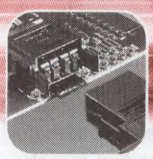




High Performance Cable Assemblies and Adapters

*VHDM is a trademark of Teradyne, Inc.

High Performance Cable Assemblies

Introduction

HIGH LEVEL SUPPORT FOR HIGH PERFORMANCE CABLE ASSEMBLIES

Developing quality, cost-effective high performance cable assemblies requires innovation and responsiveness, which is why Molex organized our High Performance Cable Assemblies Team.

Our interactive, person-to-person environment enables Molex to provide faster response to customer inquiries, as well as develop standard or custom solutions more cost-effectively. The centralized team structure also keeps sales and marketing personnel involved throughout the design and development process for more customer-focused solutions. We routinely conduct cross-functional, "real-life" analysis of designs prior to implementation, which results in more user-friendly products.

Molex Makes Designing High Performance Cable Assemblies Simple

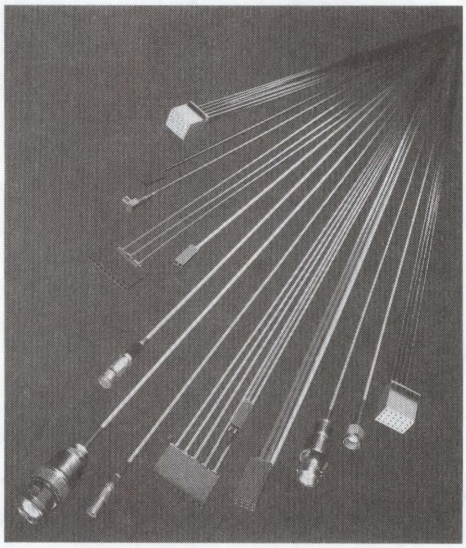
First we translate your critical design requirements like crosstalk, rise time, skew, impedance, propagation delay, capacitance and attenuation into electrical and mechanical specifications. Then we work with you to determine if one of Molex's standard interconnect products can be used "as is" or modified to meet your specifications.

If your application truly demands a custom solution, we can design and produce one cost-effectively. Our design engineers can construct computer models and test them with computer-aided electrical simulation (SPICE) — as if they were actual assemblies. Mechanical reliability and durability are calculated using Finite Element and Boundary Element Analysis. These computer programs also make it easy to create physical models and prototypes for testing purposes using Molex's in-house stereolithography, CNC and EDM systems. Once you approve the final design and prototype, Molex conducts a Process FMEA that eliminates potential failure modes from the proposed tooling design and manufacturing process.

Molex Also Provides Advanced Manufacturing for Your Cable Assemblies

Our production capabilities include computer-controlled laser wire preparation, thermo-resistance welding, ultra sonic welding, induction reflow soldering, hot bar soldering and insert molding. The finished products are subjected to Molex's stringent quality control processes, including digital/analog electrical testing.

Whether you require only selected services or start-to-finish, turnkey assistance, Molex's High Performance Cable Assemblies Team is the right choice. We have the resources and experience to meet your exact requirements and to minimize the time-to-market for your high performance cable assemblies.



FEATURES AND SPECIFICATIONS

2.54mm (.100") Pitch Z-Zone™ Electrically Characterized Cable Assemblies

2 and 3 Position Socket Assemblies

Features and Benefits

- Standard mating with .025" square or round pins
- Compatible with single, dual and triple row carrier
- Accommodates micro coaxial, micro twisted pair and micro twin axial cable constructions
- Standard cable impedance from 50 to 150Ω
- Designed for system speeds up to 800 MHz, including matched application requirements for controlled impedance and propagation rate while minimizing crosstalk
- High strength molded terminations and dual beam box contacts resistance welded to the conductors for the ultimate in electrical performance

Electrical

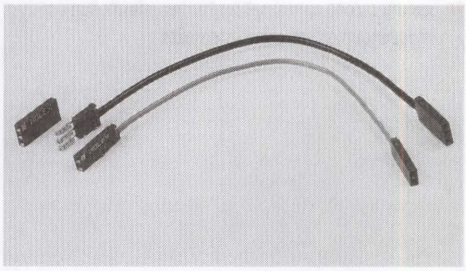
Current: 1.0A per contact cont.
Contact Resistance: 10mΩ max.
Dielectric Withstanding Voltage: 500V RMS min. @ 60 Hz
Insulation Resistance: 1 x 10^9Ω @ 500V DC

Mechanical

Insertion Force: 10 oz max. per contact
Withdrawal Force: 1oz min. per contact
Normal Force: 100g min.

Physical

Contact: Phosphor Bronze
Dielectric Material: Glass-filled liquid crystal polymer, UL 94V-0
Contact: 30µ" min. Gold plate in select area over 50µ" min. Nickel plate overall
Mating Pin Lengths: .180" min.; .340" max.
Operating Temperature: -40 to +105°C



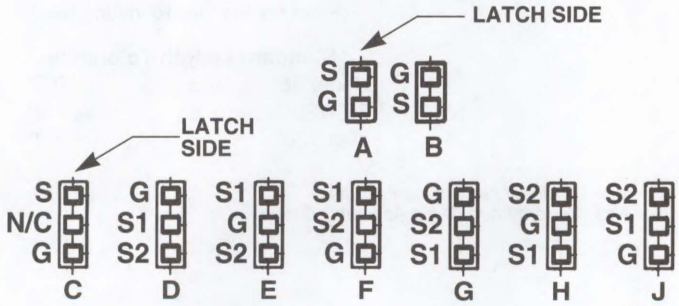
Ordering Information

Part Number specification - Fill in the part number from the information on the charts below

ZL – □□ - □□ - □□ - □□□□.□□

Left Connector | Right Connector | Cable Style | Assembly Length in inches (From mating face to mating face)

PINOUTS



For additional pinouts, contact the Molex High Performance Cable Assembly Group

Standard Length Tolerance

Under 36"	±	0.5"
36"-120"	±	1.0"
over 120"	±	2.0"

ORDERING INFORMATION

Connector		
Order No.	Description	Pinout
00	No Termination	
01	.100 by 100", 1 by 2 axial	A
02	.100 by 100", 1 by 2 axial	B
03	.100 by 100", 1 by 3 axial	C
04	.100 by 100", 1 by 3 axial	D
05	.100 by 100", 1 by 3 axial	E
06	.100 by 100", 1 by 3 axial	F
07	.100 by 100", 1 by 3 axial	G
08	.100 by 100", 1 by 3 axial	H
09	.100 by 100", 1 by 3 axial	J
XX	Special Application	

Cable Style			
Order No.	Description	Characteristic Impedance ± 10%	Material
02	Coaxial	50Ω	Conductor: Silver plated Copper Dielectric Insulator: Expanded PTFE Shield: Aluminum/Mylar Jacket: FEP
04	Coaxial	75Ω	
05	Twin-Axial	100Ω	
06	Twisted Pair	100Ω	
01	Coaxial	50Ω	Conductor: Silver plated Copper Dielectric Insulator: Expanded PTFE Shield: Braided Jacket: FEP
03	Coaxial	75Ω	
XX	Special Application		

FEATURES AND SPECIFICATIONS

2.54mm (.100) Pitch Z-Zone™ Electrically Characterized Carrier Systems

1, 2 and 3 Row Ganged Carrier for Z-Zone Assemblies

Features and Benefits

- Standard mating with .025" square or round pins
- Single row end and side stackable carriers are available from 4 to 36 positions
- Dual row end stackable carriers are available from 4 to 64 positions
- Triple row end stackable carriers are available from 6 to 96 positions and DIN carriers are available in 48 and 96 positions
- Polarized latching feature connects the Z-Zone assemblies to the Z-Zone carrier
- See the Z-Zone data sheet for further information on impedance matched cable assemblies

Electrical

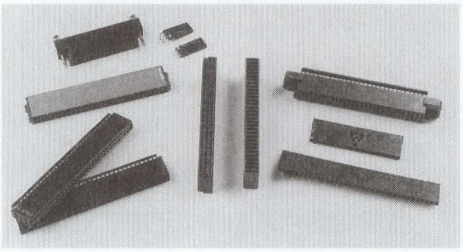
Current: 1.0A per contact cont.
Contact Resistance: 10mΩ max.
Dielectric Withstanding Voltage: 500V RMS min. @ 60 Hz
Insulation Resistance: 1 x 10⁹Ω @ 500V DC

Mechanical

Insertion Force: 10 oz max. per contact
Withdrawal Force: 1oz min. per contact
Normal Force: 100g min.

Physical

Contact: Phosphor Bronze
Dielectric Material: Glass-filled liquid crystal polymer, UL 94V-0
Contact: 30µ" min. Gold plate in select area over 50µ" min. Nickel plate overall
Mating Pin Lengths: .180" min.; .340" max.
Operating Temperature: -40 to +105°C



Ordering Information

Part Number specification - Fill in the part number from the information on the charts below

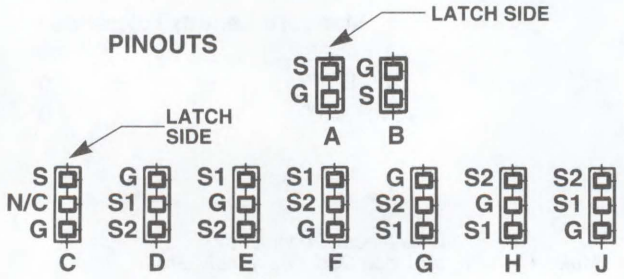
ZLC – □□ - □□ - □□ - □□ - □□ - □□□.□□

Left Connector	Right Connector	Carrier Style	Number of Positions	Cable Style	Assembly Length in inches (From mating face to mating face)

Standard Length Tolerance

Under 36"	±	0.5"
36"-120"	±	1.0"
over 120"	±	2.0"

PINOUTS



For additional pinouts, contact the Molex High Performance Cable Assembly Group

ORDERING INFORMATION

CONNECTOR		
Order No.	Description	Pinout
00	No Termination	
01	.100" by .100", 1 by 2 axial	A
02	.100" by .100", 1 by 2 axial	B
03	.100" by .100", 1 by 3 axial	C
04	.100" by .100", 1 by 3 axial	D
05	.100" by .100", 1 by 3 axial	E
06	.100" by .100", 1 by 3 axial	F
07	.100" by .100", 1 by 3 axial	G
08	.100" by .100", 1 by 3 axial	H
09	.100" by .100", 1 by 3 axial	J
XX	Special Application	

CABLE STYLE			
Order No.	Description	Characteristic Impedance ± 10%	Material
02	Coaxial	50Ω	Conductor: Silver plated Copper Dielectric Insulator: Expanded PTFE Shield: Aluminum/Mylar Jacket: FEP
04	Coaxial	75Ω	
05	Twin-Axial	100Ω	
06	Twisted Pair	100Ω	
01	Coaxial	50Ω	Conductor: Silver plated Copper Dielectric Insulator: Expanded PTFE Shield: Braided Jacket: FEP
03	Coaxial	75Ω	
XX	Special Application		

CARRIER STYLE	
Order No.	Description
01	Single Row—1 by 2
02	Single Row—1 by 3
03	Dual Row—latch and eject with center key
04	Dual Row—end stackable with center key
05	Dual Row—end stackable without center key
06	Triple Row—end stackable with center key
07	Triple Row—end stackable without center key

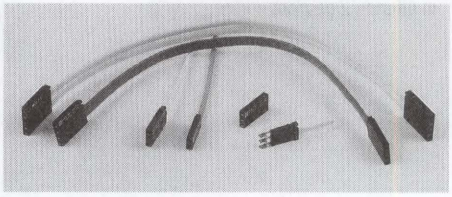
CARRIER STYLE	
Order No.	Description
08	Triple Row—DIN (available in 96 position only)
09	Triple Row—DIN with jack screw ears (available in 48 position only)
XX	Special Applications

• If carriers are not fully populated or harnessing is required, please contact Molex.

FEATURES AND SPECIFICATIONS

2.00mm (.079") Pitch Milli-Z™ Electrically Characterized Cable Assemblies

2, 3, 4 and 5 Position Socket Assemblies



Features and Benefits

- 2, 3, 4 and 5 position socket connectors
- Compatible with 1, 4, 5 and 6 row carrier systems for industry standard backplane headers. Also mates with single and dual row PCB headers
- Accommodates micro coaxial, micro twisted pair and micro twin axial cable constructions
- Standard cable impedance from 50 to 150Ω
- Designed for system speeds up to 800 MHz, including matched application requirements for controlled impedance and propagation rate while minimizing crosstalk
- High strength molded terminations and dual beam box contacts resistance welded to the conductors for the ultimate in electrical performance

Electrical

Current: 1.0A per contact cont.
Contact Resistance: 10mΩ max.
Dielectric Withstanding Voltage: 500V RMS min.
Insulation Resistance: 1 x 10^9Ω @ 500V DC

Mechanical

Insertion Force: 10 oz max. per contact
Withdrawal Force: 1oz min. per contact
Normal Force: 100g min.

Physical

Contact: Phosphor Bronze
Dielectric Material: Glass filled liquid crystal polymer, UL 94V-0
Contact: 30μ" min. Gold plate in select area over 50μ" min. Nickel plate overall
Mating Pin Lengths: .100" min.; .180" max.
Operating Temperature: -40 to +105°C

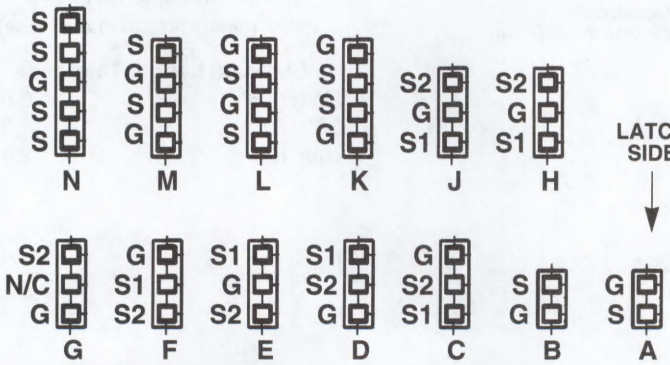
Ordering Information

Part Number specification - Fill in the part number from the information on the charts below

MZ – □□ - □□ - □□ - □□□□.□□

Left Connector | Right Connector | Cable Style | Assembly Length in inches (From mating face to mating face)

PINOUTS



For additional pinouts, contact the Molex High Performance Cable Assembly Group

Standard Length Tolerance

Under 36"	±	0.5"
36"-120"	±	1.0"
over 120"	±	2.0"

ORDERING INFORMATION

Connector		
Order No.	Description	Pinout
00	No Termination	
21	2.00mm by 2.00mm, 1 by 2 axial	A
22	2.00mm by 2.00mm, 1 by 2 axial	B
23	2.00mm by 2.00mm, 1 by 3 axial	C
24	2.00mm by 2.00mm, 1 by 3 axial	D
25	2.00mm by 2.00mm, 1 by 3 axial	E
26	2.00mm by 2.00mm, 1 by 3 axial	F
27	2.00mm by 2.00mm, 1 by 3 axial	G
28	2.00mm by 2.00mm, 1 by 3 axial	H
29	2.00mm by 2.00mm, 1 by 3 axial	J
30	2.00mm by 2.00mm, 1 by 4 axial	K
31	2.00mm by 2.00mm, 1 by 4 axial	L
32	2.00mm by 2.00mm, 1 by 4 axial	M
33	2.00mm by 2.00mm, 1 by 5 axial	N
XX	Special Application	

Cable Style			
Order No.	Description	Characteristic Impedance ± 10%	Material
08	Coaxial	50Ω	Conductor: Silver plated Copper Dielectric Insulator: Expanded PTFE Shield: Aluminum/Mylar Jacket: FEP
10	Coaxial	75Ω	
11	Twin-Axial	100Ω	
12	Twisted Pair	100Ω	
13	Twin-Axial (with dual drain)	100Ω	
07	Coaxial	50Ω	Conductor: Silver plated Copper Dielectric Insulator: Expanded PTFE Shield: Braided Jacket: FEP
09	Coaxial	75Ω	
XX	Special Application		

FEATURES AND SPECIFICATIONS

2.00mm (.079) Pitch Milli-Z™ Electrically Characterized Carrier Systems and Backplane Shroud

1, 4, 5 and 6 Row Ganged Carriers for HDM*, Futurebus,™ Metral™ and Z-Pac™ Connectors

Features and Benefits

- Milli-Z carriers are designed to combine Molex 2 to 5 position Milli-Z socket connectors
- Single row end and side stackable carriers are available from 4 to 48 positions (1 x 2) and 6 to 48 positions (1 x 3)
- 4 row end and side stackable carriers are available from 8 to 96 positions
- 4 row end stackable Futurebus carriers are available in 24 positions, 5 row are available in 24 and 30 positions
- 6 row end stackable HDM compatible carriers are available in 48 and 72 positions

Electrical

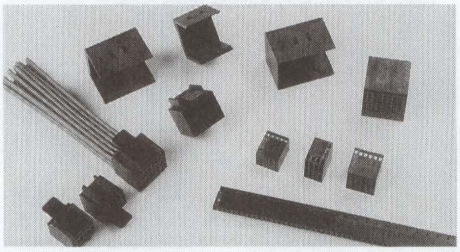
Current: 1.0A per contact cont.
Contact Resistance: 10mΩ max.
Dielectric Withstanding Voltage: 500V RMS min. @ 60 Hz
Insulation Resistance: 1 x 10^9Ω @ 500V DC

Mechanical

Insertion Force: 10 oz max. per contact
Withdrawal Force: 1oz min. per contact
Normal Force: 100g min.

Physical

Contact: Phosphor Bronze
Dielectric Material: Glass-filled liquid crystal polymer, UL 94V-0
Contact: 30µ" min. Gold plate in select area over 50µ" min. Nickel plate overall
Mating Pin Lengths: .100" min.; .180" max.
Operating Temperature: -40 to +105°C



Ordering Information

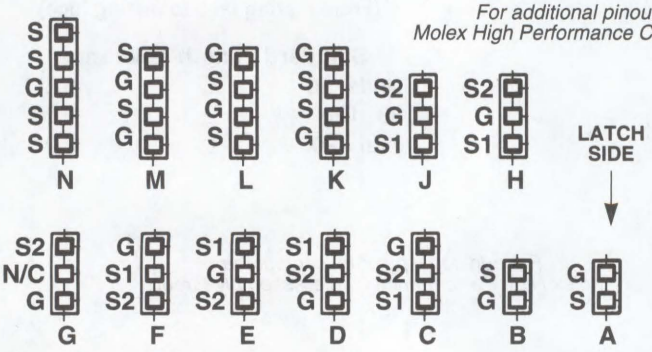
Part Number specification - Fill in the part number from the information on the charts below

MZC – □□ - □□ - □□ - □□ - □□ - □□□□.□□

Left Connector	Right Connector	Carrier Style	Number of Positions	Cable Style	Assembly Length in inches (From mating face to mating face)

PINOUTS

For additional pinouts, contact the Molex High Performance Cable Assembly Group



Standard Length Tolerance

Under 36"	±	0.5"
36"-120"	±	1.0"
over 120"	±	2.0"

ORDERING INFORMATION

CONNECTOR

Order No.	Description	Pinout
00	No Termination	
21	2.0mm by 2.0mm, 1 by 2 axial	A
22	2.0mm by 2.0mm, 1 by 2 axial	B
23	2.0mm by 2.0mm, 1 by 3 axial	C
24	2.0mm by 2.0mm, 1 by 3 axial	D
25	2.0mm by 2.0mm, 1 by 3 axial	E
26	2.0mm by 2.0mm, 1 by 3 axial	F
27	2.0mm by 2.0mm, 1 by 3 axial	G
28	2.0mm by 2.0mm, 1 by 3 axial	H
29	2.0mm by 2.0mm, 1 by 3 axial	J
30	2.0mm by 2.0mm, 1 by 4 axial	K
31	2.0mm by 2.0mm, 1 by 4 axial	L
32	2.0mm by 2.0mm, 1 by 4 axial	M
33	2.0mm by 2.0mm, 1 by 5 axial	N
XX	Special Application	

*HDM is a trademark of Teradyne, Inc.

CABLE STYLE

Order No.	Description	Characteristic Impedance ± 10%	Material
08	Coaxial	50Ω	Conductor: Silver plated Copper Dielectric Insulator: Expanded PTFE Shield: Aluminum/Mylar Jacket: FEP
10	Coaxial	75Ω	
11	Twin-Axial	100Ω	
12	Twisted Pair	100Ω	
13	Twin-Axial (with dual drain)	100Ω	
07	Coaxial	50Ω	Conductor: Silver plated Copper Dielectric Insulator: Expanded PTFE Shield: Braided Jacket: FEP
09	Coaxial	75Ω	
XX	Special Application		

CARRIER STYLE

Order No.	Description
01	Single Row—1 x 2
02	Single Row—1 x 3
03	Four Row—End & Side Stackable 1 x 2
04	Four Row—End & Side Stackable 1 x 4
05	Four Row—4 x 6 with latch for 5mm pins
06	Four Row—4 x 6 with latch for 7mm pins
07	Five Row—4 x 6 with latch for 5mm pins

CARRIER STYLE

Order No.	Description
08	Five Row—4 x 6 with latch for 7mm pins
09	Five Row—5 x 6 with latch for 5mm pins
10	Five Row—5 x 6 with latch for 7mm pins
11	Six Row End and Side Stackable 1 x 3
12	Six Row with latch for 5mm pins
XX	Special Applications

EXTERNAL CABLE ASSEMBLY

- Designed for data rates of 133 Mbps up to 2.125 Gbps
- Standard cable impedance of 150Ω featuring Z-Skew Shielded simplex and quad cable constructions
- Assembly lengths up to 35m exceeding the Fibre Channel eye pattern requirement
- Available up to 20m without equalization and up to 35m with equalization
- External DB9 jackscrew style terminations feature overmolding for excellent strain relief and durability
- 360˚ termination of the external shield to the DB9 backshell for excellent EMI control
- DB9 loopback adapter plug and receptacle also available

Fibre Channel/ Gigabit Ethernet Inter-Cabinet Electrically Characterized Cable Assemblies

External Cable Assemblies

DB9 PLUG TO PLUG		
Order No.	Wire Gague	Length
73884-0012	30 AWG	1.5m
73884-0011	30 AWG	0.6m
73884-0009	30 AWG	12"
73884-0008	30 AWG	0.5m
73884-0002	30 AWG	1.0m
73884-0005	30 AWG	2.0m
73884-0006	30 AWG	3.0m
73884-0007	30 AWG	3.5m
73884-0003	30 AWG	5.0m
73884-0004	28 AWG	10.0m
73884-0001	22 AWG	20.0m

DB9 PLUG TO RECEPTACLE		
Order No.	Wire Gague	Length
73899-0001	30 AWG	18"
73899-0002	30 AWG	2.0m
73899-0003	30 AWG	3.0m

EQUALIZED DB9 PLUG TO PLUG		
Order No.	Wire Gague	Length
73885-0001	22 AWG	30.0m
73885-0002	22 AWG	33.0m

DB9 PLUG TO RECEPTACLE WITH POWER AND ID LINES	
Order No.	Length
73070-1002	18"
73070-1001	10.25"

DB9 PLUG TO PLUG AND RECEPTACLE		
Order No.	Wire Gague	Length
73068-0004	30 AWG	0.5m
73068-0003	30 AWG	0.2m
73068-0002	30 AWG	1.0m
73068-0001	30 AWG	2.0m

INTERNAL CABLE ASSEMBLY

- Designed for data rates of 133 Mbps up to 2.125 Gbps
- Standard cable impedance of 150Ω featuring Z-Skew Shielded simplex and duplex cable constructions
- Assembly lengths up to 35m exceeding the Fibre Channel eye pattern requirement
- Available up to 20m without equalization and up to 35m with equalization
- External DB9 jackscrew style terminations feature overmolding for excellent strain relief and durability
- 360˚ termination of the external shield to the DB9 backshell for excellent EMI control

Fibre Channel/ Gigabit Ethernet Intra-Cabinet Electrically Characterized Cable Assemblies

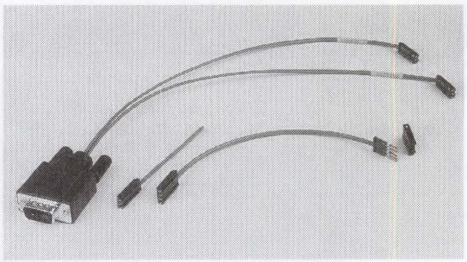
Internal Cable Assemblies

DB9 PLUG TO DUAL 1 by 3		
Order No.	Wire Gauge	Length
73041-0001	30 AWG	0.5m
73041-0002	30 AWG	1.0m
73041-0003	30 AWG	5.0m
73041-0004	28 AWG	10.0m
73041-0005	30 AWG	2.0m

DB9 RECEPTACLE TO DUAL 1 by 3		
Order No.	Wire Gauge	Length
73043-0001	30 AWG	24"
73043-0002	30 AWG	12"
73043-0003	30 AWG	18"
73043-0004	30 AWG	1.0m

1 by 3 TO 1 by 3		
Order No.	Wire Gauge	Length
73046-0001	30 AWG	12"
73046-0002	30 AWG	18"
73046-0003	30 AWG	24"
73046-0004	30 AWG	1.0m
73046-0005	30 AWG	5.0m
73046-0006	28 AWG	10.0m
73046-0007	30 AWG	5"
73046-0008	30 AWG	36"
73046-0009	30 AWG	0.5m
73046-0010	30 AWG	8"
73046-0011	30 AWG	2.0m
73046-0012	30 AWG	3.0m

1 by 4 TO 1 by 4		
Order No.	Wire Gauge	Length
73082-0001	30 AWG	18"

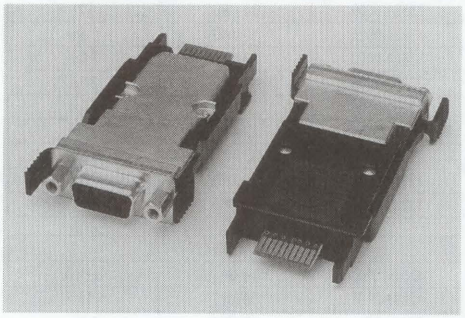


Fibre Channel/ Gigabit Ethernet Copper GBIC Adaptor and Frame

- Die cast clamshell provides full EMI shielding
- Plastic tray utilizes semi-conductive material for static dissipation
- Mates with Molex GBIC guide rail/frame
- Staggered latch ears for closer spacing
- Meets all requirements for the Fibre Channel GBIC and Gigabit Ethernet standards
- EEPROM chip available for system communication

Copper GBIC Adaptor and Frame	
GBIC Adapter	GBIC Frame
73086-0001	73847-0001

Gigabit Interface Connector



HIGH PERFORMANCE CABLE ASSEMBLIES

- Unique Low Force Helix terminal allows for high speed, high density cabling applications
- Wire is terminated to terminal sticks by direct weld, solder or paddle card
- Termination of cable sizes ranging from 26 to 36 AWG
- Full EMI shielding provided by metal backshell
- Circuit sizes available from 60 to 240 positions
- System performance exceeding 1GHz, for standard cable impedances from 50 to 150Ω

Contact High Performance Cable Group for custom order numbers

1.27mm (.050") Pitch LFH™ Electrically Characterized I/O Assemblies

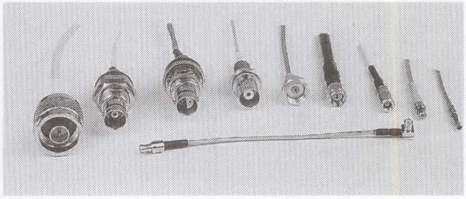
High Performance Cable Assemblies Assorted Products

CIRCULAR RF ASSEMBLIES

- BNCs are available in cable end plug, cable end jack, front and rear panel mount jack and twin BNC connections; SMA, SMB, Nanohex, SSMB and other RF style connectors are also available
- Standard component and cable impedances of 50, 75 and 100Ω
- Terminated to microwave and subminiature coaxial and twin-axial cable
- Accommodates system speeds up to 4 GHz
- High strength molded terminations for reliability in critical applications
- Mates with Z-Zone™, Milli-Z™ and LFH terminations

Circular RF Assemblies Electrically Characterized

Use with Microwave and Subminiature Coaxial and Twin-Axial Cable



HIGH PERFORMANCE CABLE ASSEMBLIES

- Six and eight position socket connectors with multi-wafer configurations also available
- Mates with industry standard VHDM backplane systems
- Ground plane design allows for 100 real signals per inch
- Accommodates micro coaxial, micro twisted pair and micro twin axial cable constructions
- Standard cable impedances from 50 to 150Ω
- Designed for system speeds up to 3-4 Gbs, including matched application requirements for controlled impedance and propagation rate while minimizing crosstalk
- Keying and latching features
- Internal and External (EMI controlled)

*VHDM is a trademark of Teradyne, Inc.

2.00 by 2.25mm (.079 by .089") Pitch VHDM* Compatible Electrically Characterized

High Performance Cable Assemblies