

Model: TCF-RU
RF Multi-Channel Cavity Filter
Product Type: Filter

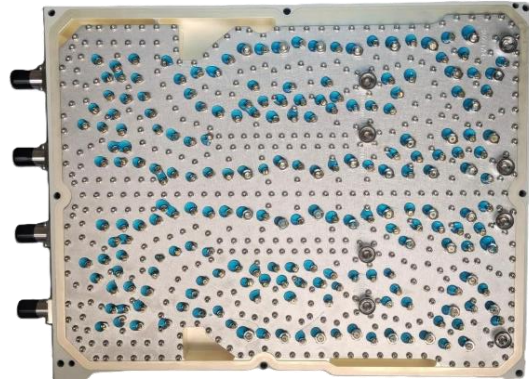


Application:

Cellular Radio Units, Base Stations, Wireless Transmission Systems

Description:

The multi-channel cavity filter is a high-performance RF filtering component designed for integration inside Radio Units. It provides channel separation, interference suppression, and optimal in-band performance while maintaining low insertion loss and high isolation between transmit and receive paths. Designed for outdoor telecom environments with excellent thermal and mechanical stability.



Part No.: TCF-RU03

Key Features

- Multi-channel bandpass / duplex / multiplex configurations
- High selectivity with low insertion loss
- Compact aluminum cavity structure for excellent heat dissipation
- Excellent temperature & vibration stability
- Precision tuning with adjustable coupling screws
- Outdoor-grade environmental sealing (IP65/IP67)
- Compatible with standard Radio Unit mechanical interfaces
- ROHS-compliant materials

Mechanical Specifications

Parameter	Sym.	Rx	Tx	Unit
Frequency Range	$f_1 - f_2$	1710 ~ 1735	1805 ~ 1830	MHz
Insertion Loss	IL	≤ 1.45 (@ +25°C) ≤ 1.65 (@ -40°C/+55°C)	≤ 1.3 (@ +25°C) ≤ 1.5 (@ -40°C/+55°C)	dB
Channel Isolation	Iso	≥ 90 @1710 ~ 1735 MHz & 1805 ~ 1830MHz		dB
TX power capacity	P_{max}	TX: 40W (average) , 700W (peak value)		W
Ripple	—	≤ 1.0		dB
Impedance	Z_0	50		Ω

Mechanical Specifications

Parameter	Specification
Housing Material	Aluminum Alloy
Surface Finish	Anodized / Powder-coated / Chromate
Connector Type	N-female / 4.3-10 / SMA-female
Mounting Type	Integrated to Radio Unit chassis
Dimensions (L×W×H)	425 × 335 × 30 mm
Weight	18.75 Kg
Cooling	Conduction / Natural convection
Tuning Method	Mechanical screws / sealed tuning ports

Environmental Characteristics

Parameter	Condition	Value
Operating Temperature	—	−40 °C to +85 °C
Storage Temperature	—	−55 °C to +100 °C
Humidity	Non-condensing	≤ 95% RH
Ingress Protection	With sealing	IP65 / IP67
Vibration	IEC 60068-2-6	Telecom-grade
Shock	IEC 60068-2-27	Telecom-grade
MTBF	—	> 1,000,000 h

Performance Characteristics (Typical)

- Passband 1: 1805 ~ 1880 MHz or 925 ~ 960 MHz
- Passband 2: 1710 ~ 1785 MHz or 880 ~ 915 MHz
- Insertion Loss: ≤ 1.2 dB
- Isolation: ≥ 45 dB
- Return Loss: ≥ 18 dB
- Power Handling: 40W per channel