

FEATHERMATE

Features

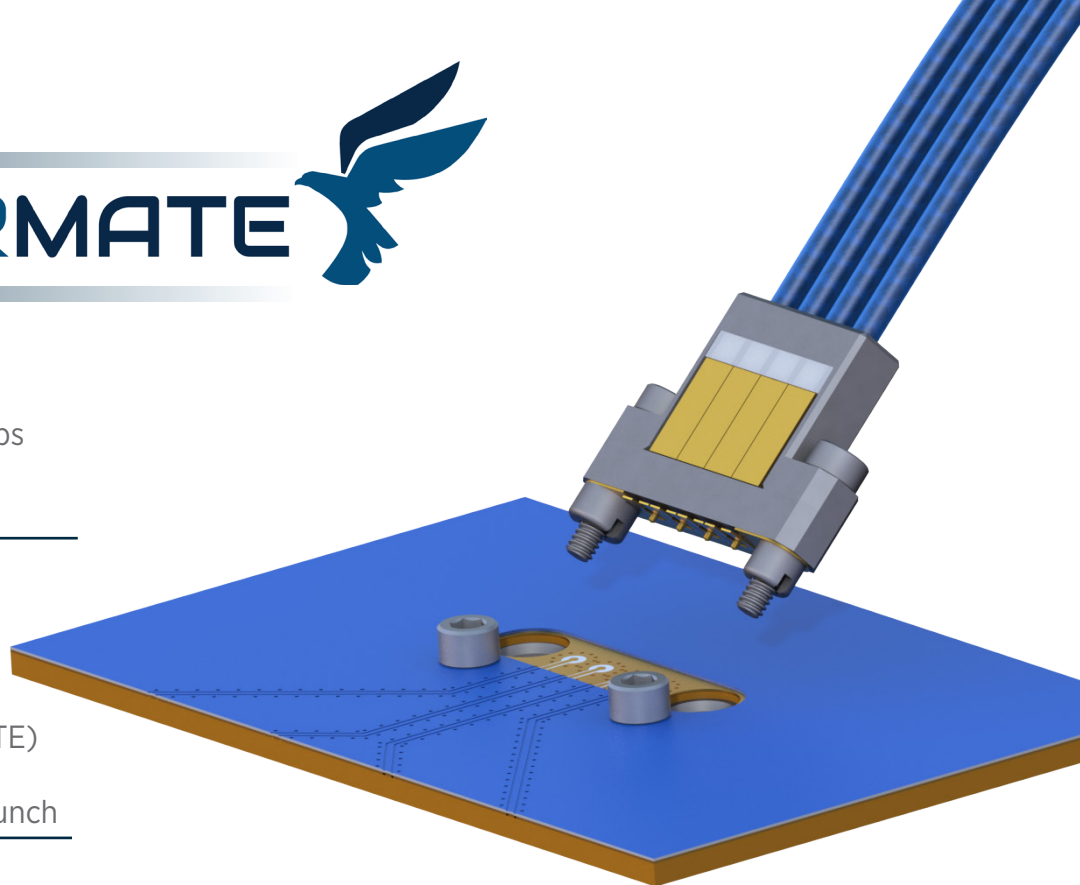
- Delay match per assembly: ± 2 ps
- Zero force to disengage
- .085" [2.16mm] pitch

Applications

- Bench-top testing
- Evaluation boards
- Automated Test Equipment (ATE)
- High density multiports
- CPW/Microstrip or Stripline Launch

Benefits

- Keying eliminates mismatching
- No custom tooling required
- Solder free installation
- Reflow oven (265°C) safe
- Zero disengagement eliminates damage to PCB solder joints

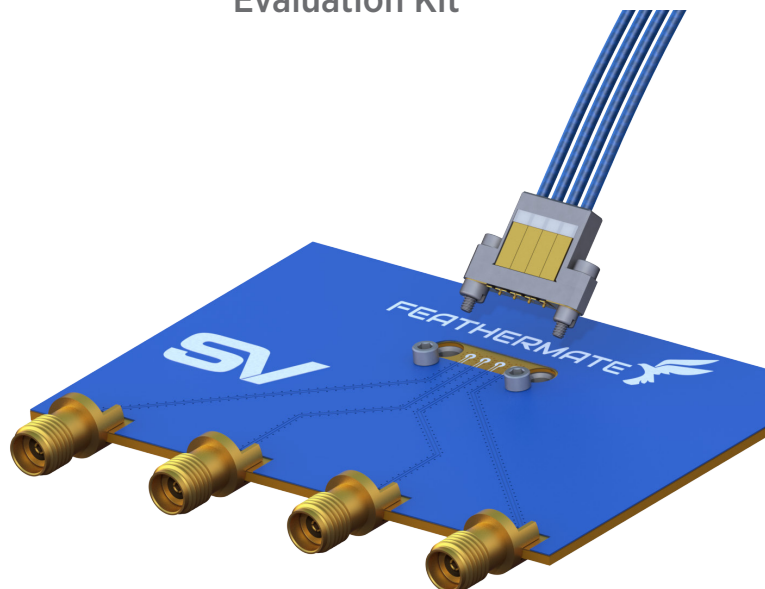


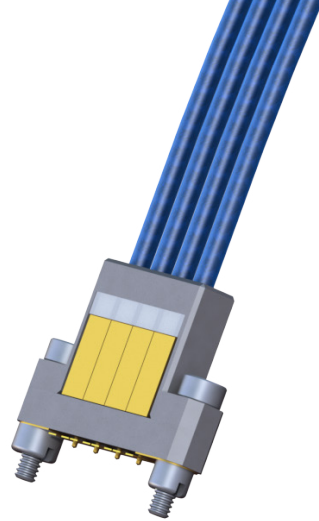
FeatherMate Assembly Specifications

Electrical	Condition	Specification
Frequency Range	N/A	DC - 40 GHz
Impedance	N/A	50 Ω
VSWR	DC to 18 GHz DC to 40 GHz	1.20:1 *See Figure 1 1.30:1 (page 2)
Delay Match	Per assembly	± 2 ps

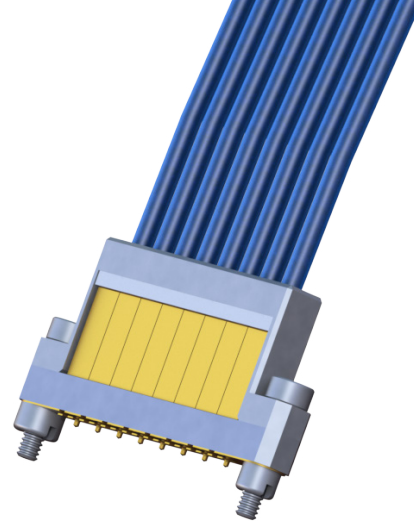
Mechanical	Specification
Center to Center Spacing	.085" [2.16mm] pitch
Engage Force	2 oz/port
Disengage Force	Zero
Mating Cycles (min)	1000
Temperature Range (Cable Assembly)	-65 to +165°C
Temperature Range (PCB Mount Bracket)	-65 to +265°C (Suitable for Reflow Oven)

Contact us today for information
regarding our 40 GHz FeatherMate
Evaluation Kit





FeatherMate 4 Port



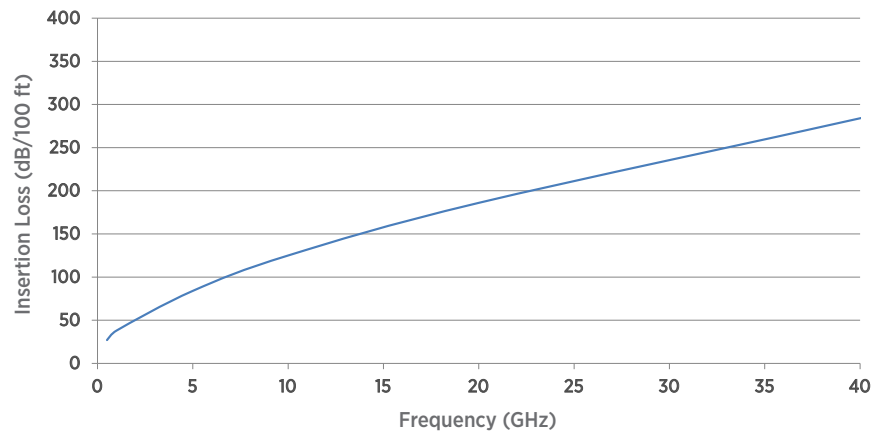
FeatherMate 8 Port

Cable Specifications (FleXtra® Ø.047)

Electrical	Specification
Impedance	50Ω
Velocity of Propagation	70% Nominal
Capacitance	29.0 pF/ft
Cutoff Frequency	108.0 GHz

Mechanical	Specification
Operating Temp Range	-65 to +165°C
Inside Bend Radius	R. 100 min.
Weight	3.5 lbs/1000 ft
Jacket OD	Ø.059 max.

Insertion Loss (Ø.047 Cable Only)



VSWR Gating

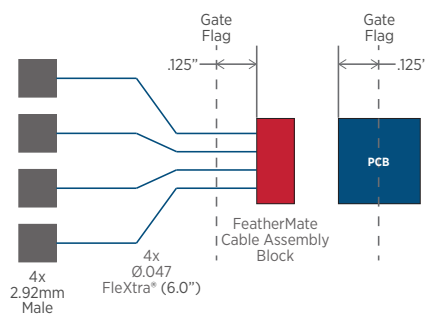
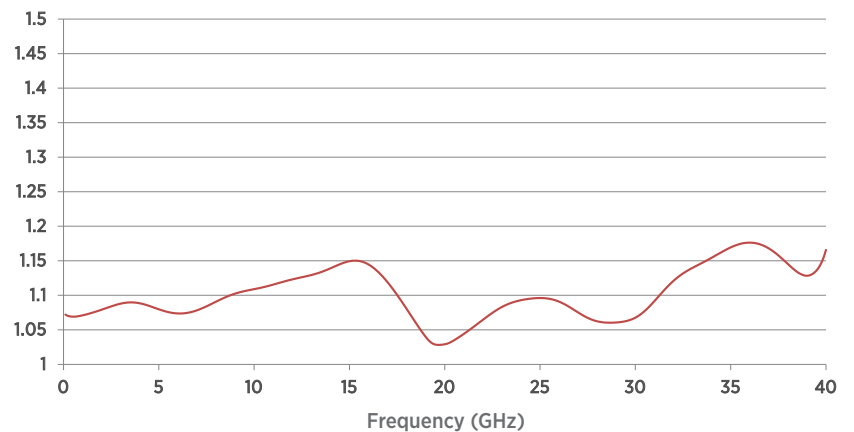


Figure 1

Average VSWR Over Multiple Mates



VSWR was plotted by averaging the data of 10 mates. Data collected was gated from .125" into the cable and .125" into the board trace as illustrated. See Figure 1.

Insertion Loss Repeatability Over Multiple Mates

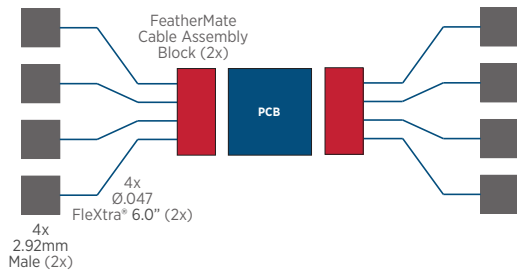
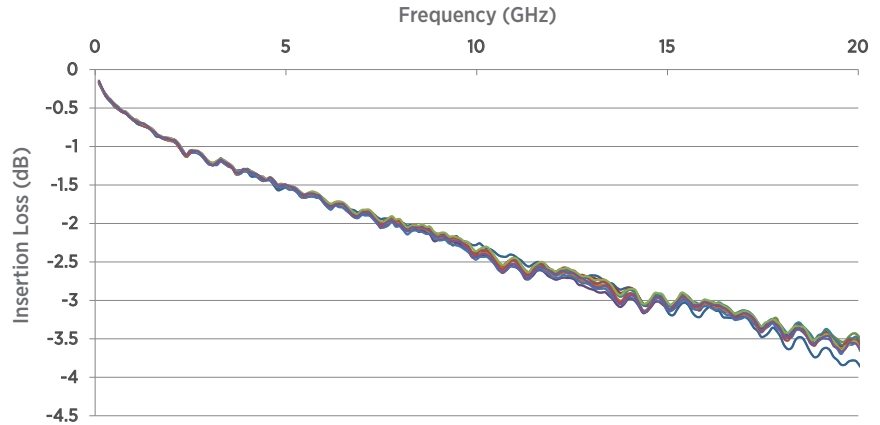
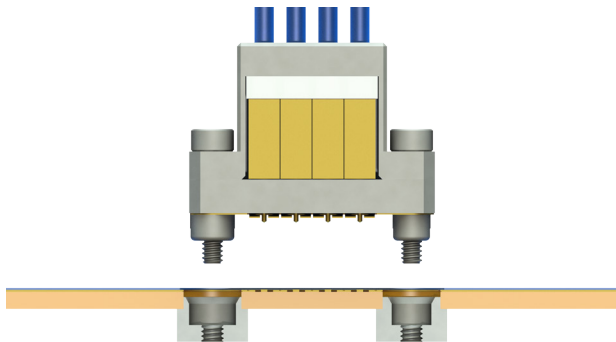


Figure 2

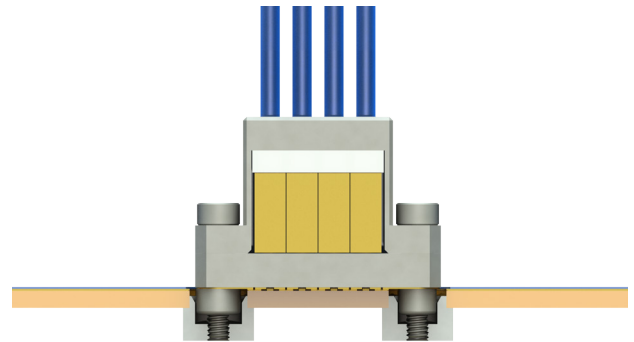


Insertion loss was tested as a thru measurement on two FeatherMate connectors to four 2.92mm Ø.047 6" FleXtra® cable assemblies joined via a test PCB. FeatherMate connectors were mated and demated 10 times by hand to generate the results shown. See Figure 2.

Unmated FeatherMate Set



Mated FeatherMate Set



FeatherMate Assembly Process

Step 1:

- Select and mount the appropriate hardware set for the intended board (see page 4)

Step 2:

- After placing the bushings on the bottom side of the board, from the top torque the provided single .063" hex socket screw in each bushing (solder-free operation)

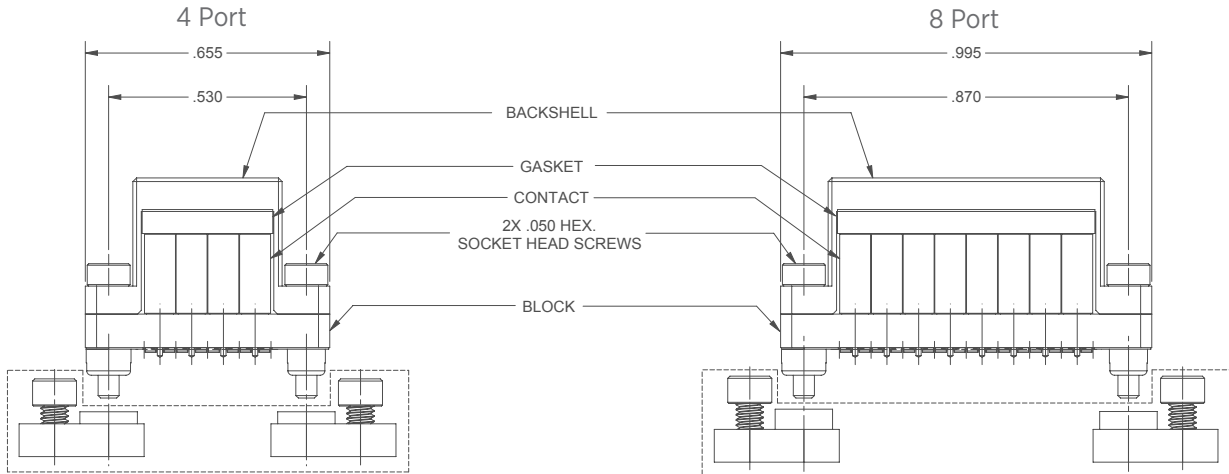
Note: the internal diameter of one of the bushings is larger than the other to prohibit mismating and to provide the keying feature of the FeatherMate

Step 3:

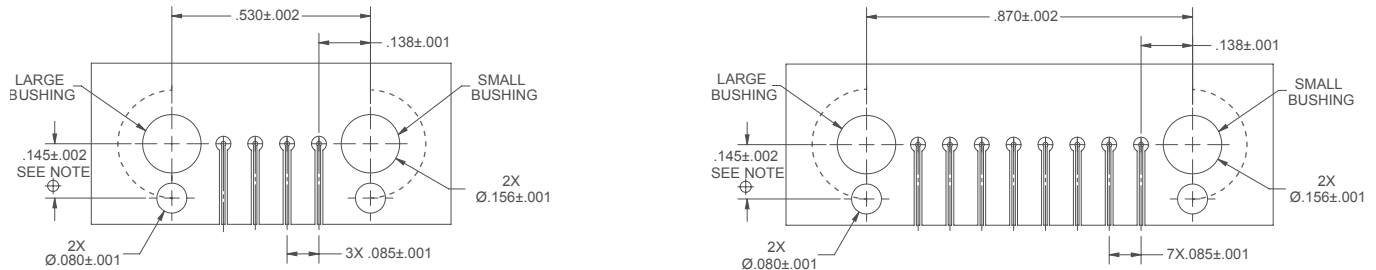
- Tighten the FeatherMate cable assembly block .050" hex socket screws into both bushings
The compression of the center contact spring pin and the flexure of the cantilever beam grounding element store the potential energy in the contact system to maintain consistent normal force for the signal path

Mechanical Hardware

FeatherMate Connector Block and Hardware Set



PCB Board Trace



Note: Ø.080±.002 hole can be oriented and placed anywhere along the stitched arc as shown, both sides.

Mounting Hardware Ordering Specifications

Board Thickness		Board Group	Hardware Set
Min	Max		
.033"	.062"	1	FMHS1
.055"	.084"	2	FMHS2
.076"	.105"	3	FMHS3
.094"	.123"	4	FMHS4
.110"	.160"	5	FMHS5
.144"	.192"	6	FMHS6
.173"	.223"	7	FMHS7
.200"	.250"	8	FMHS8
.225"	.275"	9	FMHS9

- Mounting hardware is custom configured to match PCB thickness
- FeatherMate assemblies include one set of hardware
- Additional hardware sets can be ordered by "Hardware Set" part number
- Mounting hardware is economical and reuseable



Hardware Set