



## Übersicht zu Automotiven Datensteckverbindern von WCON

Fakra Connector System

Mini Fakra Connector System

Ethernet Connector System

HSD Connector System

*wittig ELECTRONIC GmbH*  
Gewerbegebiet Süd Nr. 5  
D-09618 Brand-Erbisdorf

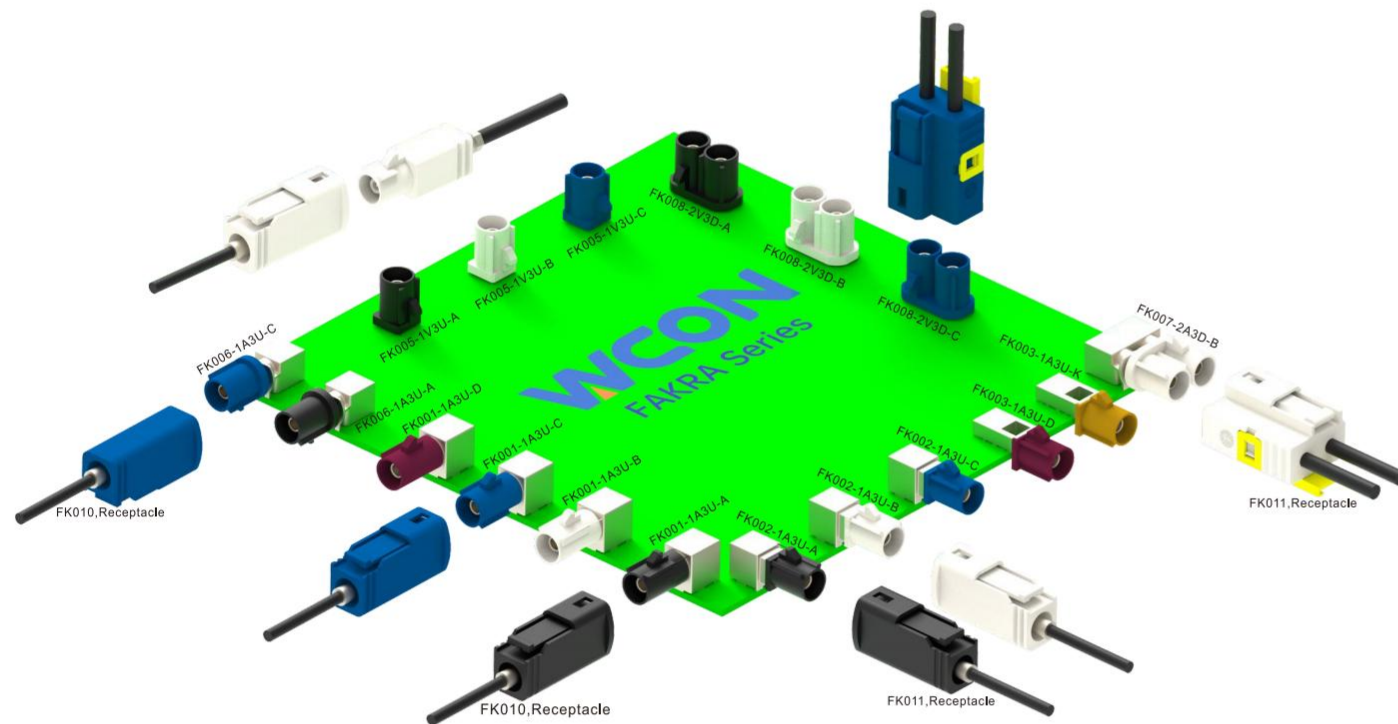
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[www.wittig-electronic.de](http://www.wittig-electronic.de)

Board-Mounting  
S/T DIP:Vertical T/H  
R/A DIP:Horizontal T/H  
R/A SMT:Horizontal SMT

**FAKRA Series**



Part Number	Board-Mounting	Key Code	Picture
FK001 -1A3U -A	Right Angle	A	
FK001 -1A3U -B	Right Angle	B	
FK001 -1A3U -C	Right Angle	C	
FK001 -1A3U -D	Right Angle	D	
FK001 -1A3U -E	Right Angle	E	
FK001 -1A3U -F	Right Angle	F	
FK001 -1A3U -G	Right Angle	G	
FK001 -1A3U -H	Right Angle	H	
FK001 -1A3U -I	Right Angle	I	
FK001 -1A3U -K	Right Angle	K	
FK001 -1A3U -L	Right Angle	L	
FK001 -1A3U -M	Right Angle	M	
FK001 -1A3U -N	Right Angle	N	
FK001 -1A3U -Z	Right Angle	Z	
FK002 -1A3U -A	Right Angle	A	
FK002 -1A3U -B	Right Angle	B	
FK002 -1A3U -C	Right Angle	C	
FK002 -1A3U -D	Right Angle	D	
FK002 -1A3U -E	Right Angle	E	
FK002 -1A3U -F	Right Angle	F	
FK002 -1A3U -G	Right Angle	G	
FK002 -1A3U -H	Right Angle	H	
FK002 -1A3U -I	Right Angle	I	
FK002 -1A3U -K	Right Angle	K	
FK002 -1A3U -L	Right Angle	L	
FK002 -1A3U -M	Right Angle	M	
FK002 -1A3U -N	Right Angle	N	
FK002 -1A3U -Z	Right Angle	Z	

Part Number	Board-Mounting	Key Code	Picture
FK003 -1A3U -A	Right Angle	A	
FK003 -1A3U -B	Right Angle	B	
FK003 -1A3U -C	Right Angle	C	
FK003 -1A3U -D	Right Angle	D	
FK003 -1A3U -E	Right Angle	E	
FK003 -1A3U -F	Right Angle	F	
FK003 -1A3U -G	Right Angle	G	
FK003 -1A3U -H	Right Angle	H	
FK003 -1A3U -I	Right Angle	I	
FK003 -1A3U -K	Right Angle	K	
FK003 -1A3U -L	Right Angle	L	
FK003 -1A3U -M	Right Angle	M	
FK003 -1A3U -N	Right Angle	N	
FK003 -1A3U -Z	Right Angle	Z	
FK005 -1V3U -A	Right Angle	A	
FK005 -1V3U -B	Right Angle	B	
FK005 -1V3U -C	Right Angle	C	
FK005 -1V3U -D	Right Angle	D	
FK005 -1V3U -E	Right Angle	E	
FK005 -1V3U -F	Right Angle	F	
FK005 -1V3U -G	Right Angle	G	
FK005 -1V3U -H	Right Angle	H	
FK005 -1V3U -I	Right Angle	I	
FK005 -1V3U -K	Right Angle	K	
FK005 -1V3U -L	Right Angle	L	
FK005 -1V3U -M	Right Angle	M	
FK005 -1V3U -N	Right Angle	N	
FK005 -1V3U -Z	Right Angle	Z	

Part Number	Board-Mounting	Key Code	Picture
FK006 -1A3D -A	Right Angle	A	
FK006 -1A3D -B	Right Angle	B	
FK006 -1A3D -C	Right Angle	C	
FK006 -1A3D -D	Right Angle	D	
FK006 -1A3D -E	Right Angle	E	
FK006 -1A3D -F	Right Angle	F	
FK006 -1A3D -G	Right Angle	G	
FK006 -1A3D -H	Right Angle	H	
FK006 -1A3D -I	Right Angle	I	
FK006 -1A3D -K	Right Angle	K	
FK006 -1A3D -L	Right Angle	L	
FK006 -1A3D -M	Right Angle	M	
FK006 -1A3D -N	Right Angle	N	
FK006 -1A3D -Z	Right Angle	Z	
FK007 -2A3D -A	Right Angle	A	
FK007 -2A3D -B	Right Angle	B	
FK007 -2A3D -C	Right Angle	C	
FK007 -2A3D -D	Right Angle	D	
FK007 -2A3D -E	Right Angle	E	
FK007 -2A3D -F	Right Angle	F	
FK007 -2A3D -G	Right Angle	G	
FK007 -2A3D -H	Right Angle	H	
FK007 -2A3D -I	Right Angle	I	
FK007 -2A3D -K	Right Angle	K	
FK007 -2A3D -L	Right Angle	L	
FK007 -2A3D -M	Right Angle	M	
FK007 -2A3D -N	Right Angle	N	
FK007 -2A3D -Z	Right Angle	Z	

Part Number	Board-Mounting	Key Code	Picture
FK007 -2A3D -A	Right Angle	A	
FK007 -2A3D -B	Right Angle	B	
FK007 -2A3D -C	Right Angle	C	
FK007 -2A3D -D	Right Angle	D	
FK007 -2A3D -E	Right Angle	E	
FK007 -2A3D -F	Right Angle	F	
FK007 -2A3D -G	Right Angle	G	
FK007 -2A3D -H	Right Angle	H	
FK007 -2A3D -I	Right Angle	I	
FK007 -2A3D -K	Right Angle	K	
FK007 -2A3D -L	Right Angle	L	
FK007 -2A3D -M	Right Angle	M	
FK007 -2A3D -N	Right Angle	N	
FK007 -2A3D -Z	Right Angle	Z	
FK008 -2V3U -A	Right Angle	A	
FK008 -2V3U -B	Right Angle	B	
FK008 -2V3U -C	Right Angle	C	
FK008 -2V3U -D	Right Angle	D	
FK008 -2V3U -E	Right Angle	E	
FK008 -2V3U -F	Right Angle	F	
FK008 -2V3U -G	Right Angle	G	
FK008 -2V3U -H	Right Angle	H	
FK008 -2V3U -I	Right Angle	I	
FK008 -2V3U -K	Right Angle	K	
FK008 -2V3U -L	Right Angle	L	
FK008 -2V3U -M	Right Angle	M	
FK008 -2V3U -N	Right Angle	N	
FK008 -2V3U -Z	Right Angle	Z	

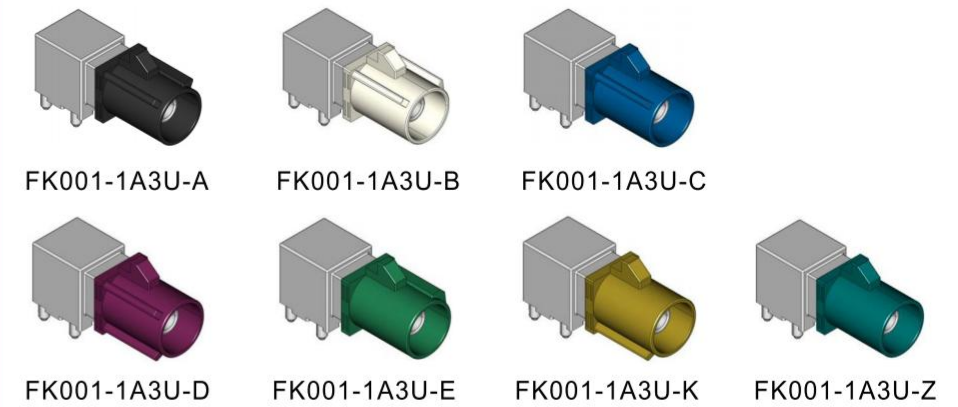
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FK015 -1V3U -Z	SMB Vertical, Z Coding	Z	
FK016 -1V3U -Z	SMB Vertical, Z Coding	Z	
FK021 -1A3U -A	FAKRA Right Angle, A Coding	A	
FK021 -1A3U -B	FAKRA Right Angle, B Coding	B	
FK021 -1A3U -C	FAKRA Right Angle, C Coding	C	
FK021 -1A3U -D	FAKRA Right Angle, D Coding	D	
FK021 -1A3U -Z	FAKRA Right Angle, Z Coding	Z	

Part Number	Description	Picture	
FC010 -XXXX -A -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -B -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -C -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -D -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -E -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -F -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -G -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -H -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -I -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -K -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -L -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -M -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -N -X	FAKRA Female to FAKRA Female		
FC010 -XXXX -Z -X	FAKRA Female to FAKRA Female		
FC011 -XXXX -A -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -B -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -C -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -D -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -E -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -F -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -G -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -H -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -I -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -K -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -L -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -M -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -N -X	FAKRA Male to FAKRA Male		
FC011 -XXXX -Z -X	FAKRA Male to FAKRA Male		

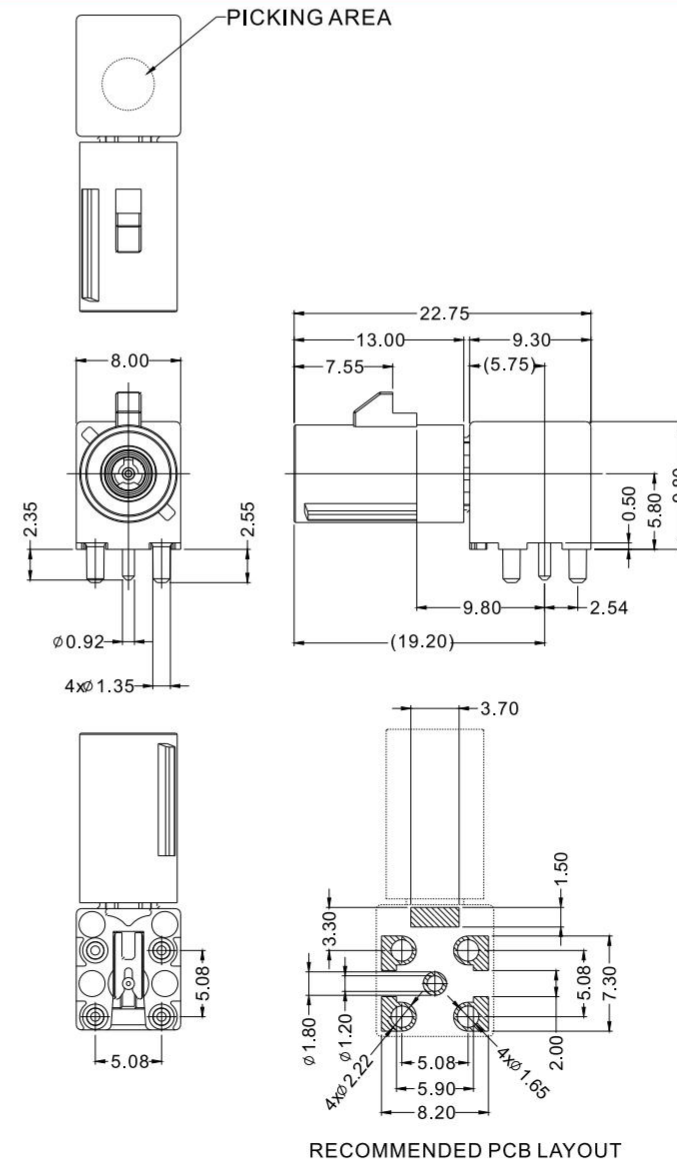
Part Number	Description	Picture	
FC012 -XXXX -A -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -B -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -C -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -D -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -E -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -F -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -G -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -H -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -I -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -K -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -L -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -M -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -N -X	FAKRA Female to FAKRA Male		
FC012 -XXXX -Z -X	FAKRA Female to FAKRA Male		
FC101 -XXXX -A -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -B -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -C -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -D -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -E -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -F -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -G -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -H -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -I -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -K -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -L -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -M -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -N -X	FAKRA Female R/A to FAKRA Female (Seal)		
FC101 -XXXX -Z -X	FAKRA Female R/A to FAKRA Female (Seal)		

Part Number	Description	Picture
FC201 -XXXX -A -X	SMB angle to FAKRA Female (Seal)	
FC201 -XXXX -B -X	SMB angle to FAKRA Female (Seal)	
FC201 -XXXX -C -X	SMB angle to FAKRA Female (Seal)	
FC201 -XXXX -D -X	SMB angle to FAKRA Female (Seal)	
FC201 -XXXX -Z -X	SMB angle to FAKRA Female (Seal)	
FC202 -XXXX -A -X	SMB to FAKRA Female (Seal)	
FC202 -XXXX -B -X	SMB to FAKRA Female (Seal)	
FC202 -XXXX -C -X	SMB to FAKRA Female (Seal)	
FC202 -XXXX -D -X	SMB to FAKRA Female (Seal)	
FC202 -XXXX -Z -X	SMB to FAKRA Female (Seal)	
FC211 -XXXX -A -X	SMB to FAKRA Female (Seal)	
FC211 -XXXX -B -X	SMB to FAKRA Female (Seal)	
FC211 -XXXX -C -X	SMB to FAKRA Female (Seal)	
FC211 -XXXX -D -X	SMB to FAKRA Female (Seal)	
FC211 -XXXX -Z -X	SMB to FAKRA Female (Seal)	
FK112 -1V3U -A	SMB to FAKRA Male (Seal)	
FK112 -1V3U -B	SMB to FAKRA Male (Seal)	
FK112 -1V3U -C	SMB to FAKRA Male (Seal)	
FK112 -1V3U -D	SMB to FAKRA Male (Seal)	
FK112 -1V3U -Z	SMB to FAKRA Male (Seal)	
FK109 -1V3U -Z	SMB to FAKRA Male (Seal)	

**SPECIFICATIONS**  
 Impedance: 50 Ω  
 Frequency Range: DC to 6 GHz  
 Return loss: ≥18 dB to 3 GHz  
 Insertion loss: ≤0.1x √f(GHz) dB  
 Center PIN Contact Resistance: ≤5 mΩ  
 Outer Contact Resistance: ≤5 mΩ  
 Insulation Resistance: ≥1000MΩ  
 Dielectric Withstanding Voltage: 750 V(rms)  
 Working Voltage: ≤60V DC  
 Power Current: ≤1A DC  
**Mechanical:**  
 Mating cycles: > 25  
 Engagement force: ≤ 25 N  
 Disengagement force: > 2.5 N  
 Retention force latch: > 110 N  
 Coding efficiency: > 40 N  
 Type:R



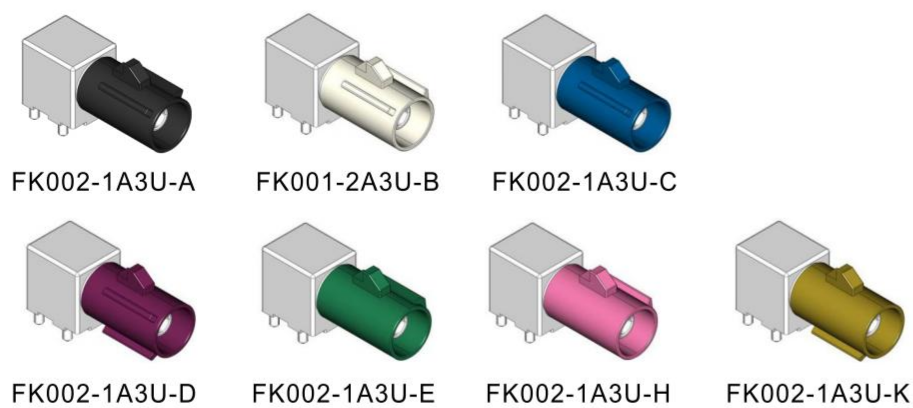
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FAKRA	Series Code		Way 1:Single Way 2: Dual Way 4: Four Way	Board-Mounting A:R/A V:S/T	Contact plating area 1=Ni 2=Sn 3=Au	Coding direction U: Standard Coding Up D: Coding Down L: Coding Left R: Coding Right		Key Code See list



No.	Key Code	Color	Part No.
Z		WATER BLUE 5021	FK002-1A3U-Z
N		PASTEL GREEN 6019	FK002-1A3U-N
M		PASTEL ORANGE 2003	FK002-1A3U-M
L		CARMINE RED 3002	FK002-1A3U-L
K		CURRY 1027	FK002-1A3U-K
I		BEIGE 1001	FK002-1A3U-I
H		HEATHER VIOLET 4003	FK002-1A3U-H
G		GREY 7031	FK002-1A3U-G
F		BROWN 8011	FK002-1A3U-F
E		GREEN 6002	FK002-1A3U-E
D		CLARET VIOLET 4004	FK002-1A3U-D
C		BLUE 5005	FK002-1A3U-C
B		WHITE 9001	FK002-1A3U-B
A		BLACK 9005	FK002-1A3U-A

**FAKRA Connector System  
 FK002 Series**

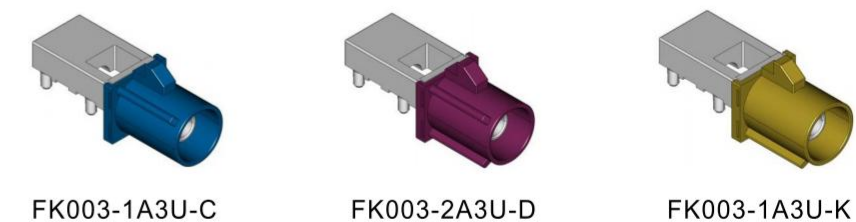
**SPECIFICATIONS**  
 Impedance: 50 Ω  
 Frequency Range: DC to 6 GHz  
 Return loss: ≥18 dB to 3 GHz  
 Insertion loss: ≤0.1x √f(GHz) dB  
 Center PIN Contact Resistance: ≤5 mΩ  
 Outer Contact Resistance: ≤5 mΩ  
 Insulation Resistance: ≥1000MΩ  
 Dielectric Withstanding Voltage: 750 V(rms)  
 Working Voltage: ≤60V DC  
 Power Current: ≤1A DC  
**Mechanical:**  
 Mating cycles: > 25  
 Engagement force: ≤ 25 N  
 Disengagement force: > 2.5 N  
 Retention force latch: > 110 N  
 Coding efficiency: > 40 N  
 Type:R



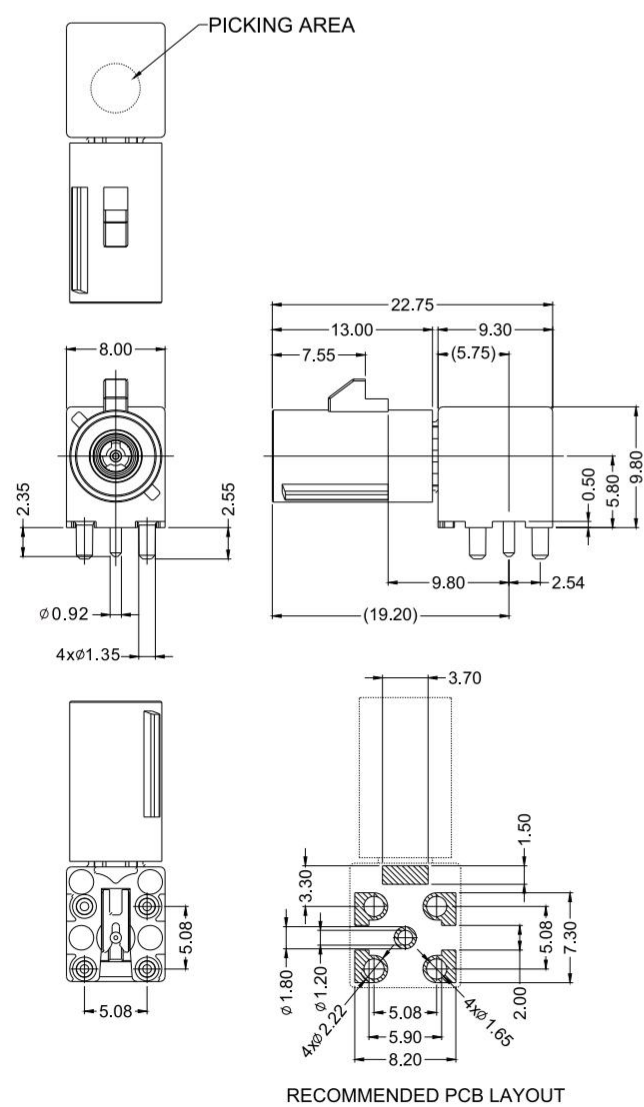
**FK 002 - 1 A 3 U - X**  
 Board-Mounting A=Horizontal  
 Contact plating area 1=Ni 2=Sn 3=Au  
 Coding direction: U=Coding Up D=Coding Down  
 Key Code See list















**FAKRA Connector System  
 FK003 Series**

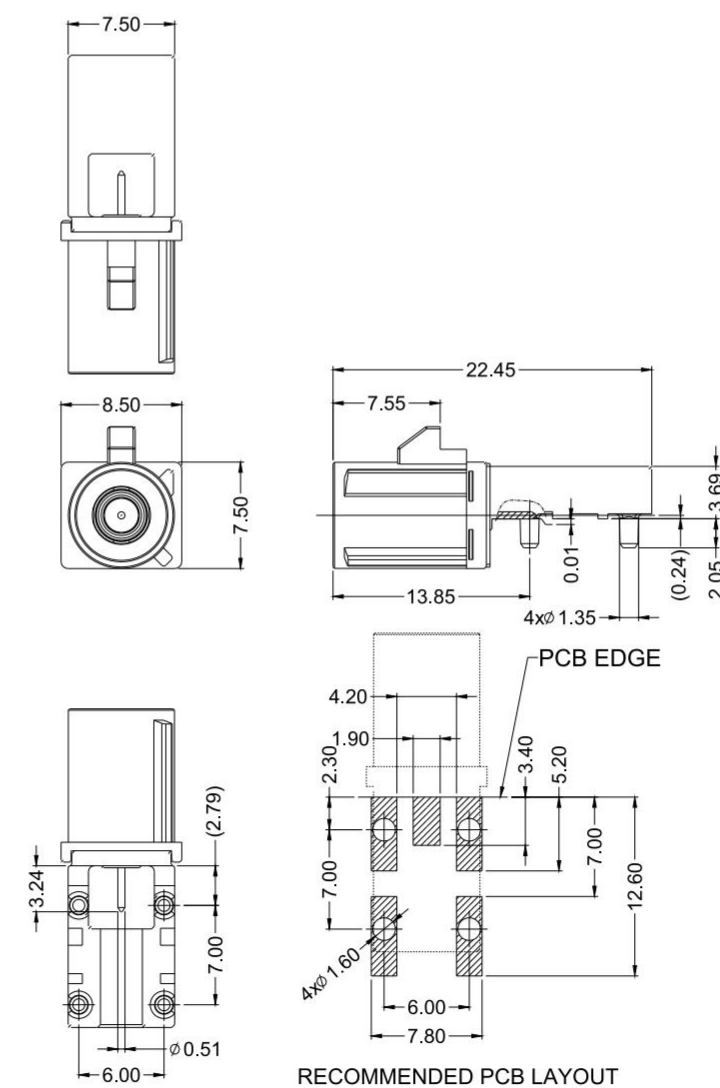
**SPECIFICATIONS**  
 Impedance: 50 Ω  
 Frequency Range: DC to 6 GHz  
 Return loss: ≥18 dB to 3 GHz  
 Insertion loss: ≤0.1x √f(GHz) dB  
 Center PIN Contact Resistance: ≤5 mΩ  
 Outer Contact Resistance: ≤5 mΩ  
 Insulation Resistance: ≥1000MΩ  
 Dielectric Withstanding Voltage: 750 V(rms)  
 Working Voltage: ≤60V DC  
 Power Current: ≤1A DC  
**Mechanical:**  
 Mating cycles: > 25  
 Engagement force: ≤ 25 N  
 Disengagement force: > 2.5 N  
 Retention force latch: > 110 N  
 Coding efficiency: > 40 N  
 Type:R

















**FK 003 - 1 A 3 U - X**  
 Board-Mounting A=Horizontal  
 Contact plating area 1=Ni 2=Sn 3=Au  
 Coding direction: U=Coding Up D=Coding Down  
 Key Code See list



Z		WATER BLUE 5021	FK002-1A3U-Z
N		PASTEL GREEN 6019	FK002-1A3U-N
M		PASTEL ORANGE 2003	FK002-1A3U-M
L		CARMINE RED 3002	FK002-1A3U-L
K		CURRY 1027	FK002-1A3U-K
I		BEIGE 1001	FK002-1A3U-I
H		HEATHER VIOLET 4003	FK002-1A3U-H
G		GREY 7031	FK002-1A3U-G
F		BROWN 8011	FK002-1A3U-F
E		GREEN 6002	FK002-1A3U-E
D		CLARET VIOLET 4004	FK002-1A3U-D
C		BLUE 5005	FK002-1A3U-C
B		WHITE 9001	FK002-1A3U-B
A		BLACK 9005	FK002-1A3U-A
No.	Key Code	Color	Part No.



Z		WATER BLUE 5021	FK003-1A3U-Z
N		PASTEL GREEN 6019	FK003-1A3U-N
M		PASTEL ORANGE 2003	FK003-1A3U-M
L		CARMINE RED 3002	FK003-1A3U-L
K		CURRY 1027	FK003-1A3U-K
I		BEIGE 1001	FK003-1A3U-I
H		HEATHER VIOLET 4003	FK003-1A3U-H
G		GREY 7031	FK003-1A3U-G
F		BROWN 8011	FK003-1A3U-F
E		GREEN 6002	FK003-1A3U-E
D		CLARET VIOLET 4004	FK003-1A3U-D
C		BLUE 5005	FK003-1A3U-C
B		WHITE 9001	FK003-1A3U-B
A		BLACK 9005	FK003-1A3U-A
No.	Key Code	Color	Part No.

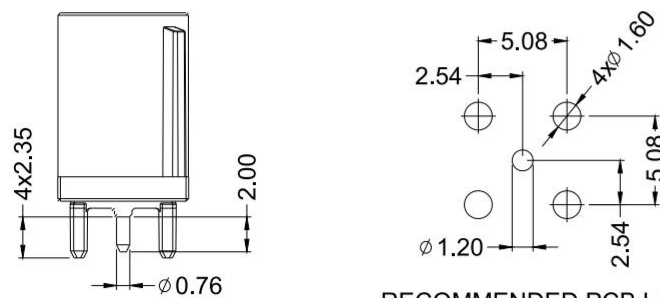
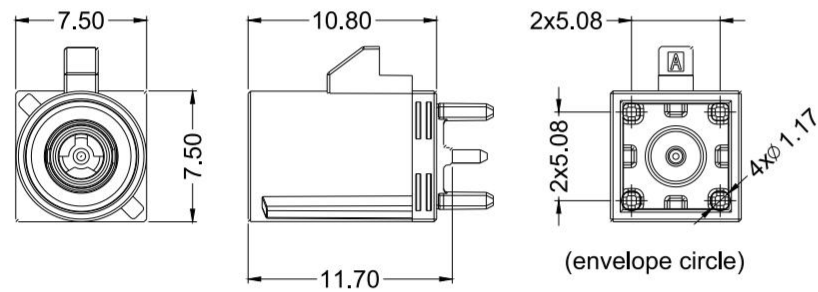
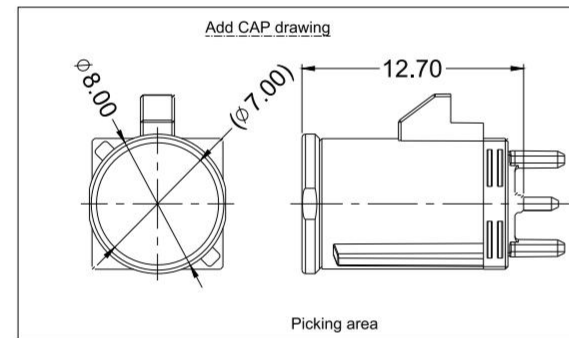
**SPECIFICATIONS**

Impedance: 50 Ω  
 Frequency Range: DC to 6 GHz  
 Return loss: ≥18 dB to 3 GHz  
 Insertion loss: ≤0.1x √f(GHz) dB  
 Center PIN Contact Resistance: ≤5 mΩ  
 Outer Contact Resistance: ≤5 mΩ  
 Insulation Resistance: ≥1000MΩ  
 Dielectric Withstanding Voltage: 750 V(rms)  
 Working Voltage: ≤60V DC  
 Power Current: ≤1A DC  
 Mechanical:  
 Mating cycles: > 25  
 Engagement force: ≤ 25 N  
 Disengagement force: > 2.5 N  
 Retention force latch: > 110 N  
 Coding efficiency: > 40 N  
 Type:R



FK005-1V3U-D

<b>FK</b>	<b>005</b>	<b>-</b>	<b>1</b>	<b>V</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>X</b>
FAKRA				Board-Mounting V=Vertical	Contact plating area 1=Ni 2=Sn 3=Au	Coding direction: U=Coding Up D=Coding Down		Key Code See list



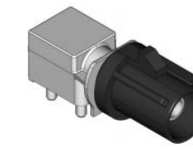
RECOMMENDED PCB LAYOUT

TABLE:

No.	Key Code	Color	Part No.
Z		WATER BLUE 5021	FK005-1V3U-Z
N		PASTEL GREEN 6019	FK005-1V3U-N
M		PASTEL ORANGE 2003	FK005-1V3U-M
L		CARMINE RED 3002	FK005-1V3U-L
K		CURRY 1027	FK005-1V3U-K
I		BEIGE 1001	FK005-1V3U-I
H		HEATHER VIOLET 4003	FK005-1V3U-H
G		GREY 7031	FK005-1V3U-G
F		BROWN 8011	FK005-1V3U-F
E		GREEN 6002	FK005-1V3U-E
D		CLARET VIOLET 4004	FK005-1V3U-D
C		BLUE 5005	FK005-1V3U-C
B		WHITE 9001	FK005-1V3U-B
A		BLACK 9005	FK005-1V3U-A

**SPECIFICATIONS**

Impedance: 50 Ω  
 Frequency Range: DC to 6 GHz  
 Return loss: ≥18 dB to 3 GHz  
 Insertion loss: ≤0.1x √f(GHz) dB  
 Center PIN Contact Resistance: ≤5 mΩ  
 Outer Contact Resistance: ≤5 mΩ  
 Insulation Resistance: ≥1000MΩ  
 Dielectric Withstanding Voltage: 750 V(rms)  
 Working Voltage: ≤60V DC  
 Power Current: ≤1A DC  
 Mechanical:  
 Mating cycles: > 25  
 Engagement force: ≤ 25 N  
 Disengagement force: > 2.5 N  
 Retention force latch: > 110 N  
 Coding efficiency: > 40 N  
 Type:R

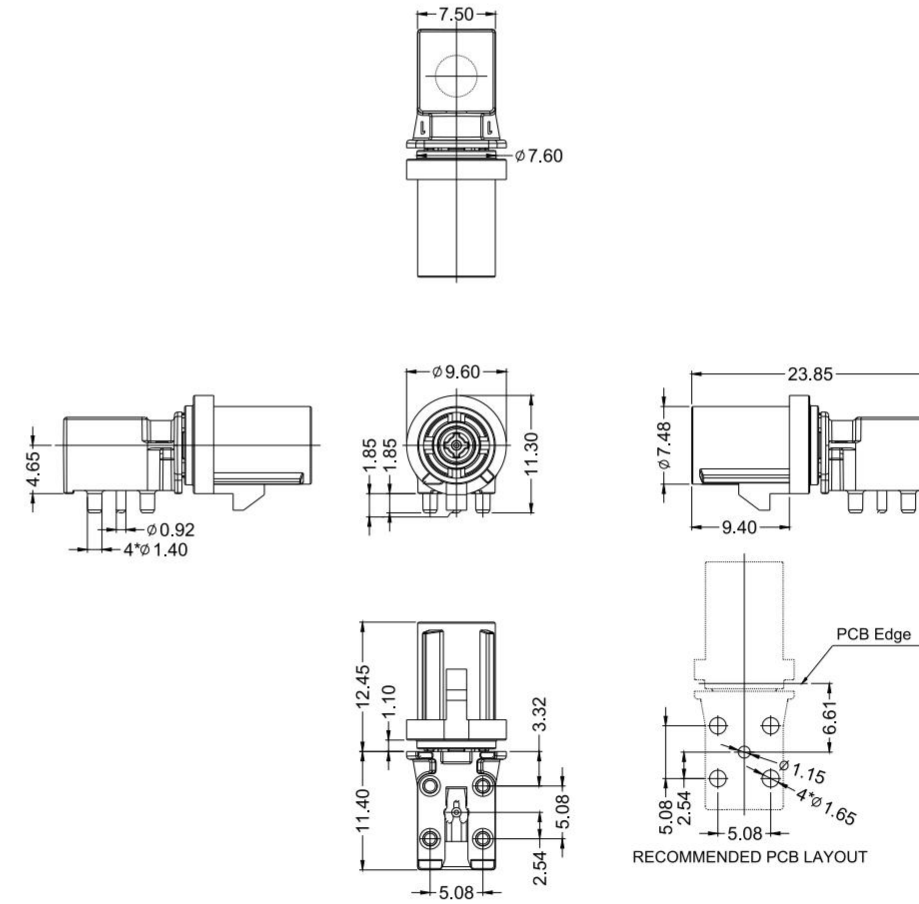


FK006-1A3U-A



FK006-1A3U-C

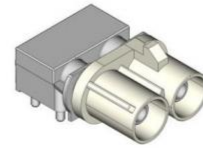
<b>FK</b>	<b>006</b>	<b>-</b>	<b>1</b>	<b>A</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>X</b>
FAKRA				Board-Mounting A=Horizontal	Contact plating area 1=Ni 2=Sn 3=Au	Coding direction: U=Coding Up D=Coding Down		Key Code See list



No.	Key Code	Color	Part No.
Z		WATER BLUE 5021	FK006-1A3D-Z
N		PASTEL GREEN 6019	FK006-1A3D-N
M		PASTEL ORANGE 2003	FK006-1A3D-M
L		CARMINE RED 3002	FK006-1A3D-L
K		CURRY 1027	FK006-1A3D-K
I		BEIGE 1001	FK006-1A3D-I
H		HEATHER VIOLET 4003	FK006-1A3D-H
G		GREY 7031	FK006-1A3D-G
F		BROWN 8011	FK006-1A3D-F
E		GREEN 6002	FK006-1A3D-E
D		CLARET VIOLET 4004	FK006-1A3D-D
C		BLUE 5005	FK006-1A3D-C
B		WHITE 9001	FK006-1A3D-B
A		BLACK 9005	FK006-1A3D-A

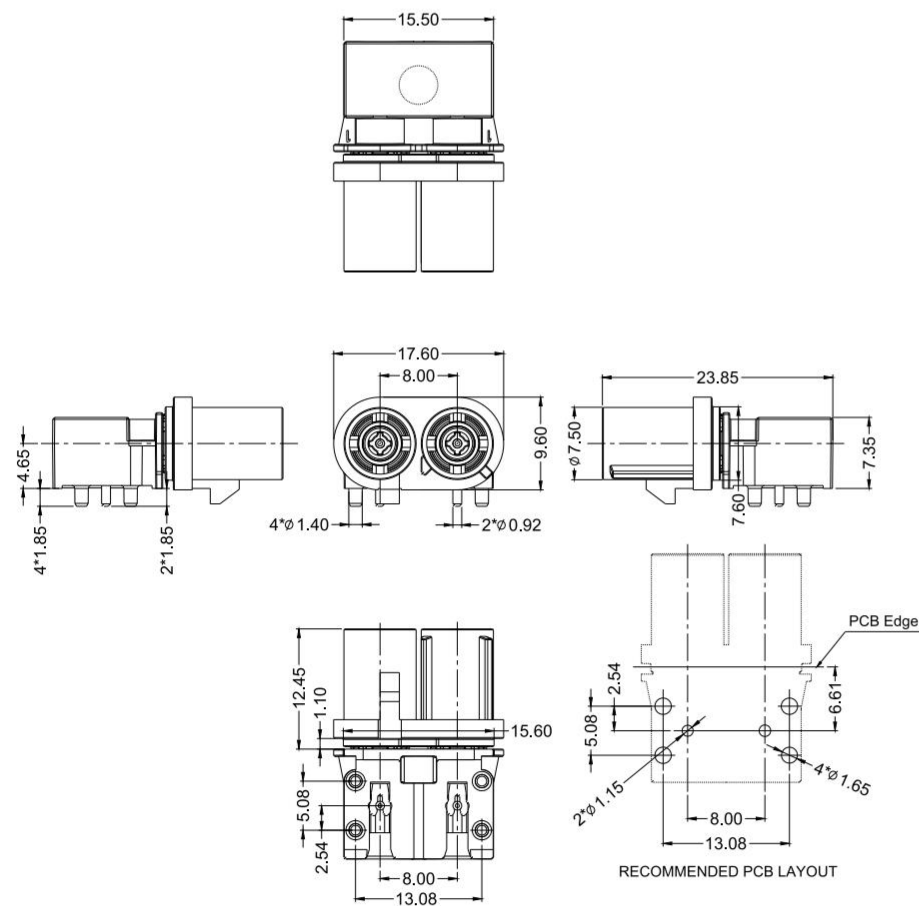


**SPECIFICATIONS**  
 Impedance: 50 Ω  
 Frequency Range: DC to 6 GHz  
 Return loss: ≥18 dB to 3 GHz  
 Insertion loss: ≤0.1x √f(GHz) dB  
 Center PIN Contact Resistance: ≤5 mΩ  
 Outer Contact Resistance: ≤5 mΩ  
 Insulation Resistance: ≥1000MΩ  
 Dielectric Withstanding Voltage: 750 V(rms)  
 Working Voltage: ≤60V DC  
 Power Current: ≤1A DC  
**Mechanical:**  
 Mating cycles: > 25  
 Engagement force: ≤ 50 N  
 Disengagement force: > 5 N  
 Retention force latch: > 110 N  
 Coding efficiency: > 40 N  
 Type:R



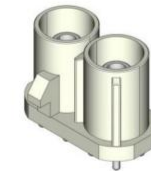
FK007-2A3D-B

<b>FK</b>	<b>007</b>	<b>-</b>	<b>2</b>	<b>A</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>X</b>
FAKRA				Board-Mounting A=Horizontal	Contact plating area 1=Ni 2=Sn 3=Au	Coding direction: U=Coding Up D=Coding Down		Key Code See list



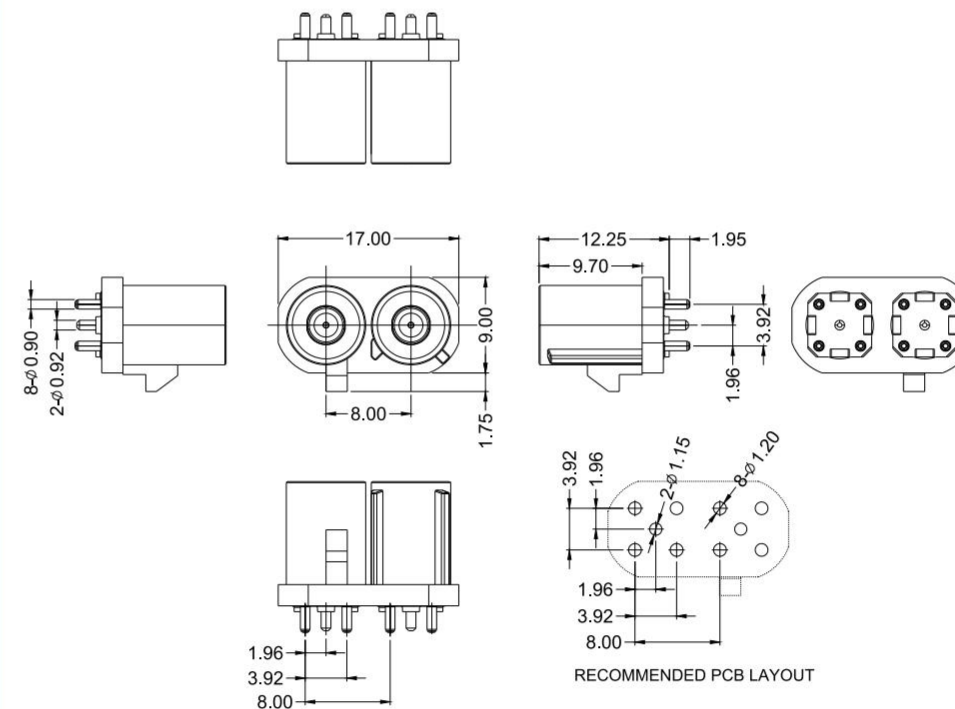
Z		WATER BLUE 5021	FK007-2A3D-Z
N		PASTEL GREEN 6019	FK007-2A3D-N
M		PASTEL ORANGE 2003	FK007-2A3D-M
L		CARMINE RED 3002	FK007-2A3D-L
K		CURRY 1027	FK007-2A3D-K
I		BEIGE 1001	FK007-2A3D-I
H		HEATHER VIOLET 4003	FK007-2A3D-H
G		GREY 7031	FK007-2A3D-G
F		BROWN 8011	FK007-2A3D-F
E		GREEN 6002	FK007-2A3D-E
D		CLARET VIOLET 4004	FK007-2A3D-D
C		BLUE 5005	FK007-2A3D-C
B		WHITE 9001	FK007-2A3D-B
A		BLACK 9005	FK007-2A3D-A
No.	Key Code	Color	Part No.

**SPECIFICATIONS**  
 Impedance: 50 Ω  
 Frequency Range: DC to 6 GHz  
 Return loss: ≥18 dB to 3 GHz  
 Insertion loss: ≤0.1x √f(GHz) dB  
 Center PIN Contact Resistance: ≤5 mΩ  
 Outer Contact Resistance: ≤5 mΩ  
 Insulation Resistance: ≥1000MΩ  
 Dielectric Withstanding Voltage: 750 V(rms)  
 Working Voltage: ≤60V DC  
 Power Current: ≤1A DC  
**Mechanical:**  
 Mating cycles: > 25  
 Engagement force: ≤ 50 N  
 Disengagement force: > 2.5 N  
 Retention force latch: > 110 N  
 Coding efficiency: > 40 N  
 Type:R



FK008-2V3D-X

<b>FK</b>	<b>008</b>	<b>-</b>	<b>2</b>	<b>V</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>X</b>
FAKRA				Board-Mounting V=Vertical	Contact plating area 1=Ni 2=Sn 3=Au	Coding direction: U=Coding Up D=Coding Down		Key Code See list



Z		WATER BLUE 5021	FK008-2V3D-Z
N		PASTEL GREEN 6019	FK008-2V3D-N
M		PASTEL ORANGE 2003	FK008-2V3D-M
L		CARMINE RED 3002	FK008-2V3D-L
K		CURRY 1027	FK008-2V3D-K
I		BEIGE 1001	FK008-2V3D-I
H		HEATHER VIOLET 4003	FK008-2V3D-H
G		GREY 7031	FK008-2V3D-G
F		BROWN 8011	FK008-2V3D-F
E		GREEN 6002	FK008-2V3D-E
D		CLARET VIOLET 4004	FK008-2V3D-D
C		BLUE 5005	FK008-2V3D-C
B		WHITE 9001	FK008-2V3D-B
A		BLACK 9005	FK008-2V3D-A
No.	Key Code	Color	Part No.

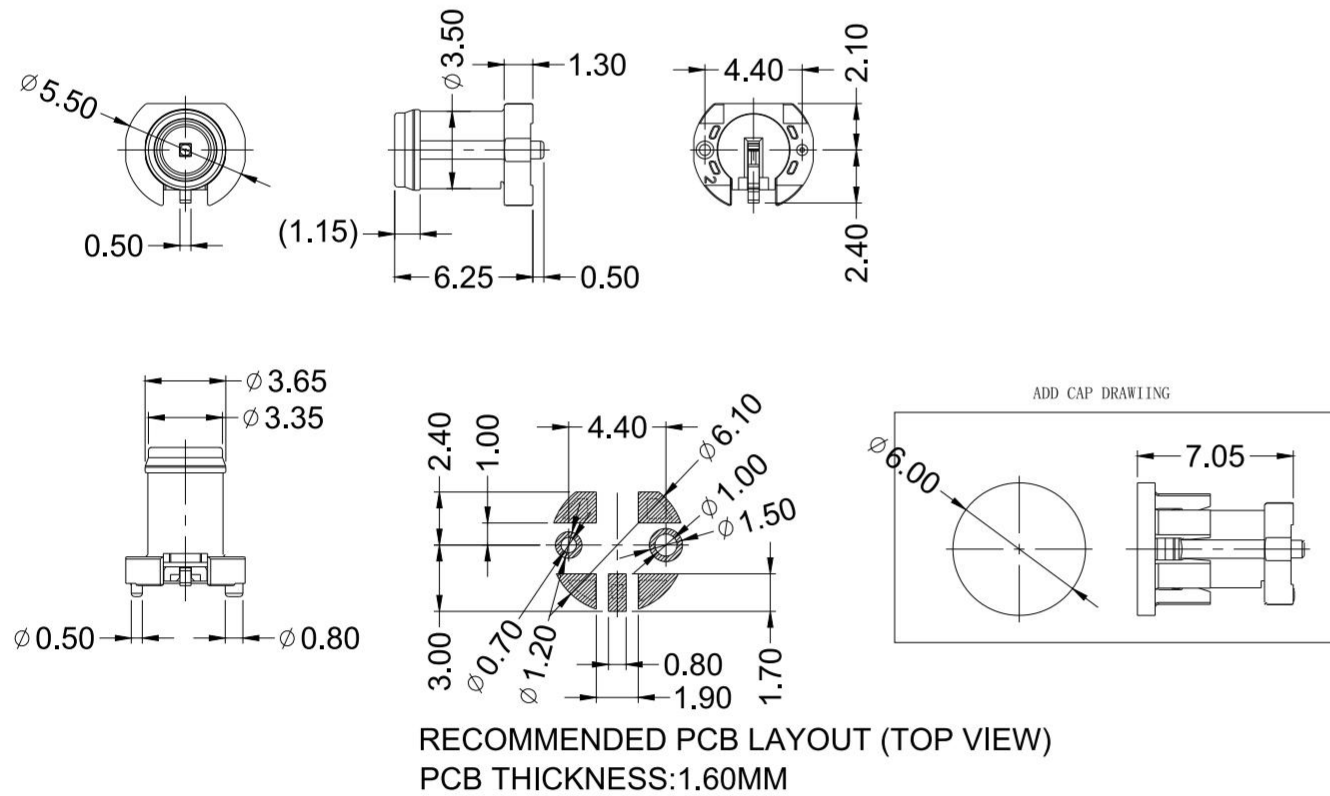
**SPECIFICATIONS**

Impedance: 50 Ω  
 Frequency Range: DC to 3 GHz  
 Return loss: ≥18 dB to 2 GHz  
 Insertion loss: ≤0.1x √f(GHz) dB  
 Center PIN Contact Resistance: ≤5 mΩ  
 Outer Contact Resistance: ≤5 mΩ  
 Insulation Resistance: ≥100MΩ  
 Dielectric Withstanding Voltage: 500 V(rms)  
 Working Voltage: ≤60V DC  
 Power Current: ≤1A DC  
 Mechanical:  
 Mating cycles: > 25  
 Engagement force: ≤ 25 N  
 Disengagement force: > 2 N  
 Type:ET



FK015-1V3U-Y

<b>FK</b>	<b>015</b>	<b>-</b>	<b>1</b>	<b>V</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>Y</b>
FAKRA				Board-Mounting V=Vertical	Contact plating area 1=Ni 2=Sn 3=Au	Coding direction: U=Coding Up D=Coding Down		Key Code Y=Y Key



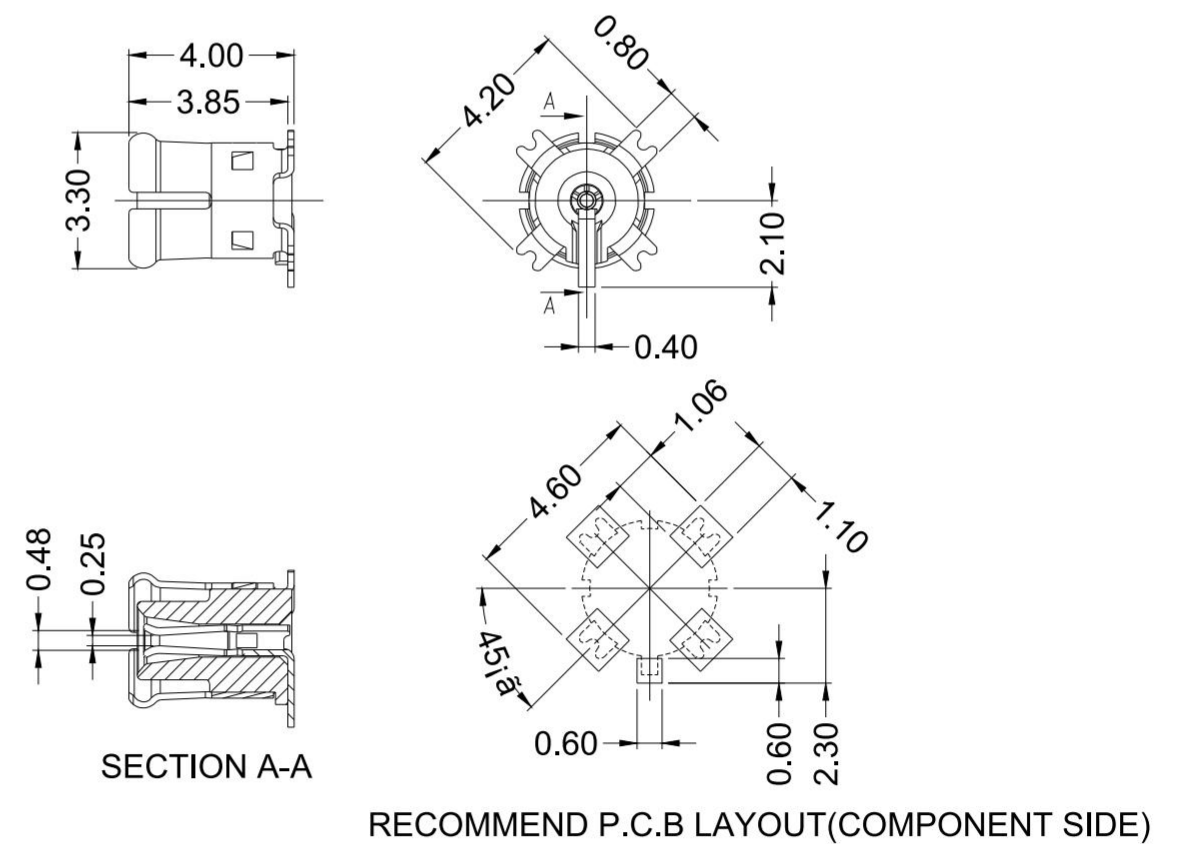
**SPECIFICATIONS**

Impedance: 50±5 Ω  
 Frequency Range: DC to 3 GHz  
 Vswr:  
 DC~1Ghz 1.3Max.  
 1~2Ghz 1.4Max.  
 2~3Ghz 1.5Max.  
 Insulation Resistance: ≥100MΩ  
 Dielectric Withstanding Voltage: 500 V  
 3.MECHANICAL:  
 Mating Fore:30N MAX.  
 Unmating Fore:75N MAX.  
 4.ENVIRONMENTAL:  
 Operation Temperature:-40℃ to +105℃.  
 Type:ET



FK016-1V3U-Y

<b>FK</b>	<b>016</b>	<b>-</b>	<b>1</b>	<b>V</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>Y</b>
FAKRA				Board-Mounting V=Vertical	Contact plating area 1=Ni 2=Sn 3=Au	Coding direction: U=Coding Up D=Coding Down		Key Code Y=Y Key



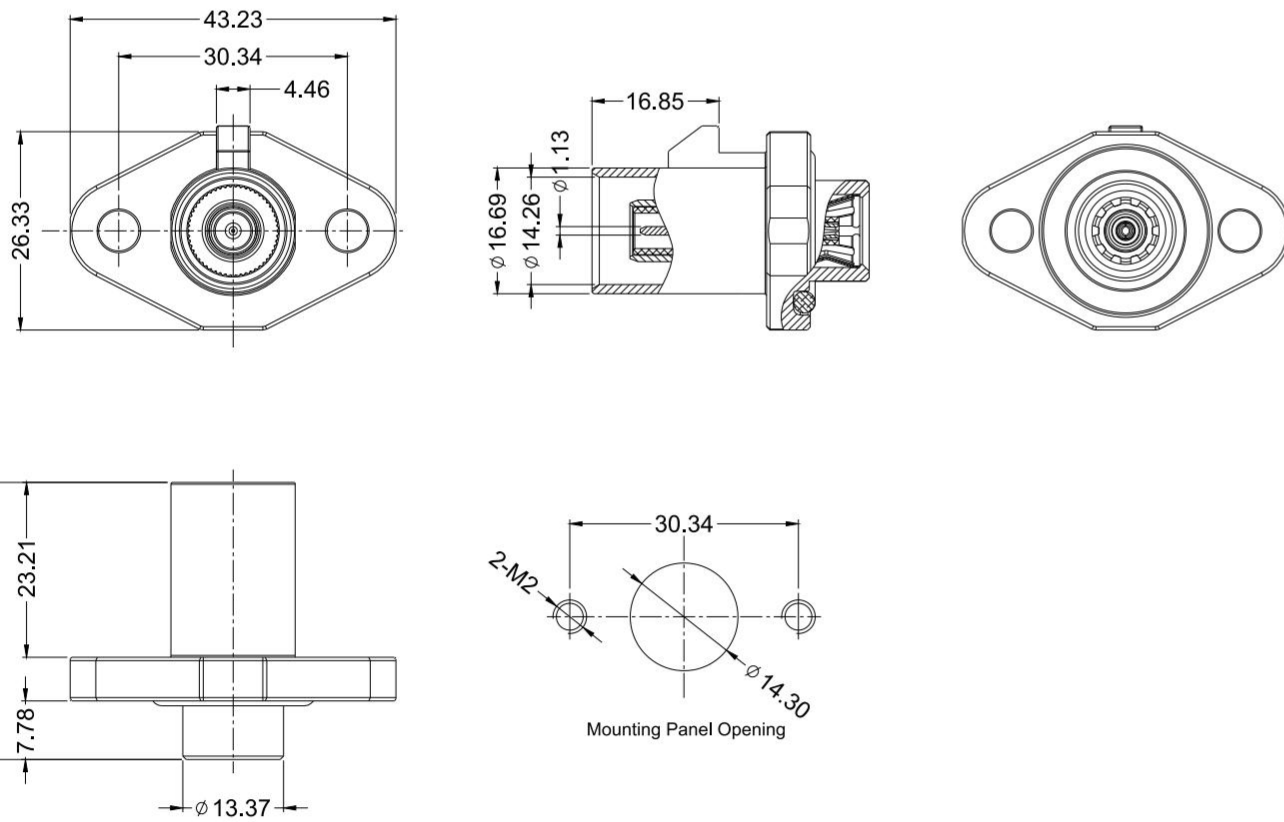
**FAKRA Connector System  
 FK0109 Series**



FK109-1V3U-Z

**SPECIFICATIONS**  
 Impedance: 50 Ω  
 Frequency Range: DC to 6 GHz  
 Return loss: ≥18 dB to 3 GHz  
 Insertion loss: ≤0.1 x √f(GHz) dB  
 Center PIN Contact Resistance: ≤5 mΩ  
 Outer Contact Resistance: ≤5 mΩ  
 Insulation Resistance: ≥1000MΩ  
 Dielectric Withstanding Voltage: 750 V(rms)  
 Working Voltage: ≤60V DC  
 Power Current: ≤1A DC  
**Mechanical:**  
 Mating cycles: > 25  
 Engagement force: ≤ 25 N  
 Disengagement force: > 2.5 N  
 Retention force latch: > 110 N  
 Coding efficiency: > 40 N  
 Temperature range: -40°C to +105°C  
 Type:ET

<b>FK</b>	<b>109</b>	<b>-</b>	<b>1</b>	<b>V</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>Z</b>
FAKRA				Board-Mounting V=Vertical	Contact plating area 1=Ni 2=Sn 3=Au	Coding direction: U=Coding Up D=Coding Down		Key Code Z=Z Key



**FAKRA F To FAKRA F dacar 302 Cable Assembly  
 FC014 Series**

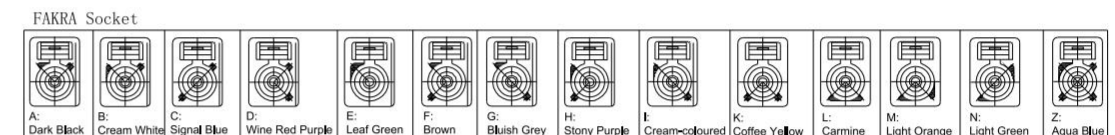
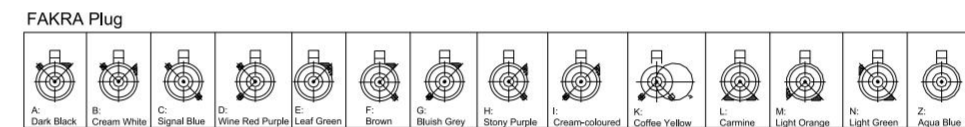
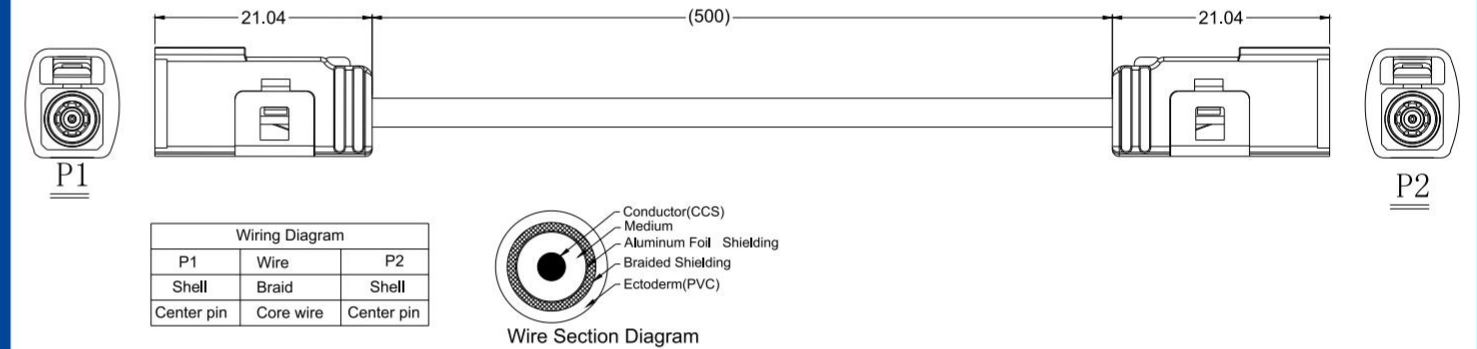


Fakra Connector

FC014-0500-Z-Z

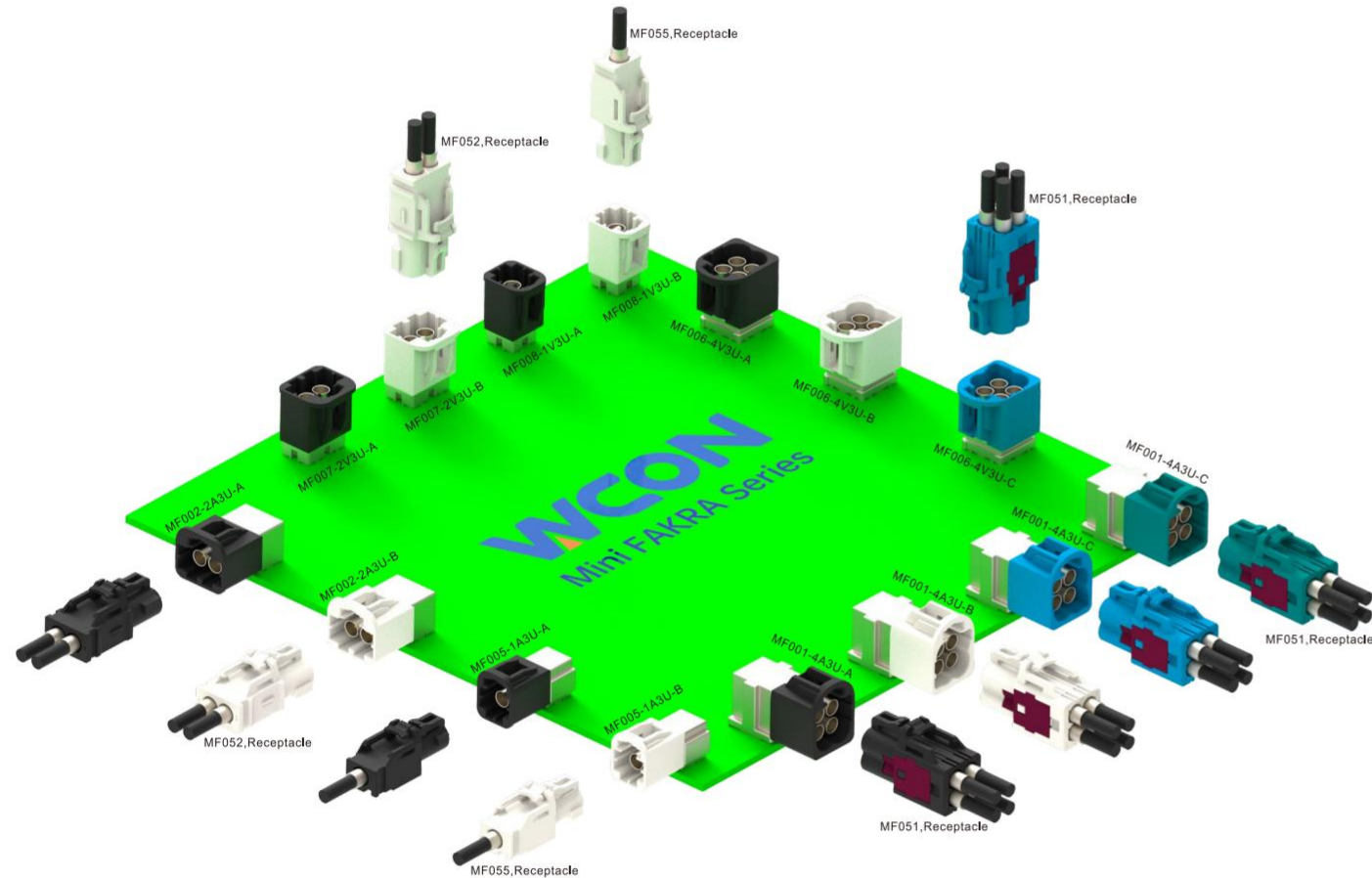
**SPECIFICATIONS**  
 Characteristic Impedance: 50 Ohm  
 Frequency Range: DC to 4 GHz  
 Return loss: ≥21 dB to 3 GHz  
 Insertion loss: ≤0.1 x √f(GHz) dB  
 Center PIN Contact Resistance: ≤5 mΩ  
 Outer Contact Resistance: ≤5 mΩ  
 Insulation Resistance: ≥1000MΩ  
 Dielectric Withstanding Voltage: 750 V(rms)  
 Working Voltage: 335 V(rms)  
 Power Current: >1A DC  
**MECHANICAL**  
 Engagement Force: ≤35N  
 Disengagement Force: ≥2N  
 Retention Force Latch: ≥110N  
 Durability: 25 Cycles  
**APPROVALS & CERTIFICATION**  
 USCAR-2 Compliant  
 ISO/IATF 16949 Production Compliant  
 RoHS /REACH/SVHC /Low Halogen  
 Type:R

<b>FC</b>	<b>014</b>	<b>-</b>	<b>0500</b>	<b>-</b>	<b>Z</b>	<b>-</b>	<b>Z</b>
FAKRA Cable	Series Code		Cable length 0500-500mm		Key Code Side A		Key Code Side B







Board-Mounting  
S/T DIP:Vertical T/H  
R/A DIP:Horizontal T/H  
R/A SMT:Horizontal SMT

**FAKRA Series**



Part Number	Description	Color & Key Code		Color number	Picture
MF001 -4A3U -A	4 Way Right Angle	A	Jet Black	9005	
MF001 -4A3U -B	4 Way Right Angle	B	Cream White	9001	
MF001 -4A3U -C	4 Way Right Angle	C	Signal Blue	5005	
MF001 -4A3U -D	4 Way Right Angle	D	Claret Violet	4004	
MF001 -4A3U -E	4 Way Right Angle	E	Leaf Green	6002	
MF001 -4A3U -F	4 Way Right Angle	F	Nut BroNut	8011	
MF001 -4A3U -Z	4 Way Right Angle	Z	Water Blue	5021	
MF002 -2A3U -A	2 Way Right Angle	A	Jet Black	9005	
MF002 -2A3U -B	2 Way Right Angle	B	Cream White	9001	
MF002 -2A3U -C	2 Way Right Angle	C	Signal Blue	5005	
MF002 -2A3U -D	2 Way Right Angle	D	Claret Violet	4004	
MF002 -2A3U -E	2 Way Right Angle	E	Leaf Green	6002	
MF002 -2A3U -F	2 Way Right Angle	F	Nut BroNut	8011	
MF002 -2A3U -Z	2 Way Right Angle	Z	Water Blue	5021	
MF003 -2A3U -A	2 Way Right Angle	A	Jet Black	9005	
MF003 -2A3U -B	2 Way Right Angle	B	Cream White	9001	
MF003 -2A3U -C	2 Way Right Angle	C	Signal Blue	5005	
MF003 -2A3U -D	2 Way Right Angle	D	Claret Violet	4004	
MF003 -2A3U -E	2 Way Right Angle	E	Leaf Green	6002	
MF003 -2A3U -F	2 Way Right Angle	F	Nut BroNut	8011	
MF003 -2A3U -Z	2 Way Right Angle	Z	Water Blue	5021	
MF005 -1A3U -A	1 Way Right Angle	A	Jet Black	9005	
MF005 -1A3U -B	1 Way Right Angle	B	Cream White	9001	
MF005 -1A3U -C	1 Way Right Angle	C	Signal Blue	5005	
MF005 -1A3U -D	1 Way Right Angle	D	Claret Violet	4004	
MF005 -1A3U -E	1 Way Right Angle	E	Leaf Green	6002	
MF005 -1A3U -F	1 Way Right Angle	F	Nut BroNut	8011	
MF005 -1A3U -Z	1 Way Right Angle	Z	Water Blue	5021	

Part Number	Description	Color & Key Code	Color number	Picture
MF006 -4V3U -A	4 Way Straight	A	Jet Black	
MF006 -4V3U -B	4 Way Straight	B	Cream White	
MF006 -4V3U -C	4 Way Straight	C	Signal Blue	
MF006 -4V3U -D	4 Way Straight	D	Claret Violet	
MF006 -4V3U -E	4 Way Straight	E	Leaf Green	
MF006 -4V3U -F	4 Way Straight	F	Nut BroNut	
MF006 -4V3U -Z	4 Way Straight	Z	Water Blue	
MF007 -2V3U -A	2 Way Straight	A	Jet Black	
MF007 -2V3U -B	2 Way Straight	B	Cream White	
MF007 -2V3U -C	2 Way Straight	C	Signal Blue	
MF007 -2V3U -D	2 Way Straight	D	Claret Violet	
MF007 -2V3U -E	2 Way Straight	E	Leaf Green	
MF007 -2V3U -F	2 Way Straight	F	Nut BroNut	
MF007 -2V3U -Z	2 Way Straight	Z	Water Blue	
MF008 -1V3U -A	1 Way Straight	A	Jet Black	
MF008 -1V3U -B	1 Way Straight	B	Cream White	
MF008 -1V3U -C	1 Way Straight	C	Signal Blue	
MF008 -1V3U -D	1 Way Straight	D	Claret Violet	
MF008 -1V3U -E	1 Way Straight	E	Leaf Green	
MF008 -1V3U -F	1 Way Straight	F	Nut BroNut	
MF008 -1V3U -Z	1 Way Straight	Z	Water Blue	
MF011 -4A3U -A	4 Way Right Angle	A	Jet Black	
MF011 -4A3U -B	4 Way Right Angle	B	Cream White	
MF011 -4A3U -C	4 Way Right Angle	C	Signal Blue	
MF011 -4A3U -D	4 Way Right Angle	D	Claret Violet	
MF011 -4A3U -E	4 Way Right Angle	E	Leaf Green	
MF011 -4A3U -F	4 Way Right Angle	F	Nut BroNut	
MF011 -4A3U -Z	4 Way Right Angle	Z	Water Blue	

Part Number	Description	Color & Key Code	Color number	Picture
MF051 -4A3U -A	4 Way Straight plu	A	Jet Black	
MF051 -4A3U -B	4 Way Straight plu	B	Cream White	
MF051 -4A3U -C	4 Way Straight plu	C	Signal Blue	
MF051 -4A3U -D	4 Way Straight plu	D	Claret Violet	
MF051 -4A3U -E	4 Way Straight plu	E	Leaf Green	
MF051 -4A3U -F	4 Way Straight plu	F	Nut BroNut	
MF051 -4A3U -Z	4 Way Straight plu	Z	Water Blue	
MF052 -2A3U -A	2 Way Straight plug	A	Jet Black	
MF052 -2A3U -B	2 Way Straight plug	B	Cream White	
MF052 -2A3U -C	2 Way Straight plug	C	Signal Blue	
MF052 -2A3U -D	2 Way Straight plug	D	Claret Violet	
MF052 -2A3U -E	2 Way Straight plug	E	Leaf Green	
MF052 -2A3U -F	2 Way Straight plug	F	Nut BroNut	
MF052 -2A3U -Z	2 Way Straight plug	Z	Water Blue	
MF055 -1A3U -A	1 Way Straight plug	A	Jet Black	
MF055 -1A3U -B	1 Way Straight plug	B	Cream White	
MF055 -1A3U -C	1 Way Straight plug	C	Signal Blue	
MF055 -1A3U -D	1 Way Straight plug	D	Claret Violet	
MF055 -1A3U -E	1 Way Straight plug	E	Leaf Green	
MF055 -1A3U -F	1 Way Straight plug	F	Nut BroNut	
MF055 -1A3U -Z	1 Way Straight plug	Z	Water Blue	
MF061 -4A3U -A	4 Way Straight plug	A	Jet Black	
MF061 -4A3U -B	4 Way Straight plug	B	Cream White	
MF061 -4A3U -C	4 Way Straight plug	C	Signal Blue	
MF061 -4A3U -D	4 Way Straight plug	D	Claret Violet	
MF061 -4A3U -E	4 Way Straight plug	E	Leaf Green	
MF061 -4A3U -F	4 Way Straight plug	F	Nut BroNut	
MF061 -4A3U -Z	4 Way Straight plug	Z	Water Blue	

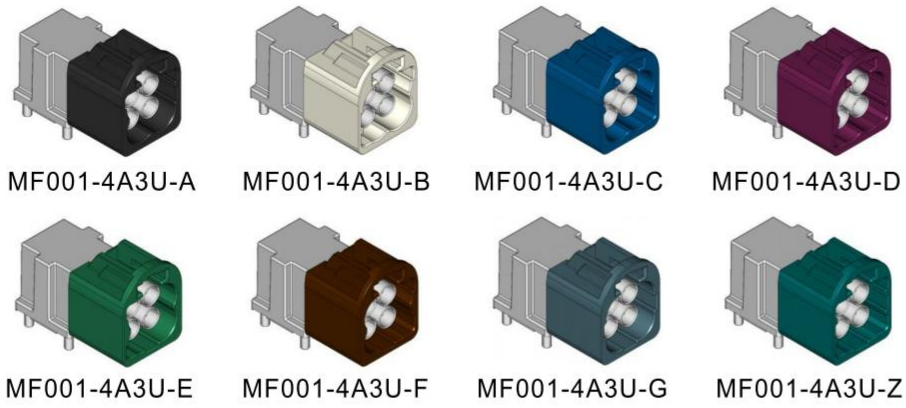
Part Number	Description	Color & Key Code	Color number	Picture
MC001 -XXXX-A-XXXX	1 Female to 4 FAKRA Female	A	Jet Black 9005	
MC001 -XXXX-B-XXXX	1 Female to 4 FAKRA Female	B	Cream White 9001	
MC001 -XXXX-C-XXXX	1 Female to 4 FAKRA Female	C	Signal Blue 5005	
MC001 -XXXX-D-XXXX	1 Female to 4 FAKRA Female	D	Claret Violet 4004	
MC001 -XXXX-E-XXXX	1 Female to 4 FAKRA Female	E	Leaf Green 6002	
MC001 -XXXX-F-XXXX	1 Female to 4 FAKRA Female	F	Nut BroNut 8011	
MC001 -XXXX-Z-XXXX	1 Female to 4 FAKRA Female	Z	Water Blue 5021	
MC011 -XXXX-A-XXXX	1 Female to 4 FAKRA Male	A	Jet Black 9005	
MC011 -XXXX-B-XXXX	1 Female to 4 FAKRA Male	B	Cream White 9001	
MC011 -XXXX-C-XXXX	1 Female to 4 FAKRA Male	C	Signal Blue 5005	
MC011 -XXXX-D-XXXX	1 Female to 4 FAKRA Male	D	Claret Violet 4004	
MC011 -XXXX-E-XXXX	1 Female to 4 FAKRA Male	E	Leaf Green 6002	
MC011 -XXXX-F-XXXX	1 Female to 4 FAKRA Male	F	Nut BroNut 8011	
MC011 -XXXX-Z-XXXX	1 Female to 4 FAKRA Male	Z	Water Blue 5021	
MC021 -XXXX-A-XXXX	1 Female to 4 Female	A	Jet Black 9005	
MC021 -XXXX-B-XXXX	1 Female to 4 Female	B	Cream White 9001	
MC021 -XXXX-C-XXXX	1 Female to 4 Female	C	Signal Blue 5005	
MC021 -XXXX-D-XXXX	1 Female to 4 Female	D	Claret Violet 4004	
MC021 -XXXX-E-XXXX	1 Female to 4 Female	E	Leaf Green 6002	
MC021 -XXXX-F-XXXX	1 Female to 4 Female	F	Nut BroNut 8011	
MC021 -XXXX-Z-XXXX	1 Female to 4 Female	Z	Water Blue 5021	
MC041 -XXXX-A-XXXX	1 Female to Open	A	Jet Black 9005	
MC041 -XXXX-B-XXXX	1 Female to Open	B	Cream White 9001	
MC041 -XXXX-C-XXXX	1 Female to Open	C	Signal Blue 5005	
MC041 -XXXX-D-XXXX	1 Female to Open	D	Claret Violet 4004	
MC041 -XXXX-E-XXXX	1 Female to Open	E	Leaf Green 6002	
MC041 -XXXX-F-XXXX	1 Female to Open	F	Nut BroNut 8011	
MC041 -XXXX-Z-XXXX	1 Female to Open	Z	Water Blue 5021	

Part Number	Description	Color & Key Code	Color number	Picture
MC005 -XXXX-A-X	1 Female to 2Port Female+Clip	A	Jet Black 9005	
MC005 -XXXX-B-X	1 Female to 2Port Female+Clip	B	Cream White 9001	
MC005 -XXXX-C-X	1 Female to 2Port Female+Clip	C	Signal Blue 5005	
MC005 -XXXX-D-X	1 Female to 2Port Female+Clip	D	Claret Violet 4004	
MC005 -XXXX-E-X	1 Female to 2Port Female+Clip	E	Leaf Green 6002	
MC005 -XXXX-F-X	1 Female to 2Port Female+Clip	F	Nut BroNut 8011	
MC005 -XXXX-Z-X	1 Female to 2Port Female+Clip	Z	Water Blue 5021	
MC007 -XXXX-A-X	2Port Female to 2Port Female	A	Jet Black 9005	
MC007 -XXXX-B-X	2Port Female to 2Port Female	B	Cream White 9001	
MC007 -XXXX-C-X	2Port Female to 2Port Female	C	Signal Blue 5005	
MC007 -XXXX-D-X	2Port Female to 2Port Female	D	Claret Violet 4004	
MC007 -XXXX-E-X	2Port Female to 2Port Female	E	Leaf Green 6002	
MC007 -XXXX-F-X	2Port Female to 2Port Female	F	Nut BroNut 8011	
MC007 -XXXX-Z-X	2Port Female to 2Port Female	Z	Water Blue 5021	
MC009 -XXXX-A-XX	2Port Female to 2 FAKRA Female	A	Jet Black 9005	
MC009 -XXXX-B-XX	2Port Female to 2 FAKRA Female	B	Cream White 9001	
MC009 -XXXX-C-XX	2Port Female to 2 FAKRA Female	C	Signal Blue 5005	
MC009 -XXXX-D-XX	2Port Female to 2 FAKRA Female	D	Claret Violet 4004	
MC009 -XXXX-E-XX	2Port Female to 2 FAKRA Female	E	Leaf Green 6002	
MC009 -XXXX-F-XX	2Port Female to 2 FAKRA Female	F	Nut BroNut 8011	
MC009 -XXXX-Z-XX	2Port Female to 2 FAKRA Female	Z	Water Blue 5021	
MC010 -XXXX-B-XX	2Port Female to 2 FAKRA Male	A	Jet Black 9005	
MC010 -XXXX-C-XX	2Port Female to 2 FAKRA Male	B	Cream White 9001	
MC010 -XXXX-D-XX	2Port Female to 2 FAKRA Male	C	Signal Blue 5005	
MC010 -XXXX-E-XX	2Port Female to 2 FAKRA Male	D	Claret Violet 4004	
MC010 -XXXX-F-XX	2Port Female to 2 FAKRA Male	E	Leaf Green 6002	
MC010 -XXXX-Z-XX	2Port Female to 2 FAKRA Male	F	Nut BroNut 8011	
MC010 -XXXX-B-XX	2Port Female to 2 FAKRA Male	Z	Water Blue 5021	

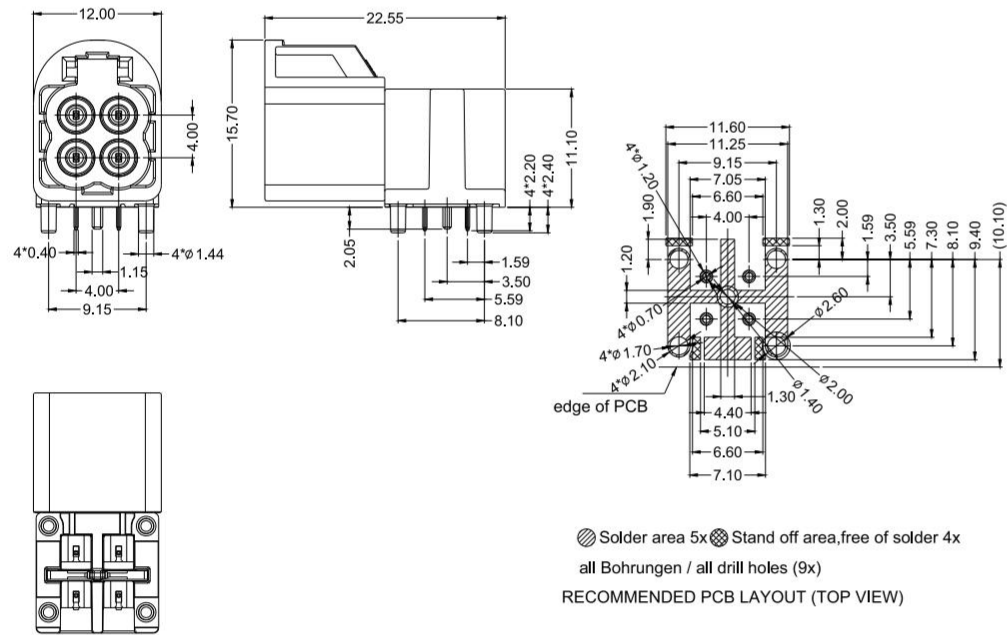
Mini FAKRA Connector System  
 MF001 Series

**SPECIFICATIONS**

Impedance:50 Ω  
 Frequency:DC to 9 GHz  
 Return loss:>25 dB, DC to ≤3 GHz  
 >20 dB, >3 GHz to ≤6 GHz  
 >12 dB, >6 GHz to ≤9 GHz  
 Insertion loss:≤ 0.1 x √f(GHz)dB  
 Insulation resistance:> 1000 MΩ  
 Center contact resistance:≤15 mΩ  
 Outer contact resistance:≤5 mΩ  
 Test voltage:750 V rms  
 Working voltage:60 V DC  
 Power current:≤ 1 A DC  
 Mechanical:  
 Mating cycles:>25  
 Engagement force:≤45 N  
 Disengagement force:> 5 N  
 Retention force plastic housing:> 110 N  
 Coding efficiency:> 150 N  
 Environmental:  
 Temperature range:-40°C to +105°C  
 Type:R



<b>MF</b>	<b>001</b>	<b>-</b>	<b>4</b>	<b>A</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>X</b>
Mini FAKRA	Series Code 110-999	Way 1:Single Way 2: Dual Way 4: Four Way	Board-Mounting A:R/A V:S/T	Contact plating area 1:Nickel 2:Tin 3=Au	Coding direction: U=Coding Up D=Coding Down L Coding Left R Coding Right	Key Code See list		

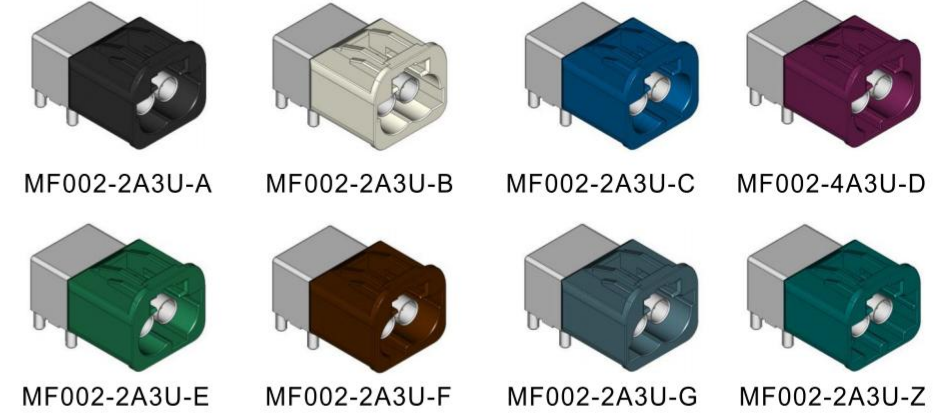


Z		WATER BLUE Ral 5021	MF001-4A3U-Z
G		PLATINUM GREY Ral 7036	MF001-4A3U-G
F		NUT BROWN Ral 8011	MF001-4A3U-F
E		MAY GREEN Ral 6017	MF001-4A3U-E
D		CLARET VIOLET Ral 4004	MF001-4A3U-D
C		LIGHT BLUE Ral 5012	MF001-4A3U-C
B		PURE WHITE Ral 9010	MF001-4A3U-B
A		JET BLACK Ral 9005	MF001-4A3U-A
No.	Key Code	Color	Part No.

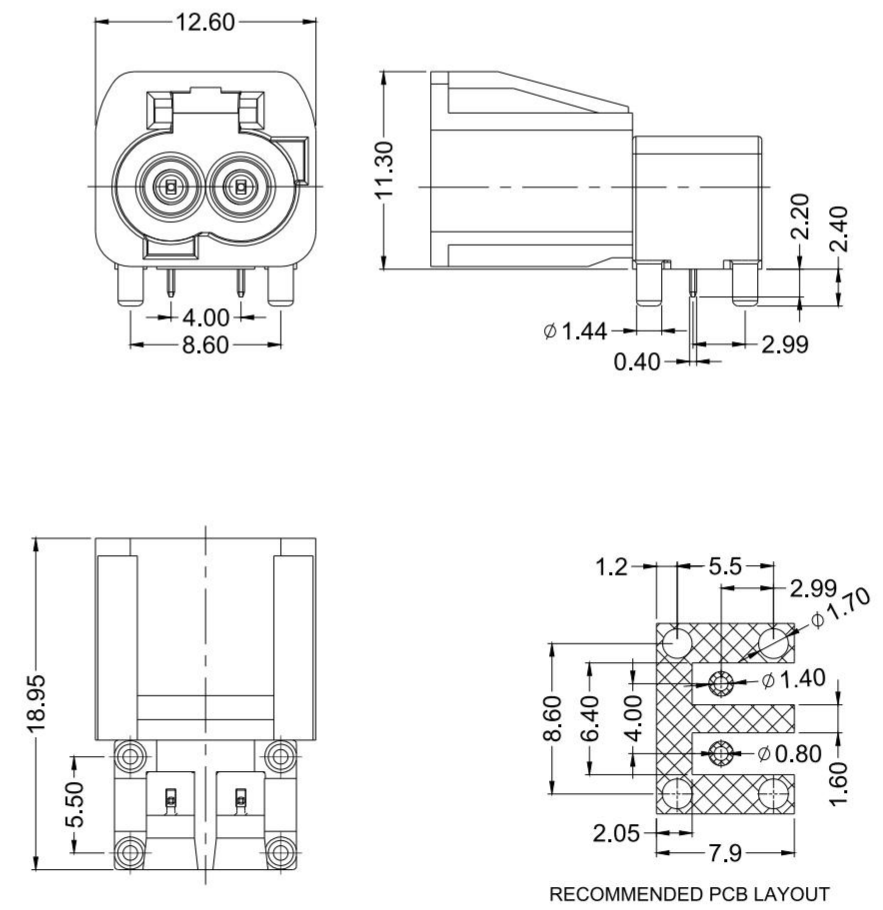
Mini FAKRA Connector System  
 MF002 Series

**SPECIFICATIONS**

Impedance:50 Ω  
 Frequency:DC to 9 GHz  
 Return loss:>25 dB, DC to ≤3 GHz  
 >20 dB, >3 GHz to ≤6 GHz  
 >12 dB, >6 GHz to ≤9 GHz  
 Insertion loss:≤ 0.1 x √f(GHz)dB  
 Insulation resistance:> 1000 MΩ  
 Center contact resistance:≤15 mΩ  
 Outer contact resistance:≤5 mΩ  
 Test voltage:750 V rms  
 Working voltage:60 V DC  
 Power current:≤ 1 A DC  
 Mechanical:  
 Mating cycles:>25  
 Engagement force:≤30 N  
 Disengagement force:> 5 N  
 Retention force plastic housing:> 110 N  
 Coding efficiency:> 150 N  
 Environmental:  
 Temperature range:-40°C to +105°C  
 Type:R



<b>MF</b>	<b>002</b>	<b>-</b>	<b>2</b>	<b>A</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>X</b>
		Board-Mounting A=Horizontal	Contact plating area 3=Au	Coding direction: U=Coding Up D=Coding Down	Key Code See list			

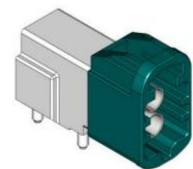


Z		WATER BLUE Ral 5021	MF002-2A3U-Z
F		NUT BROWN Ral 8011	MF002-2A3U-F
E		MAY GREEN Ral 6017	MF002-2A3U-E
D		CLARET VIOLET Ral 4004	MF002-2A3U-D
C		LIGHT BLUE Ral 5012	MF002-2A3U-C
B		PURE WHITE Ral 9010	MF002-2A3U-B
A		JET BLACK Ral 9005	MF002-2A3U-A
No.	Key Code	Color	Part No.

Mini FAKRA Connector System  
MF003 Series

**SPECIFICATIONS**

Impedance: 50 Ω  
 Frequency: DC to 9 GHz  
 Return loss: > 25 dB, DC to ≤ 3 GHz  
 > 20 dB, > 3 GHz to ≤ 6 GHz  
 > 12 dB, > 6 GHz to ≤ 9 GHz  
 Insertion loss: ≤ 0.1 x √f(GHz) dB  
 Insulation resistance: > 1000 MΩ  
 Center contact resistance: ≤ 15 mΩ  
 Outer contact resistance: ≤ 5 mΩ  
 Test voltage: 750 V rms  
 Working voltage: 60 V DC  
 Power current: ≤ 1 A DC  
 Mechanical:  
 Mating cycles: > 25  
 Engagement force: ≤ 30 N  
 Disengagement force: > 5 N  
 Retention force plastic housing: > 110 N  
 Coding efficiency: > 150 N  
 Environmental:  
 Temperature range: -40°C to +105°C  
 Type: R



MF003-2A3U-Z

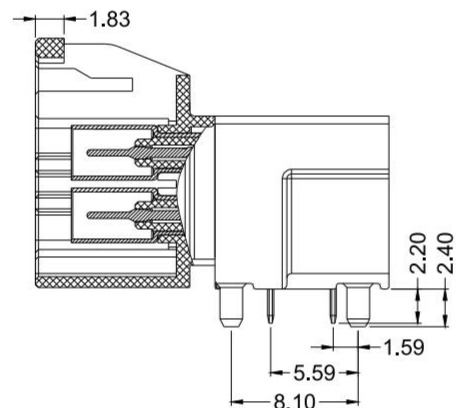
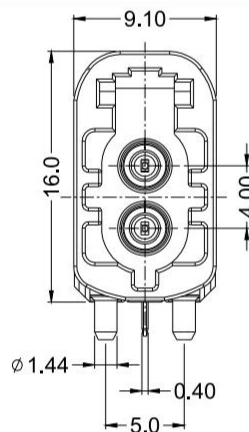
MF 003 - 2 A 3 U - X

Board-Mounting  
A=Horizontal

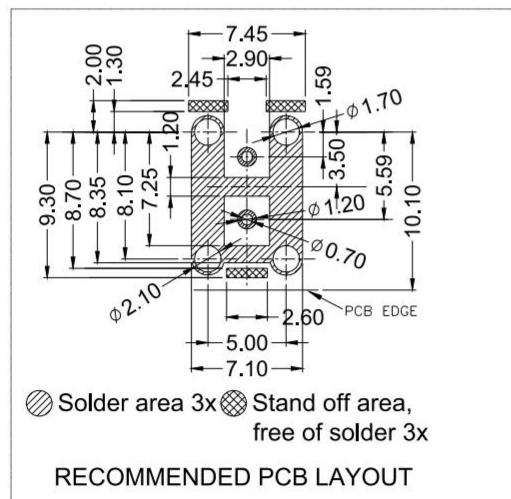
Contact plating area  
3=Au

Coding direction:  
U=Coding Up  
D=Coding Down

Key Code  
See list



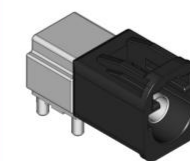
Z		WATER BLUE Ral 5021	MF003-2A3U-Z
F		NUT BROWN Ral 8011	MF003-2A3U-F
E		MAY GREEN Ral 6017	MF003-2A3U-E
D		CLARET VIOLET Ral 4004	MF003-2A3U-D
C		LIGHT BLUE Ral 5012	MF003-2A3U-C
B		PURE WHITE Ral 9010	MF003-2A3U-B
A		JET BLACK Ral 9005	MF003-2A3U-A
No.	Key Code	Color	Part No.



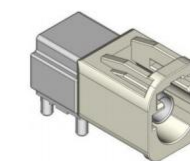
Mini FAKRA Connector System  
MF005 Series

**SPECIFICATIONS**

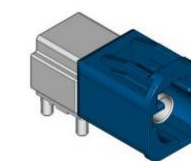
Impedance: 50 Ω  
 Frequency: DC to 9 GHz  
 Return loss: > 25 dB, DC to ≤ 3 GHz  
 > 20 dB, > 3 GHz to ≤ 6 GHz  
 > 12 dB, > 6 GHz to ≤ 9 GHz  
 Insertion loss: ≤ 0.1 x √f(GHz) dB  
 Insulation resistance: > 1000 MΩ  
 Center contact resistance: ≤ 15 mΩ  
 Outer contact resistance: ≤ 5 mΩ  
 Test voltage: 750 V rms  
 Working voltage: 60 V DC  
 Power current: ≤ 1 A DC  
 Mechanical:  
 Mating cycles: > 25  
 Engagement force: ≤ 45 N  
 Disengagement force: > 5 N  
 Retention force plastic housing: > 110 N  
 Coding efficiency: > 150 N  
 Environmental:  
 Temperature range: -40°C to +105°C  
 Type: R



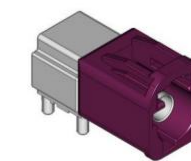
MF005-1A3U-A



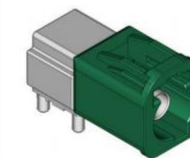
MF005-1A3U-B



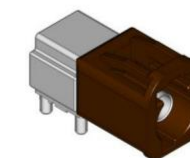
MF005-1A3U-C



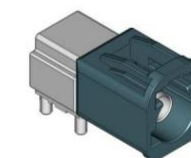
MF005-1A3U-D



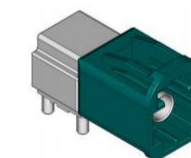
MF005-1A3U-E



MF005-1A3U-F



MF005-1A3U-G



MF005-1A3U-Z

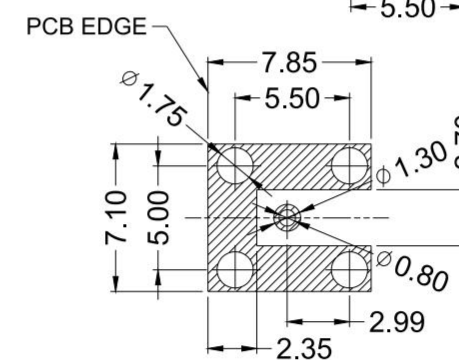
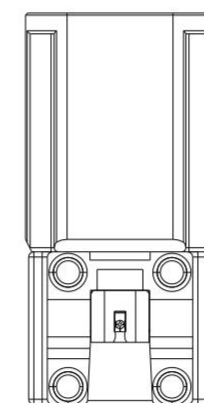
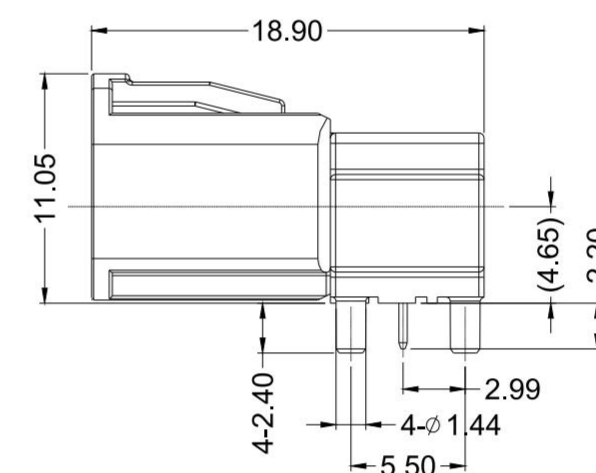
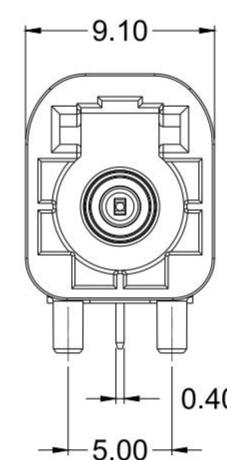
MF 005 - 1 A 3 U - X

Board-Mounting  
A=Horizontal

Contact plating area  
3=Au

Coding direction:  
U=Coding Up  
D=Coding Down

Key Code  
See list



**RECOMMENDED PCB LAYOUT**

Z		WATER BLUE Ral 5021	MF005-1A3U-Z
F		NUT BROWN Ral 8011	MF005-1A3U-F
E		MAY GREEN Ral 6017	MF005-1A3U-E
D		CLARET VIOLET Ral 4004	MF005-1A3U-D
C		LIGHT BLUE Ral 5012	MF005-1A3U-C
B		PURE WHITE Ral 9010	MF005-1A3U-B
A		JET BLACK Ral 9005	MF005-1A3U-A
No.	Key Code	Color	Part No.



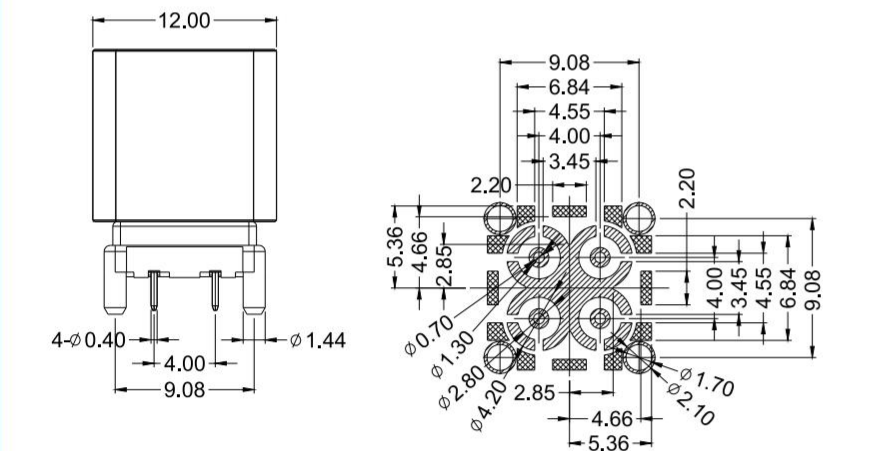
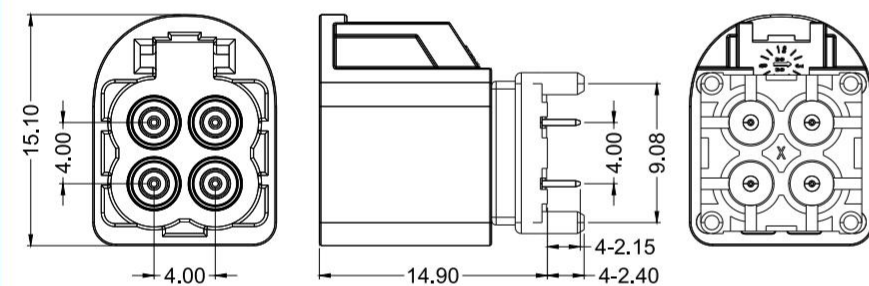
Mini FAKRA Connector System  
**MF006 Series**

**SPECIFICATIONS**









Impedance: 50 Ω  
 Frequency: DC to 9 GHz  
 Return loss: > 25 dB, DC to ≤ 3 GHz  
 > 20 dB, > 3 GHz to ≤ 6 GHz  
 > 12 dB, > 6 GHz to ≤ 9 GHz  
 Insertion loss: ≤ 0.1 x √f(GHz) dB  
 Insulation resistance: > 1000 MΩ  
 Center contact resistance: ≤ 15 mΩ  
 Outer contact resistance: ≤ 5 mΩ  
 Test voltage: 750 V rms  
 Working voltage: 60 V DC  
 Power current: ≤ 1 A DC  
 Mechanical:  
 Mating cycles: > 25  
 Engagement force: ≤ 45 N  
 Disengagement force: > 5 N  
 Retention force plastic housing: > 110 N  
 Coding efficiency: > 150 N  
 Environmental:  
 Temperature range: -40°C to +105°C  
 Type: R



**MF 006 - 4 V 3 U - X**  
 Board-Mounting V=vertical  
 Contact plating area 3=Au  
 Coding direction: U=Coding Up D=Coding Down  
 Key Code See list



⊗ Solder area 9x ⊗ Stand off area, free of solder 12x  
 all Bohrungen / all drill holes (8x)  
**RECOMMENDED PCB LAYOUT (TOP VIEW)**

Z		WATER BLUE Ral 5021	MF006-4V3U-Z
G		PLATINUM GREY Ral 7036	MF006-4V3U-G
F		NUT BROWN Ral 8011	MF006-4V3U-F
E		MAY GREEN Ral 6017	MF006-4V3U-E
D		CLARET VIOLET Ral 4004	MF006-4V3U-D
C		LIGHT BLUE Ral 5012	MF006-4V3U-C
B		PURE WHITE Ral 9010	MF006-4V3U-B
A		JET BLACK Ral 9005	MF006-4V3U-A
No.	Key Code	Color	Part No.

Mini FAKRA Connector System  
**MF007 Series**

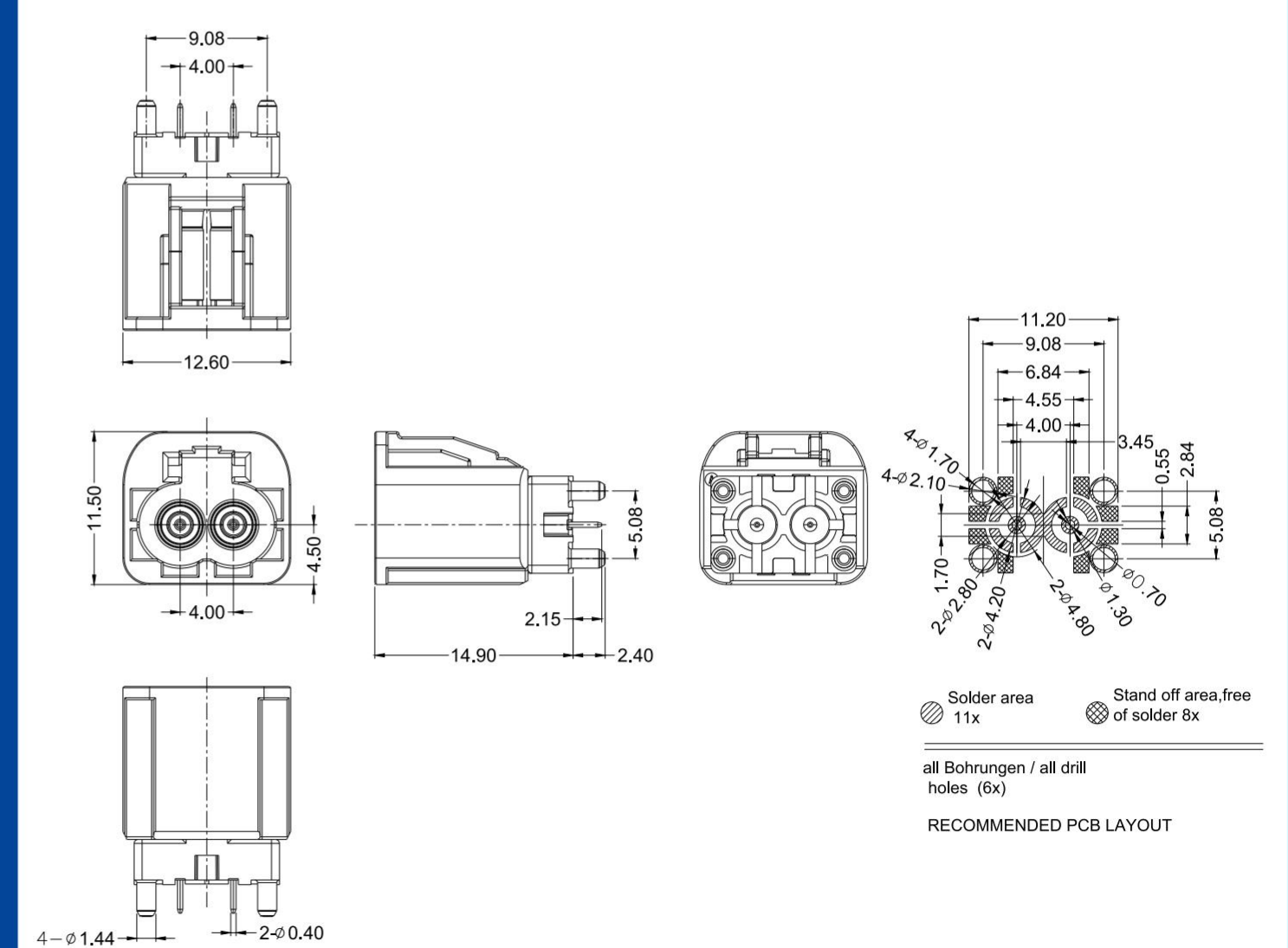
**SPECIFICATIONS**

Impedance: 50 Ω  
 Frequency: DC to 9 GHz  
 Return loss: > 25 dB, DC to ≤ 3 GHz  
 > 20 dB, > 3 GHz to ≤ 6 GHz  
 > 12 dB, > 6 GHz to ≤ 9 GHz  
 Insertion loss: ≤ 0.1 x √f(GHz) dB  
 Insulation resistance: > 1000 MΩ  
 Center contact resistance: ≤ 15 mΩ  
 Outer contact resistance: ≤ 5 mΩ  
 Test voltage: 750 V rms  
 Working voltage: 60 V DC  
 Power current: ≤ 1 A DC  
 Mechanical:  
 Mating cycles: > 25  
 Engagement force: ≤ 45 N  
 Disengagement force: > 5 N  
 Retention force plastic housing: > 110 N  
 Coding efficiency: > 150 N  
 Environmental:  
 Temperature range: -40°C to +105°C  
 Type: R



MF007-2V3U-Z

**MF 007 - 2 V 3 U - Z**  
 Board-Mounting V=Vertical  
 Contact plating area 3=Au  
 Coding direction: U=Coding Up D=Coding Down  
 Key Code



Mini FAKRA Connector System  
 MF007 Series

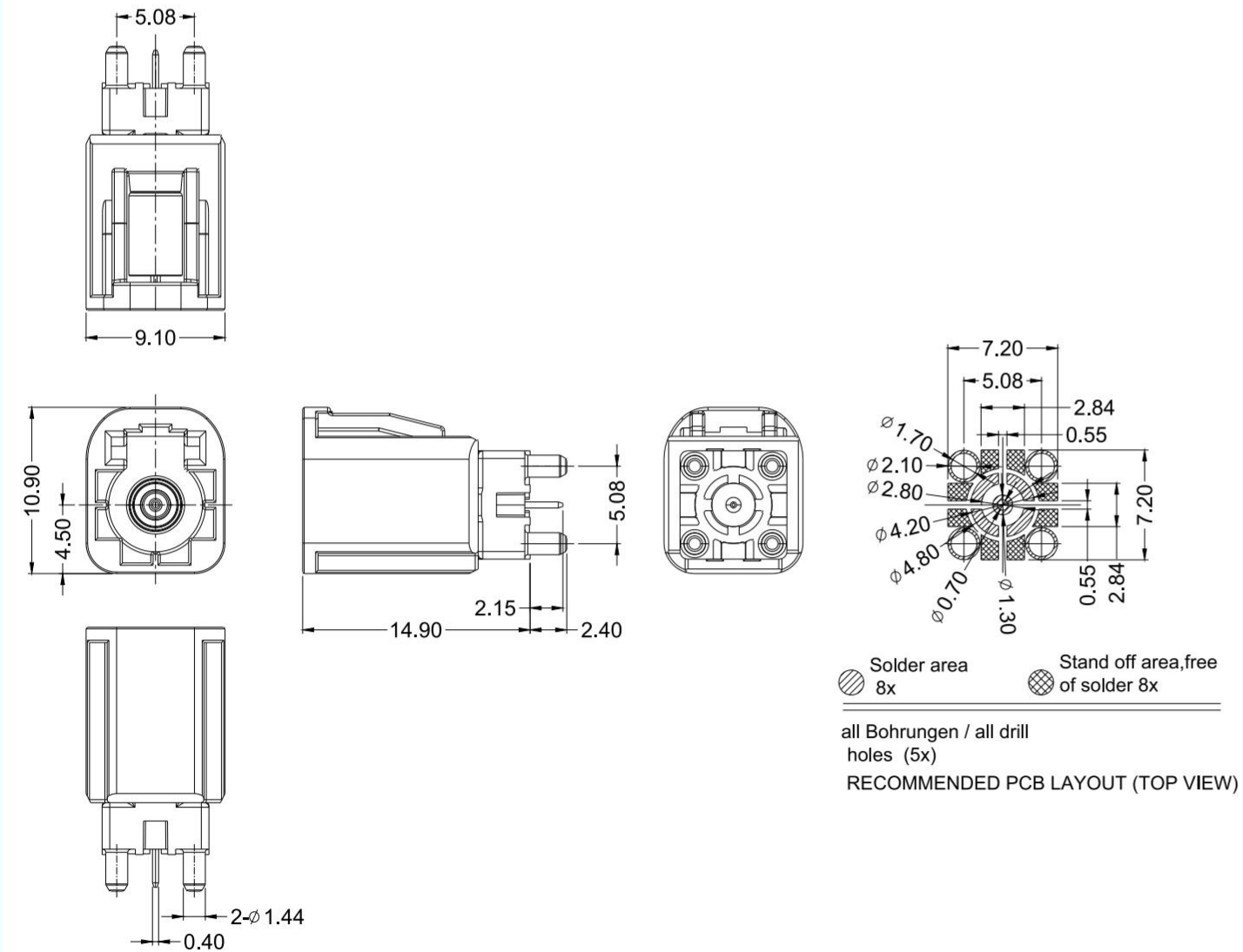
**SPECIFICATIONS**

Impedance: 50 Ω  
 Frequency: DC to 9 GHz  
 Return loss: > 25 dB, DC to ≤ 3 GHz  
 > 20 dB, > 3 GHz to ≤ 6 GHz  
 > 12 dB, > 6 GHz to ≤ 9 GHz  
 Insertion loss: ≤ 0.1 x √f(GHz) dB  
 Insulation resistance: > 1000 MΩ  
 Center contact resistance: ≤ 15 mΩ  
 Outer contact resistance: ≤ 5 mΩ  
 Test voltage: 750 V rms  
 Working voltage: 60 V DC  
 Power current: ≤ 1 A DC  
 Mechanical:  
 Mating cycles: > 25  
 Engagement force: ≤ 45 N  
 Disengagement force: > 5 N  
 Retention force plastic housing: > 110 N  
 Coding efficiency: > 150 N  
 Environmental:  
 Temperature range: -40°C to +105°C  
 Type: R



MF008-1V3U-Z

MF 008 - 1 V 3 U - Z  
 Board-Mounting V=Vertical  
 Contact plating area 3=Au  
 Coding direction: U=Coding Up  
 D=Coding Down  
 Key Code



Mini FAKRA Connector System  
 MF051 Series

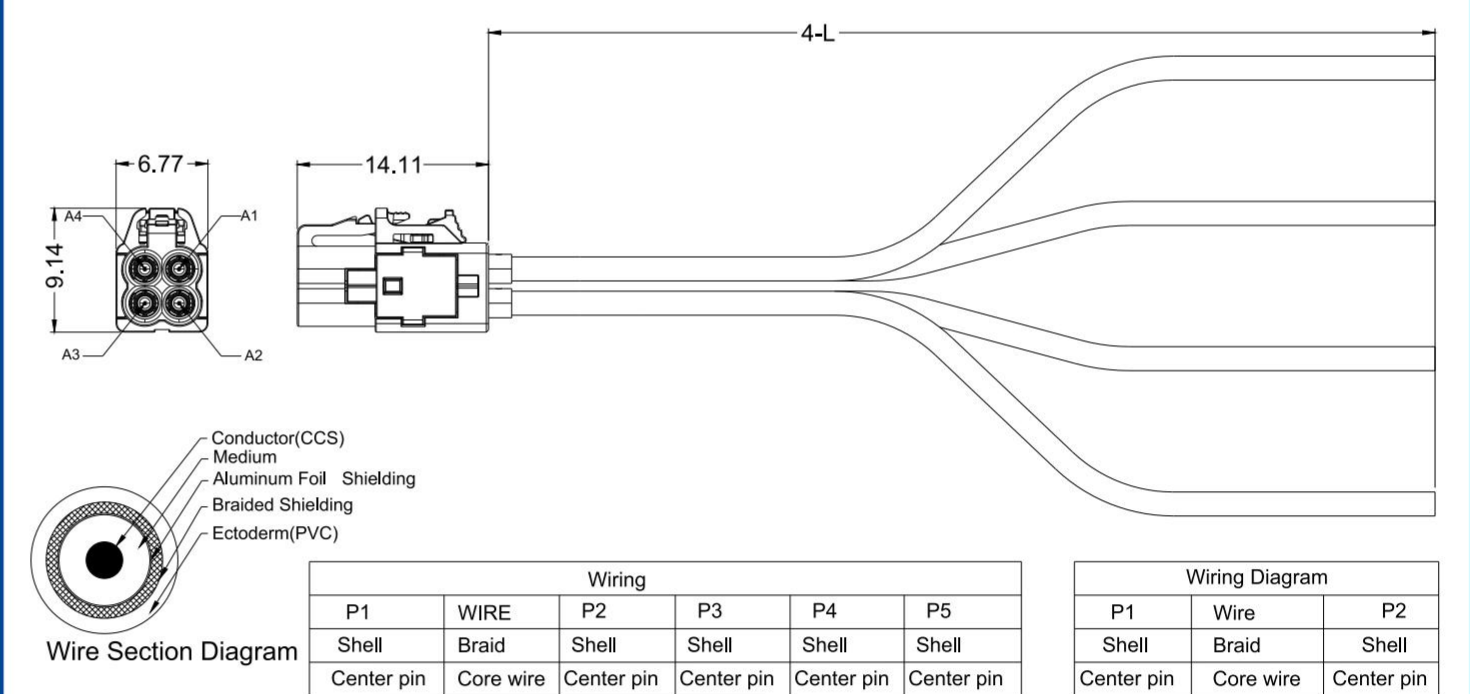
**SPECIFICATIONS**

Impedance: 50 Ω  
 Frequency: DC to 9 GHz  
 Standing wave ratio:  
 0~1GHz, 1.15Max.  
 2~5GHz, 1.39Max.  
 6~9GHz, 1.58Max.  
 Insulation resistance: > 100 MΩ  
 Test voltage: 500 V rms  
 Working voltage: 60 V DC  
 Power current: ≤ 1 A DC  
 Mechanical:  
 Mating cycles: > 25  
 Retention force plastic housing: > 110 N  
 Coding efficiency: > 40 N  
 Environmental:  
 Temperature range: -40°C to +105°C  
 Type: R



MF051-4A3U-A

MF 051 - 4 A 3 U - A  
 Board-Mounting A=Horizontal  
 Contact plating area 3=Au  
 Coding direction: U=Coding Up  
 D=Coding Down  
 Key Code



**MINI FAKRA F TO F Cable Assembly  
 MC001 Series**

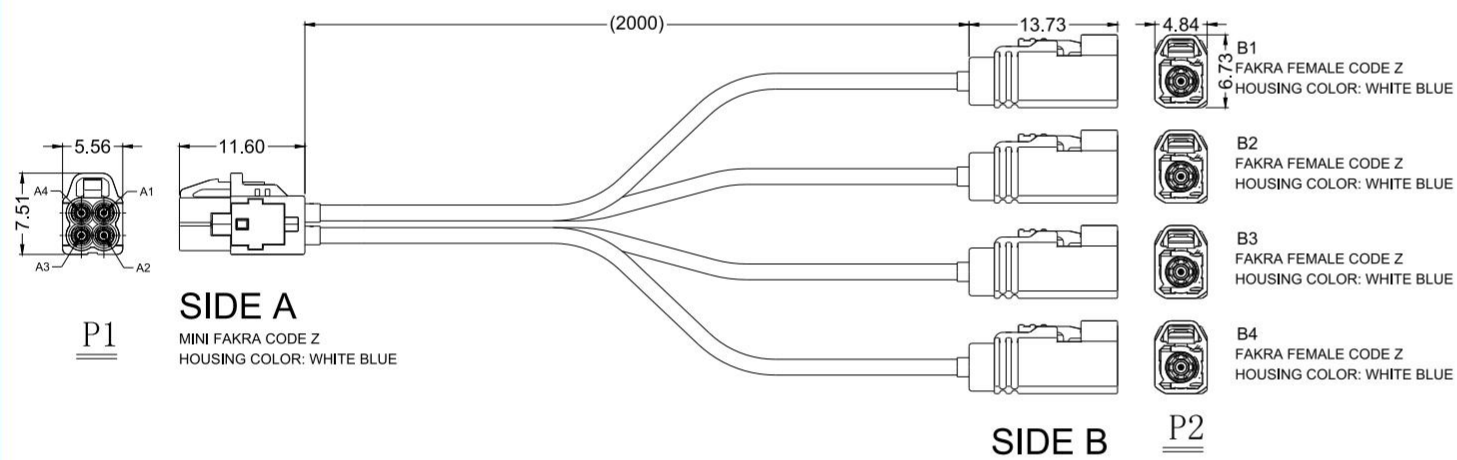
**SPECIFICATIONS**  
 Current: 1A Max DC  
 Voltage: 60V DC Max  
 Withstanding Voltage: 500V AC.  
 Contact Resistance: 50 ± 6Ω.  
 Insulation Resistance: 100MΩ Min.  
 Frequency range: DC to 9GHz  
 Standing wave ratio: 0~1GHz, 1.15Max.  
 2~5, 1.39Max; 6~9GHz, 1.58Max  
 Transmission rate (High frequency): 9G  
 Standard: Conforms to USCAR-2 (Connector)  
 Standard: Conforms to USCAR-49 (Cable)  
**Mechanical:**  
 Mating cycles : ≥ 25  
 Engagement force : ≤ 40 N  
 Retention force latch : ≥ 110 N  
 Type: R



Mini Fakra Connector

MC001-2000-X-ZZ ZZ

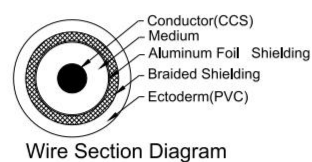
MC 001 - 2000 - X - ZZ ZZ  
 Cable Length 2000-2000mm  
 Key Code X  
 Key Code Side A ZZ  
 Key Code Side B ZZ



Key Code	Part No.	Color
A	MC001-2000-A-ZZZZ	RAL 9005
B	MC001-2000-B-ZZZZ	RAL 9001
C	MC001-2000-C-ZZZZ	RAL 5005
D	MC001-2000-D-ZZZZ	RAL 4004
E	MC001-2000-E-ZZZZ	RAL 6002
F	MC001-2000-F-ZZZZ	RAL 8011
G	MC001-2000-G-ZZZZ	RAL 7031
H	MC001-2000-H-ZZZZ	RAL 4003
I	MC001-2000-I-ZZZZ	RAL 1001
K	MC001-2000-K-ZZZZ	RAL 1027
L	MC001-2000-L-ZZZZ	RAL 3002
M	MC001-2000-M-ZZZZ	RAL 2003
N	MC001-2000-N-ZZZZ	RAL 6019
Z	MC001-2000-Z-ZZZZ	RAL 5021

Wiring Diagram

P1	P2
A1	B1
A2	B4
A3	B3
A4	B2

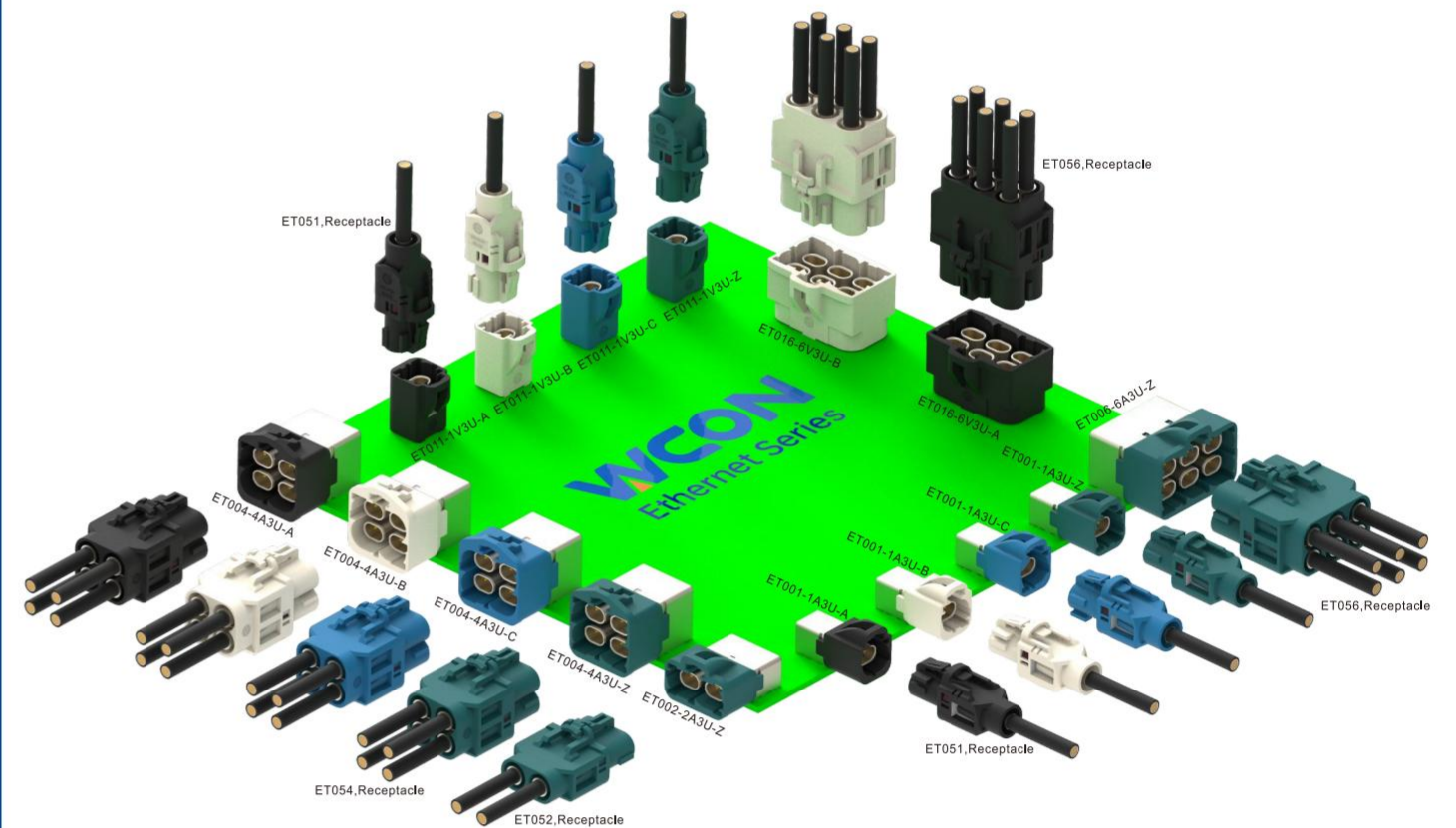


**Ethernet Connector System**

**Ethernet Series**







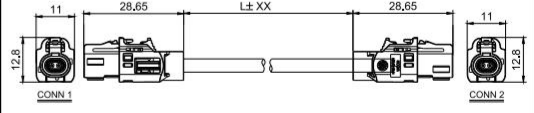
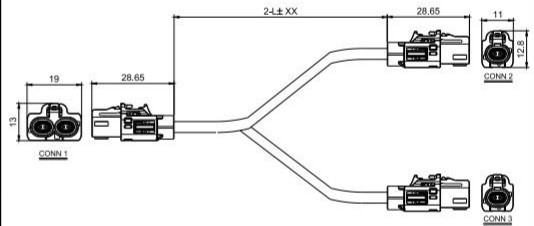
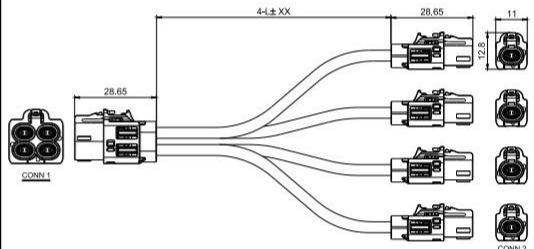
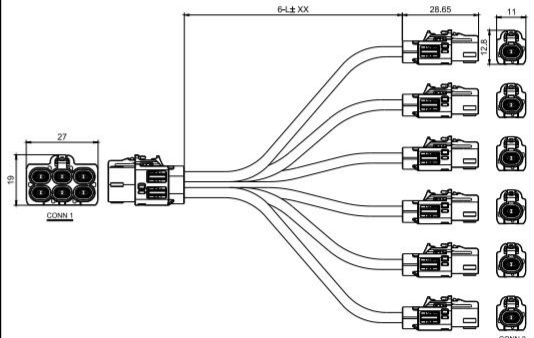
**Board-Mounting**  
 S/T DIP: Vertical T/H  
 R/A DIP: Horizontal T/H  
 R/A SMT: Horizontal SMT



Part Number	Description	Color & Key Code	Color number	Picture
ET001 -1A3U -A	1 Way Right Angle	A Jet Black	9005	
ET001 -1A3U -B	1 Way Right Angle	B Cream White	9001	
ET001 -1A3U -C	1 Way Right Angle	C Signal Blue	5005	
ET001 -1A3U -D	1 Way Right Angle	D Claret Violet	4004	
ET001 -1A3U -E	1 Way Right Angle	E Leaf Green	6002	
ET001 -1A3U -F	1 Way Right Angle	F Nut BroNut	8011	
ET001 -1A3U -Z	1 Way Right Angle	Z Water Blue	5021	
ET002 -2A3U -A	2 Way Right Angle	A Jet Black	9005	
ET002 -2A3U -B	2 Way Right Angle	B Cream White	9001	
ET002 -2A3U -C	2 Way Right Angle	C Signal Blue	5005	
ET002 -2A3U -D	2 Way Right Angle	D Claret Violet	4004	
ET002 -2A3U -E	2 Way Right Angle	E Leaf Green	6002	
ET002 -2A3U -F	2 Way Right Angle	F Nut BroNut	8011	
ET002 -2A3U -Z	2 Way Right Angle	Z Water Blue	5021	
ET004 -4A3U -A	4 Way Right Angle	A Jet Black	9005	
ET004 -4A3U -B	4 Way Right Angle	B Cream White	9001	
ET004 -4A3U -C	4 Way Right Angle	C Signal Blue	5005	
ET004 -4A3U -D	4 Way Right Angle	D Claret Violet	4004	
ET004 -4A3U -E	4 Way Right Angle	E Leaf Green	6002	
ET004 -4A3U -F	4 Way Right Angle	F Nut BroNut	8011	
ET004 -4A3U -Z	4 Way Right Angle	Z Water Blue	5021	
ET006 -6A3U -A	6 Way Right Angle	A Jet Black	9005	
ET006 -6A3U -B	6 Way Right Angle	B Cream White	9001	
ET006 -6A3U -C	6 Way Right Angle	C Signal Blue	5005	
ET006 -6A3U -D	6 Way Right Angle	D Claret Violet	4004	
ET006 -6A3U -E	6 Way Right Angle	E Leaf Green	6002	
ET006 -6A3U -F	6 Way Right Angle	F Nut BroNut	8011	
ET006 -6A3U -Z	6 Way Right Angle	Z Water Blue	5021	

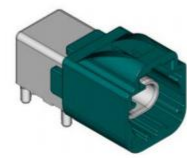
Part Number	Description	Color & Key Code	Color number	Picture
ET011 -1V3U -A	1 Way Straight	A Jet Black	9005	
ET011 -1V3U -B	1 Way Straight	B Cream White	9001	
ET011 -1V3U -C	1 Way Straight	C Signal Blue	5005	
ET011 -1V3U -D	1 Way Straight	D Claret Violet	4004	
ET011 -1V3U -E	1 Way Straight	E Leaf Green	6002	
ET011 -1V3U -F	1 Way Straight	F Nut BroNut	8011	
ET011 -1V3U -Z	1 Way Straight	Z Water Blue	5021	
ET012 -2V3U -A	2 Way Straight	A Jet Black	9005	
ET012 -2V3U -B	2 Way Straight	B Cream White	9001	
ET012 -2V3U -C	2 Way Straight	C Signal Blue	5005	
ET012 -2V3U -D	2 Way Straight	D Claret Violet	4004	
ET012 -2V3U -E	2 Way Straight	E Leaf Green	6002	
ET012 -2V3U -F	2 Way Straight	F Nut BroNut	8011	
ET012 -2V3U -Z	2 Way Straight	Z Water Blue	5021	
ET014 -4V3U -A	4 Way Straight	A Jet Black	9005	
ET014 -4V3U -B	4 Way Straight	B Cream White	9001	
ET014 -4V3U -C	4 Way Straight	C Signal Blue	5005	
ET014 -4V3U -D	4 Way Straight	D Claret Violet	4004	
ET014 -4V3U -E	4 Way Straight	E Leaf Green	6002	
ET014 -4V3U -F	4 Way Straight	F Nut BroNut	8011	
ET014 -4V3U -Z	4 Way Straight	Z Water Blue	5021	
ET016 -6V3U -A	6 Way Straight	A Jet Black	9005	
ET016 -6V3U -B	6 Way Straight	B Cream White	9001	
ET016 -6V3U -C	6 Way Straight	C Signal Blue	5005	
ET016 -6V3U -D	6 Way Straight	D Claret Violet	4004	
ET016 -6V3U -E	6 Way Straight	E Leaf Green	6002	
ET016 -6V3U -F	6 Way Straight	F Nut BroNut	8011	
ET016 -6V3U -Z	6 Way Straight	Z Water Blue	5021	

Part Number	Description	Color & Key Code	Color number	Picture
ET051 -1A3U -A	1 Way Straight plug	A Jet Black	9005	
ET051 -1A3U -B	1 Way Straight plug	B Cream White	9001	
ET051 -1A3U -C	1 Way Straight plug	C Signal Blue	5005	
ET051 -1A3U -D	1 Way Straight plug	D Claret Violet	4004	
ET051 -1A3U -E	1 Way Straight plug	E Leaf Green	6002	
ET051 -1A3U -F	1 Way Straight plug	F Nut BroNut	8011	
ET051 -1A3U -Z	1 Way Straight plug	Z Water Blue	5021	
ET052 -2A3U -A	2 Way Straight plug	A Jet Black	9005	
ET052 -2A3U -B	2 Way Straight plug	B Cream White	9001	
ET052 -2A3U -C	2 Way Straight plug	C Signal Blue	5005	
ET052 -2A3U -D	2 Way Straight plug	D Claret Violet	4004	
ET052 -2A3U -E	2 Way Straight plug	E Leaf Green	6002	
ET052 -2A3U -F	2 Way Straight plug	F Nut BroNut	8011	
ET052 -2A3U -Z	2 Way Straight plug	Z Water Blue	5021	
ET054 -4A3U -A	4 Way Straight plug	A Jet Black	9005	
ET054 -4A3U -B	4 Way Straight plug	B Cream White	9001	
ET054 -4A3U -C	4 Way Straight plug	C Signal Blue	5005	
ET054 -4A3U -D	4 Way Straight plug	D Claret Violet	4004	
ET054 -4A3U -E	4 Way Straight plug	E Leaf Green	6002	
ET054 -4A3U -F	4 Way Straight plug	F Nut BroNut	8011	
ET054 -4A3U -Z	4 Way Straight plug	Z Water Blue	5021	
ET056 -6A3U -A	6 Way Straight plug	A Jet Black	9005	
ET056 -6A3U -B	6 Way Straight plug	B Cream White	9001	
ET056 -6A3U -C	6 Way Straight plug	C Signal Blue	5005	
ET056 -6A3U -D	6 Way Straight plug	D Claret Violet	4004	
ET056 -6A3U -E	6 Way Straight plug	E Leaf Green	6002	
ET056 -6A3U -F	6 Way Straight plug	F Nut BroNut	8011	
ET056 -6A3U -Z	6 Way Straight plug	Z Water Blue	5021	

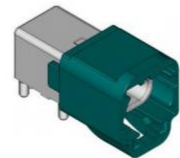
Part Number	Description	Color & Key Code	Color number	Picture
EC101 -XXXX-A-A	1 Female to 1 Female	A Jet Black	9005	
EC101 -XXXX-B-B	1 Female to 1 Female	B Cream White	9001	
EC101 -XXXX-C-C	1 Female to 1 Female	C Signal Blue	5005	
EC101 -XXXX-D-D	1 Female to 1 Female	D Claret Violet	4004	
EC101 -XXXX-E-E	1 Female to 1 Female	E Leaf Green	6002	
EC101 -XXXX-F-F	1 Female to 1 Female	F Nut BroNut	8011	
EC101 -XXXX-Z-Z	1 Female to 1 Female	Z Water Blue	5021	
EC201 -XXXX-A-XX	1 Female to 2 Female	A Jet Black	9005	
EC201 -XXXX-B-XX	1 Female to 2 Female	B Cream White	9001	
EC201 -XXXX-C-XX	1 Female to 2 Female	C Signal Blue	5005	
EC201 -XXXX-D-XX	1 Female to 2 Female	D Claret Violet	4004	
EC201 -XXXX-E-XX	1 Female to 2 Female	E Leaf Green	6002	
EC201 -XXXX-F-XX	1 Female to 2 Female	F Nut BroNut	8011	
EC201 -XXXX-Z-XX	1 Female to 2 Female	Z Water Blue	5021	
EC401 -XXXX-A-XXXX	1 Female to 4 Female	A Jet Black	9005	
EC401 -XXXX-B-XXXX	1 Female to 4 Female	B Cream White	9001	
EC401 -XXXX-C-XXXX	1 Female to 4 Female	C Signal Blue	5005	
EC401 -XXXX-D-XXXX	1 Female to 4 Female	D Claret Violet	4004	
EC401 -XXXX-E-XXXX	1 Female to 4 Female	E Leaf Green	6002	
EC401 -XXXX-F-XXXX	1 Female to 4 Female	F Nut BroNut	8011	
EC401 -XXXX-Z-XXXX	1 Female to 4 Female	Z Water Blue	5021	
EC601 -XXXX-A-XXXX	1 Female to 6 Female	A Jet Black	9005	
EC601 -XXXX-B-XXXXXX	1 Female to 6 Female	B Cream White	9001	
EC601 -XXXX-C-XXXXXX	1 Female to 6 Female	C Signal Blue	5005	
EC601 -XXXX-D-XXXXXX	1 Female to 6 Female	D Claret Violet	4004	
EC601 -XXXX-E-XXXXXX	1 Female to 6 Female	E Leaf Green	6002	
EC601 -XXXX-F-XXXXXX	1 Female to 6 Female	F Nut BroNut	8011	
EC601 -XXXX-Z-XXXXXX	1 Female to 6 Female	Z Water Blue	5021	

**SPECIFICATIONS**

Impedance:100 Ω  
Frequency:DC to 10 GHz  
Return loss: > 30dB (0.01 GHz to 3 GHz)  
> 25dB (3 GHz to 6 GHz)  
> 20dB (6 GHz to 10 GHz)  
Insulation resistance: > 100 MΩ  
Center contact resistance: ≤ 10 mΩ  
Outer contact resistance: ≤ 7.5 mΩ  
Test voltage: 150 V rms  
Working voltage: 60 V rms  
Power current: ≤ 1.5 A DC  
Mechanical:  
Mating cycles: > 25  
Engagement force: ≤ 20 N  
Retention force plastic housing: > 110 N  
Coding efficiency: > 150 N  
Environmental:  
Temperature range: -40°C to +105°C  
Type: R



ET001-1A3U-Z

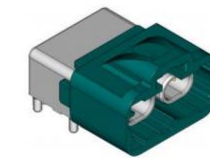


ET001-1A3U-Z

<b>ET</b>	<b>001</b>	<b>-</b>	<b>1</b>	<b>A</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>X</b>
Ethernet	Series Code 001-999	Way 1: Single Way 2: Dual Way 4: Four Way	Board-Mounting A: R/A V: S/T	Contact plating area 1: Ni 2: Tin 3: Au	Coding direction: U=Coding Up D=Coding Down	Key Code See list		

**SPECIFICATIONS**

Impedance:100 Ω  
Frequency:DC to 10 GHz  
Return loss: > 30dB (0.01 GHz to 3 GHz)  
> 25dB (3 GHz to 6 GHz)  
> 20dB (6 GHz to 10 GHz)  
Insulation resistance: > 100 MΩ  
Center contact resistance: ≤ 10 mΩ  
Outer contact resistance: ≤ 7.5 mΩ  
Test voltage: 150 V rms  
Working voltage: 60 V rms  
Power current: ≤ 1.5 A DC  
Mechanical:  
Mating cycles: > 25  
Engagement force: ≤ 20 N  
Retention force plastic housing: > 110 N  
Coding efficiency: > 150 N  
Environmental:  
Temperature range: -40°C to +105°C  
Type: R



ET002-2A3U-Z

<b>ET</b>	<b>002</b>	<b>-</b>	<b>2</b>	<b>A</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>X</b>
				Board-Mounting A=Horizontal	Contact plating area 3=Au	Coding direction: U=Coding Up D=Coding Down		Key Code See list

**ET001-1A3U-Z**

Z	WATER BLUE 5021	ET001-1A3U-Z
M	PASTEL ORANGE 2003	ET001-1A3U-M
L	YELLOW GREEN 6018	ET001-1A3U-L
K	CURRY 1027	ET001-1A3U-K
J	BEIGE 1001	ET001-1A3U-J
H	LIGHT PINK 3015	ET001-1A3U-H
G	PLATINUM GREY 7036	ET001-1A3U-G
F	NUT BROWN 8011	ET001-1A3U-F
E	MAY GREEN 6017	ET001-1A3U-E
D	CLARET VIOLET 4004	ET001-1A3U-D
C	LIGHT BLUE 5012	ET001-1A3U-C
B	PURE WHITE 9010	ET001-1A3U-B
A	BLACK 9005	ET001-1A3U-A

RECOMMENDED PCB LAYOUT (TOP VIEW)

**ET001-1A3D-Z**

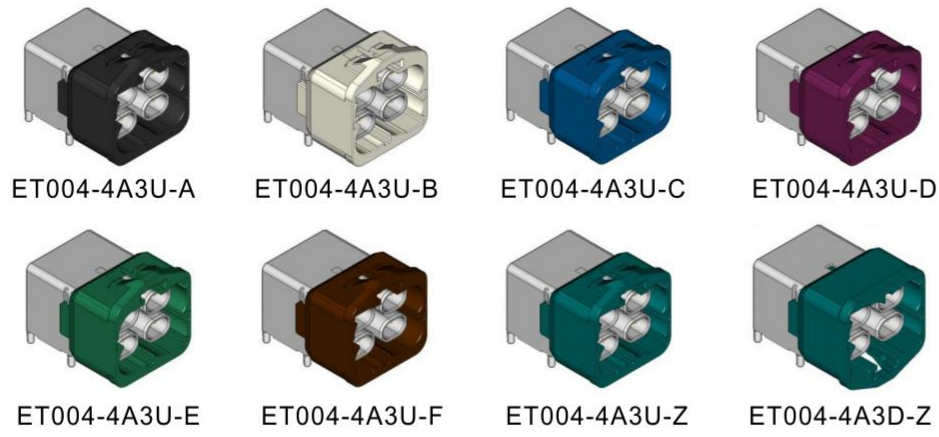
Z	WATER BLUE 5021	ET001-1A3D-Z
M	PASTEL ORANGE 2003	ET001-1A3D-M
L	YELLOW GREEN 6018	ET001-1A3D-L
K	CURRY 1027	ET001-1A3D-K
J	BEIGE 1001	ET001-1A3D-J
H	LIGHT PINK 3015	ET001-1A3D-H
G	PLATINUM GREY 7036	ET001-1A3D-G
F	NUT BROWN 8011	ET001-1A3D-F
E	MAY GREEN 6017	ET001-1A3D-E
D	CLARET VIOLET 4004	ET001-1A3D-D
C	LIGHT BLUE 5012	ET001-1A3D-C
B	PURE WHITE 9010	ET001-1A3D-B
A	BLACK 9005	ET001-1A3D-A

RECOMMENDED PCB LAYOUT (TOP VIEW)

Z	WATER BLUE 5021	ET002-2A3U-Z
F	NUT BROWN 8011	ET002-2A3U-F
E	MAY GREEN 6017	ET002-2A3U-E
D	CLARET VIOLET 4004	ET002-2A3U-D
C	LIGHT BLUE 5012	ET002-2A3U-C
B	PURE WHITE 9010	ET002-2A3U-B
A	BLACK 9005	ET002-2A3U-A

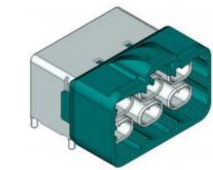
RECOMMENDED PCB LAYOUT (TOP VIEW)

**SPECIFICATIONS**  
 Impedance:100 Ω  
 Frequency:DC to 10 GHz  
 Return loss: > 30dB (0.01 GHz to 3 GHz)  
 > 25dB (3 GHz to 6 GHz)  
 > 20dB (6 GHz to 10 GHz)  
 Insulation resistance: > 100 MΩ  
 Center contact resistance: ≤ 10 mΩ  
 Outer contact resistance: ≤ 7.5 mΩ  
 Test voltage: 150 V rms  
 Working voltage: 60 V rms  
 Power current: ≤ 1.5 A DC  
**Mechanical:**  
 Mating cycles: > 25  
 Engagement force: ≤ 45 N  
 Retention force plastic housing: > 110 N  
 Coding efficiency: > 150 N  
**Environmental:**  
 Temperature range: -40°C to +105°C  
 Type:R



ET 004 - 4 A 3 U - X  
 Board-Mounting A=Horizontal  
 Contact plating area 3=Au  
 Coding direction: U=Coding Up  
 D=Coding Down  
 Key Code See list

**SPECIFICATIONS**  
 Impedance:100 Ω  
 Frequency:DC to 10 GHz  
 Return loss: > 30dB (0.01 GHz to 3 GHz)  
 > 25dB (3 GHz to 6 GHz)  
 > 20dB (6 GHz to 10 GHz)  
 Insulation resistance: > 100 MΩ  
 Center contact resistance: ≤ 10 mΩ  
 Outer contact resistance: ≤ 7.5 mΩ  
 Test voltage: 150 V rms  
 Working voltage: 60 V rms  
 Power current: ≤ 1.5 A DC  
**Mechanical:**  
 Mating cycles: > 25  
 Engagement force: ≤ 75 N  
 Retention force plastic housing: > 110 N  
 Coding efficiency: > 150 N  
**Environmental:**  
 Temperature range: -40°C to +105°C  
 Type:R



ET006-6A3U-Z

ET 006 - 6 A 3 U - X  
 Board-Mounting A=Horizontal  
 Contact plating area 3=Au  
 Coding direction: U=Coding Up  
 D=Coding Down  
 Key Code See list

**ET004-4A3U-Z**

Z		WATER BLUE 5021	ET004-4A3D-Z
F		NUT BROWN 8011	ET004-4A3D-F
E		MAY GREEN 8017	ET004-4A3D-E
D		CLARET VIOLET 4004	ET004-4A3D-D
C		LIGHT BLUE 5012	ET004-4A3D-C
B		PURE WHITE 9010	ET004-4A3D-B
A		BLACK 9005	ET004-4A3D-A

No. Key Code Color Part No.

RECOMMENDED PCB LAYOUT (TOP VIEW)

**ET004-4A3D-Z**

Z		WATER BLUE 5021	ET004-4A3U-Z
F		NUT BROWN 8011	ET004-4A3U-F
E		MAY GREEN 8017	ET004-4A3U-E
D		CLARET VIOLET 4004	ET004-4A3U-D
C		LIGHT BLUE 5012	ET004-4A3U-C
B		PURE WHITE 9010	ET004-4A3U-B
A		BLACK 9005	ET004-4A3U-A

No. Key Code Color Part No.

RECOMMENDED PCB LAYOUT (TOP VIEW)

Z		WATER BLUE 5021	ET006-6A3U-Z
F		NUT BROWN 8011	ET006-6A3U-F
E		MAY GREEN 8017	ET006-6A3U-E
D		CLARET VIOLET 4004	ET006-6A3U-D
C		LIGHT BLUE 5012	ET006-6A3U-C
B		PURE WHITE 9010	ET006-6A3U-B
A		BLACK 9005	ET006-6A3U-A

No. Key Code Color Part No.

RECOMMENDED PCB LAYOUT (TOP VIEW)

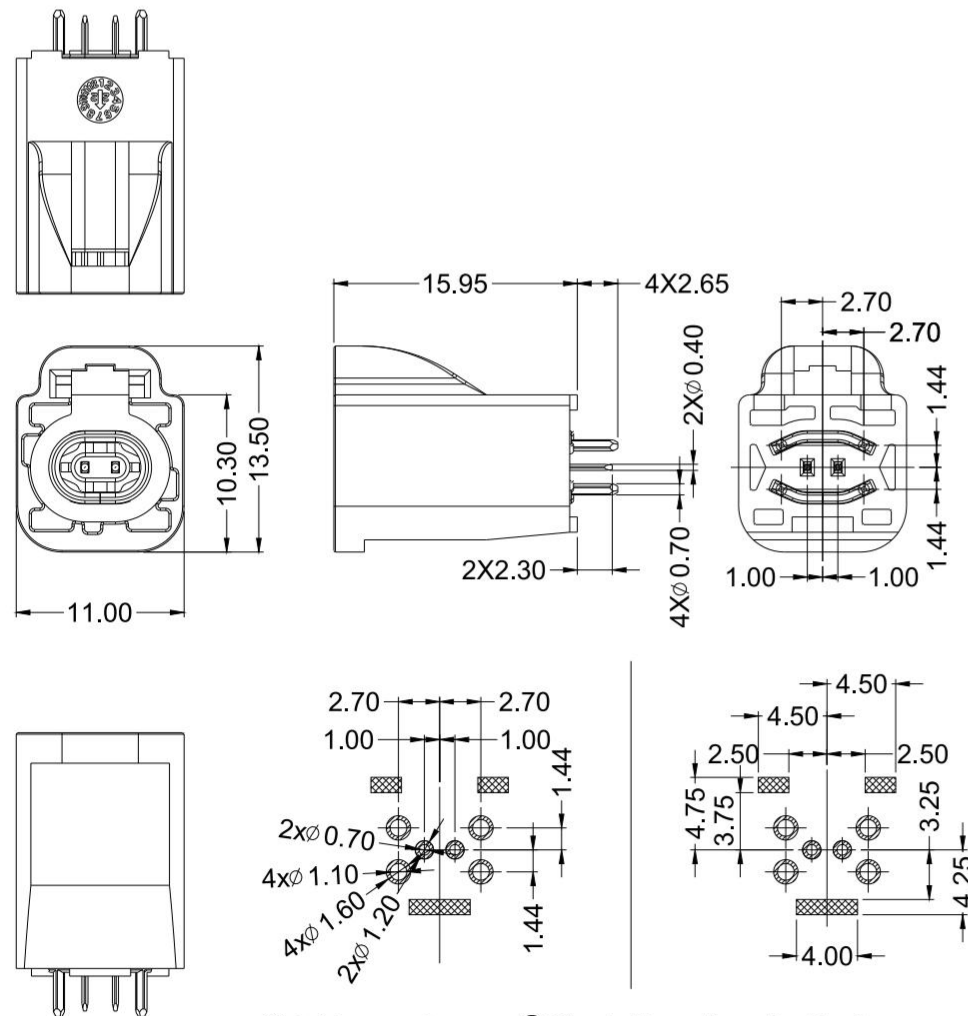
**SPECIFICATIONS**

Impedance:100 Ω  
 Frequency:DC to 10 GHz  
 Return loss: > 30dB (0.01 GHz to 3 GHz)  
     > 25dB (3 GHz to 6 GHz)  
     > 20dB (6 GHz to 10 GHz)  
 Insulation resistance: > 100 MΩ  
 Center contact resistance: ≤ 10 mΩ  
 Outer contact resistance: ≤ 7.5 mΩ  
 Test voltage: 150 V rms  
 Working voltage: 60 V rms  
 Power current: ≤ 1.5 A DC  
**Mechanical:**  
 Mating cycles: > 25  
 Engagement force: ≤ 20 N  
 Retention force plastic housing: > 110 N  
 Coding efficiency: > 150 N  
**Environmental:**  
 Temperature range: -40°C to +105°C  
 Type: R






ET011-1V3U-Z

ET 011 - 1 V 3 U - X  
 Board-Mounting V=Vertical  
 Contact plating area 3=Au  
 Coding direction: U=Coding Up D=Coding Down  
 Key Code See list



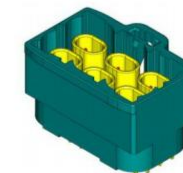
⊙ Solder area 6x    ⊗ Stand off area, free of solder 3x

All through holes (6x)  
 RECOMMENDED PCB LAYOUT (TOP VIEW)

Z		WATER BLUE 5021	ET011-1V3U-Z
M		PASTEL ORANGE 2003	ET011-1V3U-M
L		YELLOW GREEN 6018	ET011-1V3U-L
K		CURRY 1027	ET011-1V3U-K
J		BEIGE 1001	ET011-1V3U-J
H		LIGHT PINK 3015	ET011-1V3U-H
G		PLATINUM GREY 7036	ET011-1V3U-G
F		NUT BROWN 8011	ET011-1V3U-F
E		MAY GREEN 6017	ET011-1V3U-E
D		CLARET VIOLET 4004	ET011-1V3U-D
C		LIGHT BLUE 5012	ET011-1V3U-C
B		PURE WHITE 9010	ET011-1V3U-B
A		BLACK 9005	ET011-1V3U-A
No.	Key Code	Color	Part No.

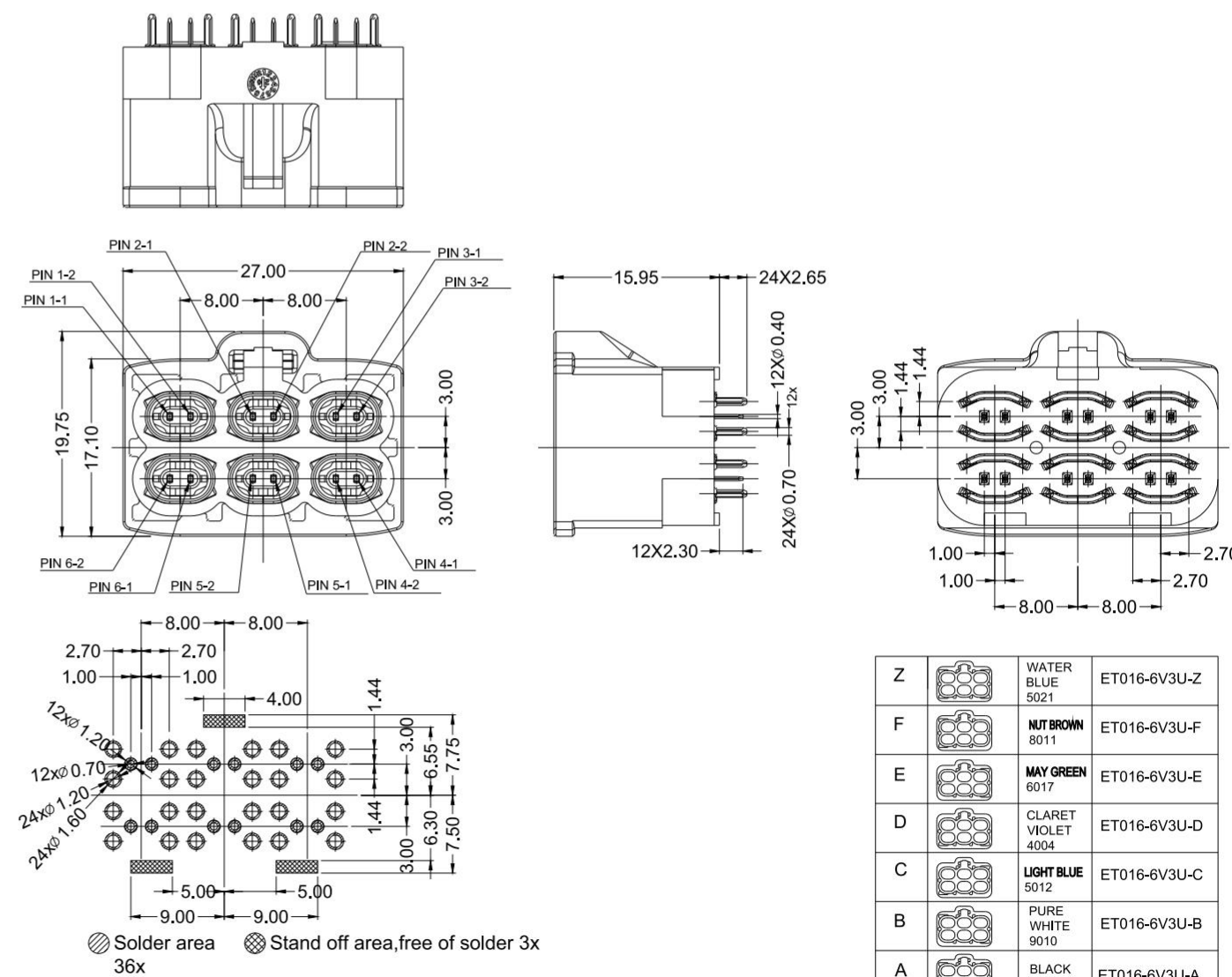
**SPECIFICATIONS**

Impedance:100 Ω  
 Frequency:DC to 10 GHz  
 Return loss: > 30dB (0.01 GHz to 3 GHz)  
     > 25dB (3 GHz to 6 GHz)  
     > 20dB (6 GHz to 10 GHz)  
 Insulation resistance: > 100 MΩ  
 Center contact resistance: ≤ 10 mΩ  
 Outer contact resistance: ≤ 7.5 mΩ  
 Test voltage: 150 V rms  
 Working voltage: 60 V rms  
 Power current: ≤ 1.5 A DC  
**Mechanical:**  
 Mating cycles: > 25  
 Engagement force: ≤ 75 N  
 Retention force plastic housing: > 110 N  
 Coding efficiency: > 150 N  
**Environmental:**  
 Temperature range: -40°C to +105°C  
 Type: R










ET016-6V3U-Z

ET 016 - 6 V 3 U - X  
 Board-Mounting V=Vertical  
 Contact plating area 3=Au  
 Coding direction: U=Coding Up D=Coding Down  
 Key Code See list



⊙ Solder area 36x    ⊗ Stand off area, free of solder 3x

All through holes (36x)  
 RECOMMENDED PCB LAYOUT (TOP VIEW)

Z		WATER BLUE 5021	ET016-6V3U-Z
F		NUT BROWN 8011	ET016-6V3U-F
E		MAY GREEN 6017	ET016-6V3U-E
D		CLARET VIOLET 4004	ET016-6V3U-D
C		LIGHT BLUE 5012	ET016-6V3U-C
B		PURE WHITE 9010	ET016-6V3U-B
A		BLACK 9005	ET016-6V3U-A
No.	Key Code	Color	Part No.

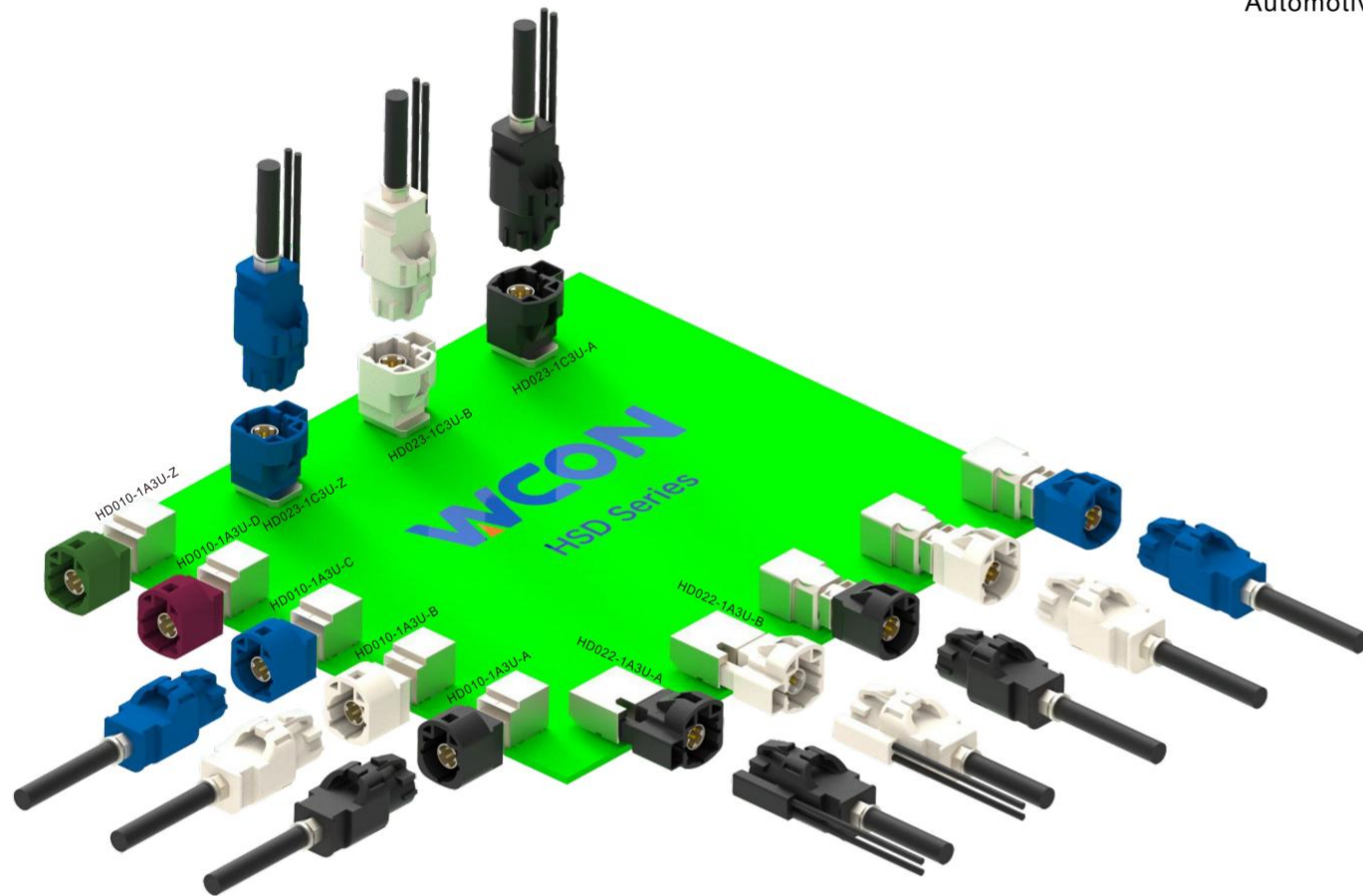


Board-Mounting  
S/T DIP:Vertical T/H  
R/A DIP:Horizontal T/H

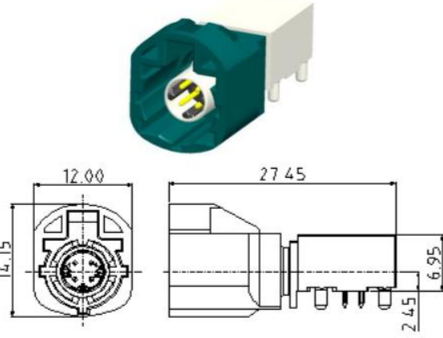
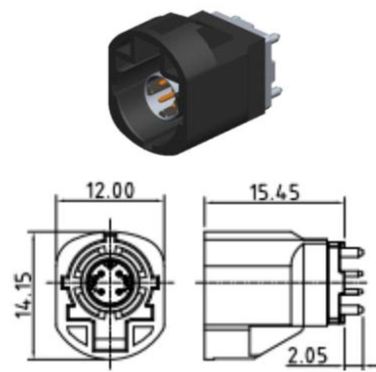
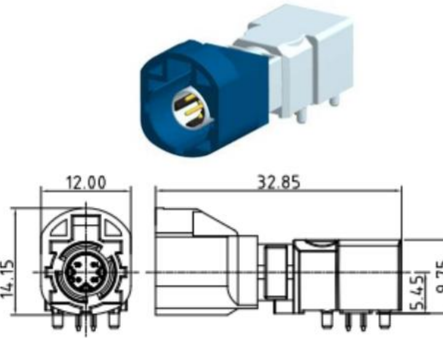
HSD Series

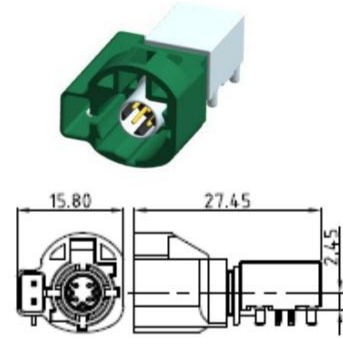
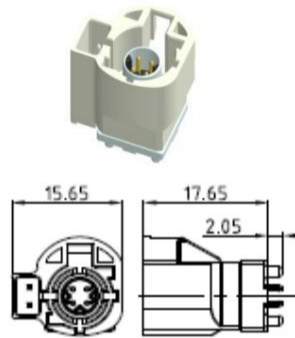
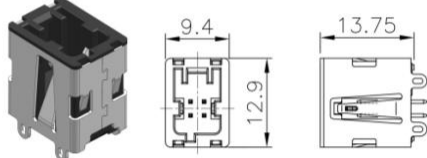
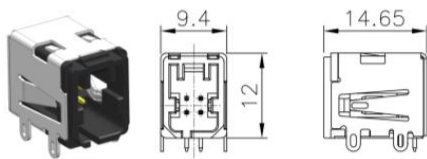


Automotive



Part Number	Board-Mounting	Color & Key Code		Color number	Picture
HD010 -1A3U -A	Right Angle	A	Jet Black	9005	
HD010 -1A3U -B	Right Angle	B	Cream White	9001	
HD010 -1A3U -C	Right Angle	C	Signal Blue	5005	
HD010 -1A3U -D	Right Angle	D	Claret Violet	4004	
HD010 -1A3U -E	Right Angle	E	Leaf Green	6002	
HD010 -1A3U -F	Right Angle	F	Nut BroNut	8011	
HD010 -1A3U -Z	Right Angle	Z	Water Blue	5021	
HD010 -1A3D -G	Right Angle	G	Blue Gray	7031	
HD010 -1A3D -H	Right Angle	H	Heather Violet	4003	
HD010 -1A3D -J	Right Angle	J	Beige	1001	
HD010 -1A3D -K	Right Angle	K	Curry	1027	
HD010 -1A3D -L	Right Angle	L	Yellow Green	6018	
HD010 -1A3D -M	Right Angle	M	Pastel Orange	2003	
HD010 -1A3D -O	Right Angle	O	Light Green	6027	
HD011 -1V3U -A	Straight	A	Jet Black	9005	
HD011 -1V3U -B	Straight	B	Cream White	9001	
HD011 -1V3U -C	Straight	C	Signal Blue	5005	
HD011 -1V3U -D	Straight	D	Claret Violet	4004	
HD011 -1V3U -E	Straight	E	Leaf Green	6002	
HD011 -1V3U -F	Straight	F	Nut BroNut	8011	
HD011 -1V3U -Z	Straight	Z	Water Blue	5021	
HD011 -1V3D -G	Straight	G	Jet Black	7031	
HD011 -1V3D -H	Straight	H	Cream White	4003	
HD011 -1V3D -J	Straight	J	Signal Blue	1001	
HD011 -1V3D -K	Straight	K	Claret Violet	1027	
HD011 -1V3D -L	Straight	L	Leaf Green	6018	
HD011 -1V3D -M	Straight	M	Nut BroNut	2003	
HD011 -1V3D -O	Straight	O	Water Blue	6027	

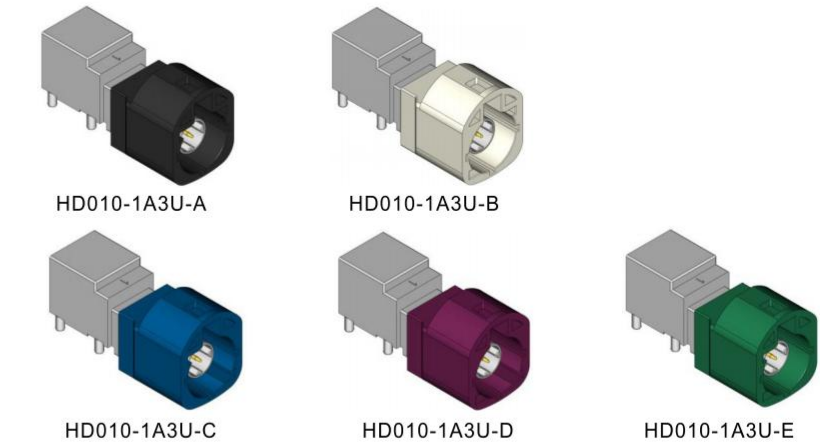
Part Number	Board-Mounting	Color & Key Code	Color number	Picture	
HD012 -1A3U -A	Right Angle	A Jet Black	9005		
HD012 -1A4U -B	Right Angle	B Cream White	9001		
HD012 -1A5U -C	Right Angle	C Signal Blue	5005		
HD012 -1A6U -D	Right Angle	D Claret Violet	4004		
HD012 -1A7U -E	Right Angle	E Leaf Green	6002		
HD012 -1A8U -F	Right Angle	F Nut BroNut	8011		
HD012 -1A9U -Z	Right Angle	Z Water Blue	5021		
HD013 -1A3U -A	Straight	A Jet Black	9005		
HD013 -1A3U -B	Straight	B Cream White	9001		
HD013 -1A3U -C	Straight	C Signal Blue	5005		
HD013 -1A3U -D	Straight	D Claret Violet	4004		
HD013 -1A3U -E	Straight	E Leaf Green	6002		
HD013 -1A3U -F	Straight	F Nut BroNut	8011		
HD013 -1A3U -Z	Straight	Z Water Blue	5021		
HD015 -1A3U -A	Right Angle	A Jet Black	9005		
HD015 -1A3U -B	Right Angle	B Cream White	9001		
HD015 -1A3U -C	Right Angle	C Signal Blue	5005		
HD015 -1A3U -D	Right Angle	D Claret Violet	4004		
HD015 -1A3U -E	Right Angle	E Leaf Green	6002		
HD015 -1A3U -F	Right Angle	F Nut BroNut	8011		
HD015 -1A3U -Z	Right Angle	Z Water Blue	5021		
HD015 -1A3U -G	Right Angle	A Jet Black	9005		
HD015 -1A3U -H	Right Angle	B Cream White	9001		
HD015 -1A3U -J	Right Angle	C Signal Blue	5005		
HD015 -1A3U -K	Right Angle	D Claret Violet	4004		
HD015 -1A3U -L	Right Angle	E Leaf Green	6002		
HD015 -1A3U -M	Right Angle	F Nut BroNut	8011		
HD015 -1A3U -O	Right Angle	Z Water Blue	5021		

Part Number	Description	Board-Mounting	Color & Key Code	Color number	Picture	
HD022 -1A3U -A	HSD + 2	Right Angle	A Jet Black	9005		
HD022 -1A3U -B	HSD + 2	Right Angle	B Cream White	9001		
HD022 -1A3U -C	HSD + 2	Right Angle	C Signal Blue	5005		
HD022 -1A3U -D	HSD + 2	Right Angle	D Claret Violet	4004		
HD022 -1A3U -E	HSD + 2	Right Angle	E Leaf Green	6002		
HD022 -1A3U -F	HSD + 2	Right Angle	F Nut BroNut	8011		
HD022 -1A3U -Z	HSD + 2	Right Angle	Z Water Blue	5021		
HD023 -1V3U -A	HSD + 2	Straight	A Jet Black	9005		
HD023 -1V3U -B	HSD + 2	Straight	B Cream White	9001		
HD023 -1V3U -C	HSD + 2	Straight	C Signal Blue	5005		
HD023 -1V3U -D	HSD + 2	Straight	D Claret Violet	4004		
HD023 -1V3U -E	HSD + 2	Straight	E Leaf Green	6002		
HD023 -1V3U -F	HSD + 2	Straight	F Nut BroNut	8011		
HD023 -1V3U -Z	HSD + 2	Straight	Z Water Blue	5021		
HL001 -1V3U -A	HSL	Straight	A Jet Black	9005		
HL001 -1V3U -B	HSL	Straight	B Cream White	9001		
HL001 -1V3U -C	HSL	Straight	C Signal Blue	5005		
HL001 -1V3U -D	HSL	Straight	D Claret Violet	4004		
HL002 -1A3U -A	HSL	Right Angle	E Leaf Green	6002		
HL002 -1A3U -B	HSL	Right Angle	F Nut BroNut	8011		
HL002 -1A3U -C	HSL	Right Angle	Z Water Blue	5021		
HL002 -1A3U -D	HSL	Right Angle	A Jet Black	9005		

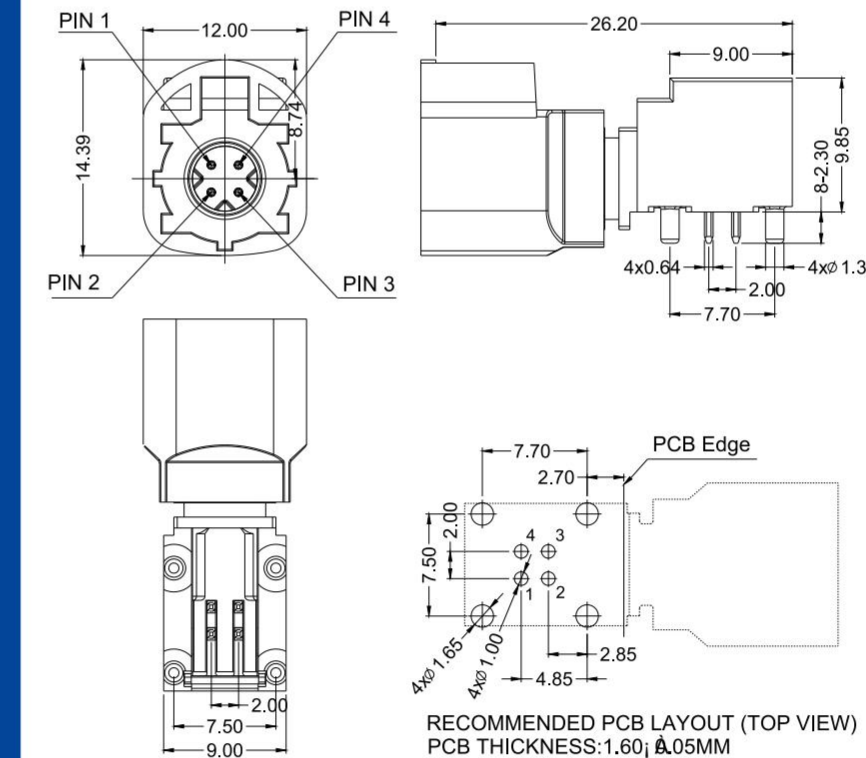
Part Number	Description	Color & Key Code	Color number	Picture
HC021-XXXX-A-X	HSD Female to HSD Female	A Jet Black	9005	
HC021-XXXX-B-X	HSD Female to HSD Female	B Cream White	9001	
HC021-XXXX-C-X	HSD Female to HSD Female	C Signal Blue	5005	
HC021-XXXX-D-X	HSD Female to HSD Female	D Claret Violet	4004	
HC021-XXXX-E-X	HSD Female to HSD Female	E Leaf Green	6002	
HC021-XXXX-F-X	HSD Female to HSD Female	F Nut BroNut	8011	
HC021-XXXX-Z-X	HSD Female to HSD Female	Z Water Blue	5021	
HC022-XXXX-A-X	HSD+2 Female to HSD+2 Female	A Jet Black	9005	
HC022-XXXX-B-X	HSD+2 Female to HSD+2 Female	B Cream White	9001	
HC022-XXXX-C-X	HSD+2 Female to HSD+2 Female	C Signal Blue	5005	
HC022-XXXX-D-X	HSD+2 Female to HSD+2 Female	D Claret Violet	4004	
HC022-XXXX-E-X	HSD+2 Female to HSD+2 Female	E Leaf Green	6002	
HC022-XXXX-F-X	HSD+2 Female to HSD+2 Female	F Nut BroNut	8011	
HC026-XXXX-A-X	HSD Female angle to HSD Female	A Jet Black	9005	
HC026-XXXX-B-X	HSD Female angle to HSD Female	B Cream White	9001	
HC026-XXXX-C-X	HSD Female angle to HSD Female	C Signal Blue	5005	
HC026-XXXX-D-X	HSD Female angle to HSD Female	D Claret Violet	4004	
HC026-XXXX-E-X	HSD Female angle to HSD Female	E Leaf Green	6002	
HC026-XXXX-F-X	HSD Female angle to HSD Female	F Nut BroNut	8011	
HC041-XXXX-A-X	HSD Female to HSL Female	A Jet Black	9005	
HC041-XXXX-B-X	HSD Female to HSL Female	B Cream White	9001	
HC041-XXXX-C-X	HSD Female to HSL Female	C Signal Blue	5005	
HC041-XXXX-D-X	HSD Female to HSL Female	D Claret Violet	4004	
HC041-XXXX-E-X	HSD Female to HSL Female	E Leaf Green	6002	
HC041-XXXX-F-X	HSD Female to HSL Female	F Nut BroNut	8011	
HC041-XXXX-Z-X	HSD Female to HSL Female	Z Water Blue	5021	

**SPECIFICATIONS**

Impedance differential mode:  
100 Ω differential signalling,  
for one pair or quad cable shielded  
Frequency: DC to 5.0 GHz  
Return loss: ≥ 20 dB to 1.0 GHz  
≥ 17 dB to 2.0 GHz  
Insertion loss: ≤ 0.1 dB @ 1.0 GHz  
Skew (between signal contacts): ≤ 5 psec.  
Near-end-Crosstalk: ≤ 30 dB  
Far-end-Crosstalk: ≤ 35 dB  
Insulation resistance: ≥ 1000 MΩ  
Signal contact resistance: ≤ 10 mΩ  
Outer contact resistance: ≤ 7.5 mΩ  
Test voltage: 250 V rms  
Working voltage: 100 V rms  
Power current: ≤ 1.5 A DC  
RF-leakage (shielding effectiveness)  
≥ 75 dB up to 1 GHz (IEC 62153-4-7)  
≥ 65 dB up to 2 GHz (IEC 62153-4-7)  
Mechanical:  
Mating cycles: ≥ 25  
Engagement force: ≤ 30 N  
Disengagement force: ≥ 5 N  
Retention force latch: ≥ 110 N  
Coding efficiency: ≥ 40 N  
Type: A



<b>HD</b>	<b>010</b>	<b>-</b>	<b>1</b>	<b>A</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>X</b>
HSD Series	Series Code 001-999		Way 1: Single Way 2: Dual Way	Board-Mounting A: R/A V: S/T	Contact plating area 1: Nickel 2: Tin 3: Au	Coding direction: U=Coding Up D=Coding Down		Key Code See list

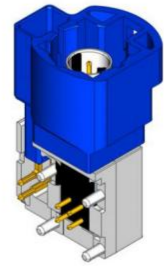


Z		Water Blue 5021	HD010-1A3U-Z
F		Nut Brown 8011	HD010-1A3U-F
E		Leaf Green 6002	HD010-1A3U-E
D		Claret Violet 4004	HD010-1A3U-D
C		Signal lue 5005	HD010-1A3U-C
B		Cream White 9001	HD010-1A3U-B
A		Jet Black 9005	HD010-1A3U-A
No.	Key Code	Color	Part No.

HSD Connector System  
HD022 Series, Right Angle

**SPECIFICATIONS**

Impedance, differential mode:  
100 Ω differential signalling,  
for one pair or quad cable shielded  
Frequency: DC to 5.0 GHz  
Return loss: ≥ 20 dB to 1.0 GHz  
≥ 17 dB to 2.0 GHz  
Insertion loss: ≤ 0.1 dB @ 1.0 GHz  
Skew (between signal contacts): ≤ 5 psec.  
Near-end-Crosstalk: ≤ 30 dB  
Far-end-Crosstalk: ≤ 35 dB  
Insulation resistance: ≥ 1000 MΩ  
Signal contact resistance: ≤ 10 mΩ  
Outer contact resistance: ≤ 7.5 mΩ  
Test voltage: 250 V rms  
Working voltage: 100 V rms  
Power current: ≤ 1.5 A DC  
RF-leakage (shielding effectiveness)  
≥ 75 dB up to 1 GHz (IEC 62153-4-7)  
≥ 65 dB up to 2 GHz (IEC 62153-4-7)  
Mechanical:  
Mating cycles: ≥ 25  
Engagement force: ≤ 30 N  
Disengagement force: ≥ 5 N  
Retention force latch: ≥ 110 N  
Coding efficiency: ≥ 40 N  
Temperature range: -40°C to +105°C  
Type:T



HD022-1A3U-Z

<b>HD</b>	<b>022</b>	<b>- 1</b>	<b>A</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>X</b>
HSD Series	Series Code 001~999	Way 1:Single Way 2:Dual Way	Board-Mounting A:R/A V:S/T	Contact plating area 1:Nickel 2:Tin 3=Au	Coding direction: U=Coding Up D=Coding Down		Key Code See list

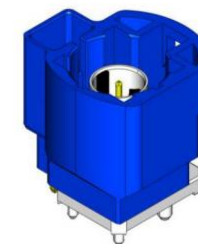
Z		Water Blue 5021	HD022-1A3U-Z
F		Nut Brown 8011	HD022-1A3U-F
E		Leaf Green 6002	HD022-1A3U-E
D		Claret Violet 4004	HD022-1A3U-D
C		Signal lue 5005	HD022-1A3U-C
B		Cream White 9001	HD022-1A3U-B
A		Jet Black 9005	HD022-1A3U-A
No.	Key Code	Color	Part No.

**RECOMMENDED PCB LAYOUT**

HSD Connector System  
HD023 Series, Straight

**SPECIFICATIONS**

Impedance, differential mode:  
100 Ω differential signalling,  
for one pair or quad cable shielded  
Frequency: DC to 5.0 GHz  
Return loss: ≥ 20 dB to 1.0 GHz  
≥ 17 dB to 2.0 GHz  
Insertion loss: ≤ 0.1 dB @ 1.0 GHz  
Skew (between signal contacts): ≤ 5 psec.  
Near-end-Crosstalk: ≤ 30 dB  
Far-end-Crosstalk: ≤ 35 dB  
Insulation resistance: ≥ 1000 MΩ  
Signal contact resistance: ≤ 10 mΩ  
Outer contact resistance: ≤ 7.5 mΩ  
Test voltage: 250 V rms  
Working voltage: 100 V rms  
Power current: ≤ 1.5 A DC  
RF-leakage (shielding effectiveness)  
≥ 75 dB up to 1 GHz (IEC 62153-4-7)  
≥ 65 dB up to 2 GHz (IEC 62153-4-7)  
Mechanical:  
Mating cycles: ≥ 25  
Engagement force: ≤ 30 N  
Disengagement force: ≥ 5 N  
Retention force latch: ≥ 110 N  
Coding efficiency: ≥ 40 N  
Temperature range: -40°C to +105°C  
Type:T



HD023-1V3U-Z

<b>HD</b>	<b>023</b>	<b>- 1</b>	<b>V</b>	<b>3</b>	<b>U</b>	<b>-</b>	<b>X</b>
HSD Series	Series Code 001~999	Way 1:Single Way 2:Dual Way	Board-Mounting A:R/A V:S/T	Contact plating area 1:Nickel 2:Tin 3=Au	Coding direction: U=Coding Up D=Coding Down		Key Code See list

No.	Key Code	Color	Part No.
A		Black	HD023-1V3U-A
B		White	HD023-1V3U-B
C		Blue	HD023-1V3U-C
D		Claret	HD023-1V3U-D
E		Green	HD023-1V3U-E
F		Brown	HD023-1V3U-F
Z		Waterblue	HD023-1V3U-Z

**RECOMMENDED PCB LAYOUT**