STE10/100A, STE100P	HFJV1-2450
ST Micro	STE400P, STE800P*	HFJV1-2431
TDK	78Q2120, 78Q2121	HFJV1-2450
T.I.	TNETE2101	HFJV1-2450

* Consult factory for Auto-MDIX Applications

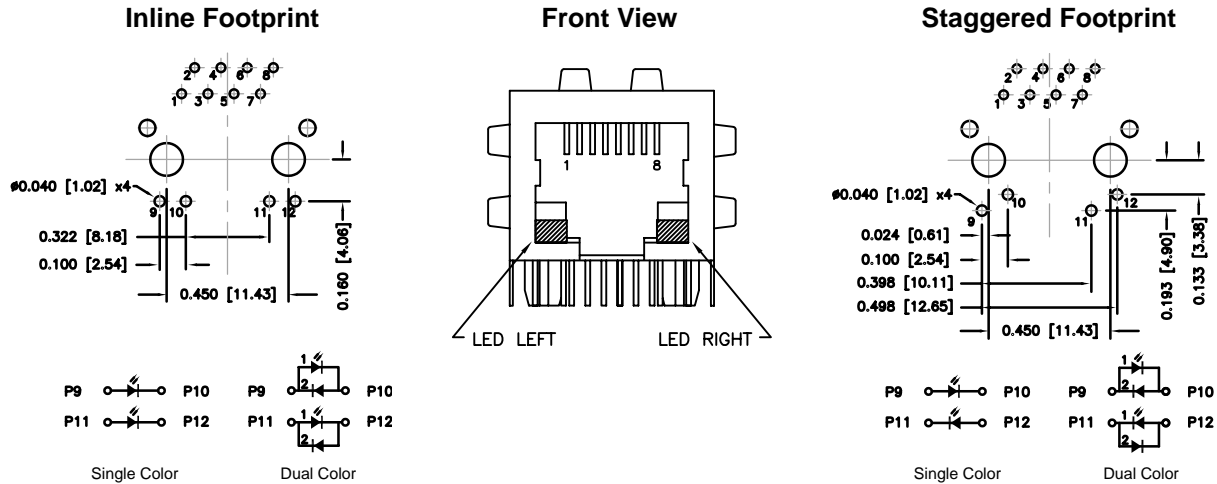
HALO Single Port FastJacks™ With Integrated LED's

HALO ELECTRONICS, INC.

HALO is pleased to offer our complete line of single port Integrated RJ-45 connectors with integrated LED's. All HFJ11, single port HALO FastJacks, are available with several LED options. To specify the LED function simply add the corresponding suffix "-Lxx" to any HALO HFJ11 part number, ie HFJ11-2450E-L11. Options include two standard footprints, color variations and current limiting function.



Single Port FastJacks™
With Integrated LED's



LED Ordering Options		Inline Footprint Current Limiting ²			Staggered Footprint Current Limiting ²		
Left LED Color	Right LED Color	N/A	3.3V	5V	N/A	3.3V	5V
Green	Green	L11	L11V3	L11V5	LS11	LS11V3	LS11V5
Green	Yellow	L12	L12V3	L12V5	LS12	LS12V3	LS12V5
Yellow	Green	L21	L21V3	L21V5	LS21	LS21V3	LS21V5
Green/Yellow ³	Green/Yellow ³	L55	-	-	LS55	-	-
Green/Yellow ³	Yellow/Green ³	L56	-	-	LS56	-	-
Green/Orange ³	Green/Orange ³	L77	-	-	LS77	-	-
Green/Orange ³	Orange/Green ³	L78	-	-	LS78	-	-

1. Typical LED forward voltage: 2.1Vdc @ 10mA.
2. When using the V3 or V5 current limiting versions, external resistors are not required. Choose the proper voltage according to the application.
3. The first color denotes LED1 in dual colors.
4. Dimensions: Inch [mm]