

Overview

The HD-EFI product series is a micro-miniature interface designed to allow large board tolerance stack ups, blind mating, and multiple RF lines. This is achieved by maximizing radial and axial float while maintaining high frequency RF performance.

HD-EFI PCB jacks are available in through-hole, surface mount, and edge launch designs. The three-piece mating system uses a limited detent and a smooth bore PCB connector, joined by a floating bullet adapter in between. The generous gathering cone and unique bullet design allows for 1.4mm of axial float, and 1.4mm of radial float, with a maximum float angle of 5 degrees.

These 50 ohm products have an operating frequency of DC to 6 GHz, making them ideal for high-performance applications with a small package size. The selection of PCB mounts and bullet lengths offer versatility for board launches and PCB stacking configurations.

HD-EFI bullet adapters are uniquely designed to provide a crash-proof mating, facilitated by the extension of the insulator beyond the adapter body. Used in conjunction with the smooth bore connectors, the mating system allows for easy alignment and a secure connection.

Features and Benefits

- Designed to maximize radial and axial float in board-to-board applications
- Available in through-hole, surface mount, and edge launch configurations
- Provides crash-proof mating

Applications

- Wireless Base Station Equipment
- Backplane Design
- Multiple Board to Board Connections
- Complex PCB Stack-ups

Amphenol RF

Four Old Newtown Road
Danbury, CT 06810

For more information visit www.amphenolrf.com
or call 800.627.7100



Ordering Information

PCB Mount Jack, Male Contact

	Smooth Bore	Limited Detent
Surface Mount	920-501J-53P	920-502J-52P
Through Hole	920-503J-53P	920-504J-52P
Edge Mount	920-508J-53P	920-507J-52P



920-503J-53P



920-504J-52P



920-508J-53P

Bullet Adapter, Female Contact

Part Number	Description	PCB Spacing
920-505A-51S	Bullet Adapter, 8.38mm	12.12mm
920-506A-51S	Bullet Adapter, 7.72mm	11.46mm
920-509A-51S	Bullet Adapter, 13.02mm	16.76mm



920-505A-51S



920-506A-51S



920-509A-51S

Amphenol® RF

Technical Specifications

Electrical

Impedance	50 Ω			
Frequency Range	DC - 6 GHz			
Voltage Rating	335 VRMS			
Dielectric Withstanding Voltage	1000 VOLTS			
Contact Resistance	Center Contact	5 mΩ Max (Initial)		
	Outer Contact	5 mΩ Max (Initial)		
Insulator Resistance	5000 MΩ Min			
Return Loss / VSWR (Typical for board-to-board connection)	Axial Misalignment	DC to 2 GHz	2 to 4 GHz	4 to 6 GHz
		± 0.7 mm	24 dB (1.14)	20 dB (1.22)
		± 0.3 mm	28 dB (1.08)	25 dB (1.12)
Insertion Loss (Mated Solution)	DC - 3 GHz	-0.14dB		
	3 - 6 GHz	-0.27dB		
Isolation	70dB Min @ Up to 4 GHz @ 8mm Pitch			
3rd Order Intermodulation	930 & 955 MHz (2X43 dBm)	-163dBc Max (Low PIM Design)		
Power Handling	40 W @ 2.6 GHz @ 95° C Tested			
	120 W @ 2.5 GHz @ 95° C Tested			

Mechanical

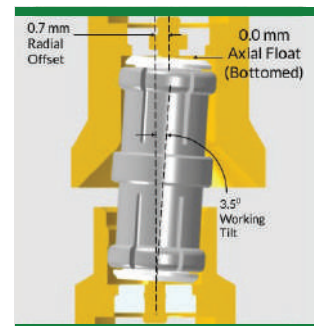
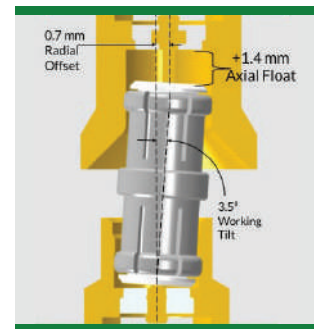
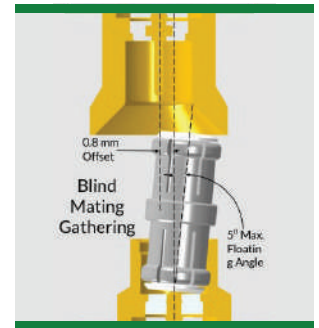
Interface Mating Forces	Engagement	12 N Max (Smooth Bore), 25 N Max (Limited Detent)
	Disengagement	2 - 6 N (Smooth Bore), 9 N Min (Limited Detent)
Connector Durability	50 Cycles Min. (Limited Detent)	
	200 Cycles Min. (Brass Housing) (Smooth Bore)	
Center Pin Mating Forces	Engagement	3 N Max (Ø 0.52mm Max Pin with Chamfer)
	Disengagement	0.2 N Min (Ø 0.48mm Min Pin with Chamfer)
Outer Contact Mating Forces	Engagement	8 N Max (Ø 3.52mm Min Hole with Chamfer)
	Disengagement	1 N Min (Ø 3.58mm Min Hole with Chamfer)
Mechanical Misalignment	Axial	±0.7 mm
	Radial	±0.7 mm, ±0.75 mm for 13.02 mm bullet
Max Floating Angle	5° Edge and Surface Mount Parts, 3.5° Through-hole Mount Parts	
Min Board to Board Distance	11.46 mm	

Environmental

Temperature Range	-45°C To 125°C
Thermal Shock	MIL-STD-202, Method 107, condition B
Corrosion Resistance	MIL-STD-202, Method 101, condition B
Humidity/Temperature Cycling	MIL-STD-202, Method 106, condition A
Temperature Life	250 Hours at 125° C
	No Damage to Parts
Vibration	MIL-STD-202, Method 204, condition B
Mechanical Shock	MIL-STD-202, Method 213, condition A

Materials

Body	Brass, Gold Plated	
Outer Contacts	Contact	Beryllium Copper, White Bronze Plated
	Stamped Version	Beryllium Copper, White Bronze Plated
Center Contacts	Female	Beryllium Copper Heat Treated, Gold Plated
	Male	Brass, Gold Plated
	Stamped Version	Copper Alloy, Gold Plated
Insulators	Bullet	Delrin, Natural
	PCB Surface/Through-Hole Mount	LCP, Natural
	PCB Edge Mount	PTFE, Natural



Amphenol RF

Four Old Newtown Road
Danbury, CT 06810

For more information visit www.amphenolrf.com
or call 800.627.7100