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High Voltage Board to Cable Connectors

MDF51 Series





1. Easy and simple mating

Built-in locks assure correct and complete mating with a single push on the plug.

- 2. Reduced space requirement Vertical mating direction and built-in self-aligning features eliminate the need for the extra space when mating / unmating.
- **3. Designed for high voltage applications** Large contact pitch and the creepage distance maintain stable and safe performance at high voltage levels.
- Secure attachment to the board Soldering at 4 points secure the headers to the board.
- 5. Secure hold during the soldering operation. Through-hole termination header (12mm pitch only) incorporates a hold-down feature to prevent dislocation during the soldering operation.
- 6. UL, C-UL, and TÜV certified (12mm pitch only)
- 7. RoHS compliant

All components and materials comply with the requirements of EU Directive 2002/95/EC.

Applications

LCD TV backlights, FPD power supplies and other applications requiring small high-voltage connectors.







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Specifications							
		1 A	Operating temperature range	-35°C to +85°C (Note 1)			
Botingo	Current rating		Operating humidity range	RH 20% to 80%			
Ratings	Voltage rating 3000 V AC/DC		Storage temperature range	-10°C to +60°C (Note 2)			
		Storage humidity range	RH 40% to 70% (Note 2)				

		UL, C-UL	ΤÜV
Ratings	Current rating	1A	1A
	Voltage rating	1000V AC/DC	1000V AC/DC

■File and recognition numbers: UL and C-UL : E52653 TÜV : R50085755

Item	Specification	Conditions	
1. Insulation resistance	1000 MΩ min.	500 V DC	
2. Withstanding voltage	No flashover or insulation breakdown	5000 V AC / 1 minute	
3. Contact resistance	20 mΩ max.	20 mV max., at 1 mA .	
4 Mileration	No electrical discontinuity of 1 μ s or longer	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm,	
4. Vibration	No damage, cracks or parts dislocation.	10 cycles, 3 axis	
C. Oheeli	No electrical discontinuity of 1 μ s or longer	Acceleration of 490 m/s ² , 11 ms duration, sine half-wave,	
5. Shock	No damage, cracks or parts dislocation.	3 cycles in each of the 3 axis	
	Contact resistance: 40 mΩ max.,		
6. Humidity	Insulation resistance: 500 M Ω min.	96 hours at of 40 $\pm 2^{\circ}$ C, and humidity of 90 to 95%	
	No damage, cracks or parts dislocation.		
	Contact resistance: 40 mΩ max.,	-55° C → 5 to 35° C → 85° C → 5 to 35° C	
7. Temperature cycle	Insulation resistance: 500 M Ω min.	Times: 30 min. \rightarrow 3 min. \rightarrow 2 min. to 3 min. \rightarrow 30 min. \rightarrow 2 min. to 3 min.	
	No damage, cracks or parts dislocation.	5 cycles	
0. Dunchility	Contact resistance: 40 mΩ max.	00 million	
8. Durability	No damage, cracks or parts dislocation.	30 cycles	
		Reflow: At the recommended temperature profile (MDF51SU	
9. Resistance to soldering heat	No deformation of components affecting	Flow: Solder temperature 260°C, 10 seconds (MDF51K and MDF51SY	
	performance	Manual soldering: 380°C for 3 seconds	

Note 1. Includes temperature rise caused by current flow.

Note 2. The term "storage" refers to products stored for a long period prior to mounting and use.

The operating temperature and humidity range covers the non-conducting condition of installed connectors in storage, shipment or during transportation.

Note 3. Information contained in this catalog represents general requirements for this Series. Contact us for the drawings and specifications for a specific part number shown.

Materials/Finishes

Headers

Part	Material	Finish	Remarks
	MDF51K PBT	Color: Black	
Insulator	MDF51SU: Polyamide	Color: Beige	UL94V-0
	MDF51SY: Polyamide	Color: Black	
Contacts	Brass	Tin plated	

Crimp socket

Part	Material	Finish	Remarks
Socket Insulator	MDF51: Polyamide	Color: White	UL94V-0
Socket Insulator	MDF51SU: Polyamide	Color: Gray	01947 0
Crimp contacts	Phosphor bronze	Tin plated	

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Crimp socket

$$\frac{\text{MDF51}}{6} \stackrel{\#}{\sim} - \stackrel{*}{\otimes} \stackrel{\text{S}}{\circ} - \stackrel{12}{\circ} \stackrel{\text{C}}{\circ}$$

Series name : MDF51	Number of contacts : 2
Configuration type	Connector type S: Crimp socket
Blank : Contact pitch 12mm, standard	G Contact pitch 12mm or 13mm
SU : Contact pitch 13mm, standard	6 Termination C: Crimp

Contacts

$$\mathsf{MDF51} - \frac{\mathbf{24}}{\mathbf{0}} \frac{\mathsf{SCF}}{\mathbf{0}}$$

Applicable conductor	Packaging
24: AWG# 24	SCF: Female crimp contact / reel

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260 2

Part Number	CL No.	Number of contacts	Insulator Color	Packaging	RoHS
MDF51K-2P-12DSA(20)	547-2017-9-20	2	Black	150 pieces/ tray	YES
0					

Order by number of 150.

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●Crimp socket







• Contacts supplied separate





Part Number	CL No.	Number of contacts	Insulator Color	Packaging	RoHS
MDF51-2S-12C	547-2004-7-00	2	White	100 pieces/bag	YES

Order by number of bags.

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Order by number of reels.

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•Header, Straight, through hole









Recommended PCB mounting pattern (Thickness: 1.6mm)





Packaging Specification

All dimensions: mm



Part Number	CL No.	Number of contacts	Insulator Color	Packaging	RoHS
MDF51SY-2P-13DSA(21)	547-0920-3-21	2	Black	120 pieces/tray	YES
Order by myscher of 100					

Order by number of 120.

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•Crimp socket









Contact No.1 indicator



Part Number	CL No.	Number of contacts	Insulator Color	Packaging	RoHS
MDF51SU-2S-13C(03)	547-2018-1-03	2	Gray	100 pieces/bag	YES

Order by number of bags.



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●Crimp contact

Part Number	CL No.	Packaging	Quantity	Finish	RoHS
MDF51-24SCF(40)	547-2005-0-40	Reel	10,000	Tin plated	YES

•Applicable wire (Tin plated annealed copper wire)

Wire size (Stranded wire conductor)	Jacket diameter
AWG24 (19 / 0.127mm)	1.74mm

Note: When using other than the recommended wire, contact your nearest Hirose sales representative.

Tools

Туре	Part Number	CL No.	Applicable contact
Applicator	AP105-MDF51-24S	CL901-4607-9-00	MDF51-24SCF
Press	CM-105	CL901-0005-4-00	
Contact extraction tool	DF-C-PO(B)	CL550-0179-2-00	MDF51-24SCF

All dimensions: mm

OUL style: UL3239

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Strip length
1.8 to 2.6mm

B330 **HS**

■Usage Recommendations

1. Recommended temperature profile			
	Temperature (°C)		
	250 <u>255°CMAX</u>		
	$230^{\circ}C$		
	150 <u>60~120sec</u>		
	Time (Seconds)		
	Note 1: Up to 2 cycles of Reflow soldering are possible under the same conditions,		
	provided that there is a return to normal temperature between the first and second cycle.		
	Note 2: The temperature profile indicates the board surface temperature at the point of contacts with the connector terminals.		
2. Recommended flow temperature	Peak temperature: 260°C for 10 seconds max.		
3. Recommended manual soldering	Manual soldering: 380°C for 3 seconds		
4. Recommended screen thickness	Thickness: 0.15 mm		
and open area ratio (Pattern area ratio)	Open area ratio: 100%		
5. Board warpage	Maximum of 0.03 mm at the connector center, with both ends of the connector as reference points.		
6. Cleaning conditions	Refer to "Nylon Connector Use Handbook".		
	Refer to "Nylon Connector Use Handbook".		
7. Wire preparation and contact The crimp contact termination must be performed using specified tools.			
crimping	All dimensions and crimp conditions are listed in applicable Crimp Condition Table and		
	Crimping Quality Standards Manual.		

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