

GENERAL

Standard Flange Mount drop-in Isolators and Circulators are specifically designed to be installed in a non-magnetic housing. Specialized models can be designed for operation in a magnetic housing or mating to other types of microstrip transmission lines. Most of drop-in models can also be designed for integration into a stripline configuration.

When specifying one of these models it is important to provide as much detail as possible about the application. The key to a successful integration is to obtain both reliable grounding and precise circuit trace connections. This will insure that the electrical performance after installation will be as intended. The following system information will aid in selecting and optimizing a model for your specific application.

TEST FIXTURE

All drop-in models are tested in a fixture that is specifically designed to simulate an actual system interface and environment; however, this can only be achieved if the details of the system application are provided to RFCI at the time of the order. Some correlation problems may arise with the electrical data if fixtures of different designs are used by the customer and RFCI. To minimize these problems it is recommended that an RFCI test fixture be use for all electrical measurements.

Standard Drop-in Isolators and Circulators are tested in a non-magnetic fixture base that uses SMA Female connectors electrically matched to 50 ohm microchip transmission lines. The substrate material is metalized 0.025 inch thick Laminate Rogers TMM 3. Each tab of the unit is pressed in contact with the metalized circuit trace of the microstrip substrate using a low dielectric constant pad to minimize residual VSWR.

A low loss 50 ohm Thru-line fixture with double length is used to connect the input and output ports of the thru-line fixture so that a reference loss can be obtained.

FLANGE MOUNT DROP-IN INSTALLATION

Flange mount Drop-in Isolators and Circulators must be installed so that the connecting tabs lie flat and are aligned properly on the mating microstrip substrate as show in figure below. To minimize electrical degradation make sure the gaps between the housing and the cavity walls do not exceed those show in table.

These units are supplied with clearance holes for use with stainless steel machine screws (with flat or lock washers if desired) for mounting. Installation torque values should be consistent with the size of the machine screws being used. Do not over torque.

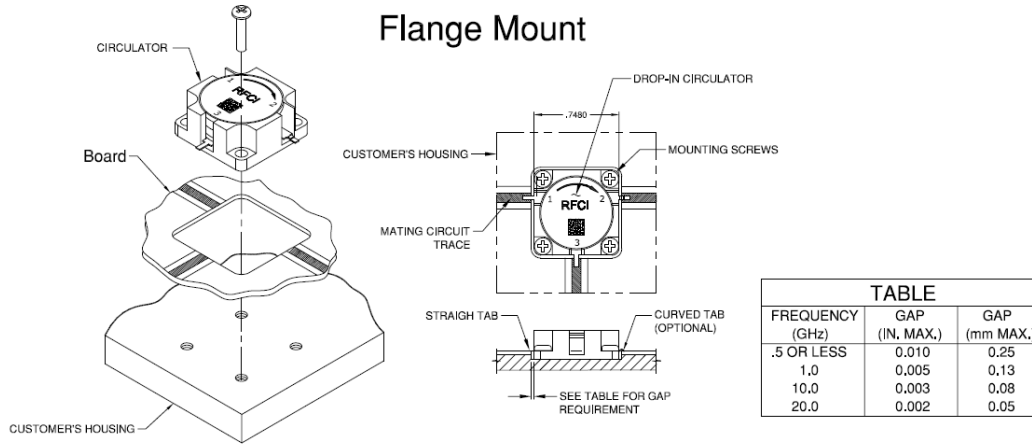


TABLE		
FREQUENCY (GHz)	GAP (IN. MAX.)	GAP (mm MAX.)
.5 OR LESS	0.010	0.25
1.0	0.005	0.13
10.0	0.003	0.08
20.0	0.002	0.05

TAB CONNECTION

For most applications the Flange mount Drop-in connection tab is soldered directly to the mating transmission line using a Solder such as Sn 96. If the tab and solder overlap the edges of the mating circuit trace the effective impedance of the mating transmission line will decrease resulting in degradation of the VSWR. If the particular application uses a ceramic mating substrate with metalized circuit trace, indium solder is sometimes used to provide semi-rigid boundary layer for a reduction in the stress caused by differential expansion of the tab and circuit trace over the operational and storage temperatures.

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