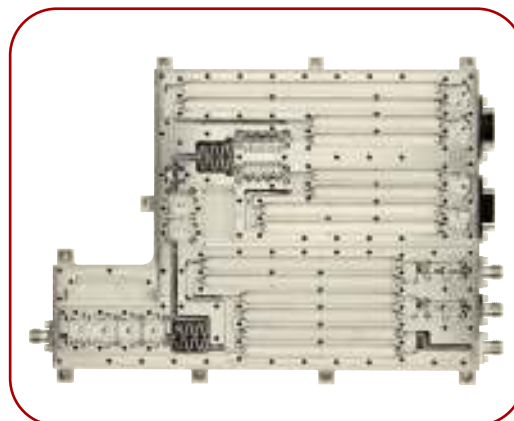


2.8–9.9 GHz FREQUENCY MULTIPLEXER

MODEL: 136466

FEATURES

- High reliability, spaceborne application
- Broadband RF coverage..... 2.8–9.9 GHz
- RF gain..... 23 dB nominal
- Channel-to-channel isolation.. 45 dB minimum
- Input/output VSWR..... 1.5:1 typ., 1.8:1 maximum
- Noise figure 3.5 dB typ., 4.5 dB maximum
- Low power 325 mA (5 V) typical
- Lightweight..... 520 grams typical



MITEQ's model 136466 broadband-three output frequency multiplexer precedes the second IF down conversion stage in a low earth orbit-based millimeter-wave radiometer. In combination with the MITEQ second IF downconverter, the system provides maximally flat frequency response over the bands of interest, high linearity of output power to input power, and high isolation between the frequency bands of interest as well as from other undesirable signals. In addition, this high reliability, spaceborne integrated assembly is optimized for small size, low power consumption, lightweight, and excellent thermal stability of operation.

ELECTRICAL SPECIFICATIONS

RF INPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
Frequency range		GHz	2.8		9.9
VSWR		Ratio		1.5:1	1.8:1
RF OUTPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
Number of RF output channels				3	
Channel 2 dB bandwidth		MHz	1300		
Channel 20 dB rejection bandwidth		MHz			2300
Channel center frequencies		GHz		3.9449, 5.7085, 9.1168	
Nominal gain		dB		23	
Output power (1 dB compression)		dBm	-8	-5	
Noise figure		dB		3.5	4.5
Isolation between output channels		dB	45		
VSWR	Over 1300 MHz passband	Ratio		1.5:1	1.8:1
VOLTAGE TO FREQUENCY OUTPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
Number of output channels				4	
Channel 3 dB bandwidth		MHz	450		
Channel 30 dB rejection bandwidth		MHz			1000
Channel center frequencies		GHz		3.06, 4.76, 7.26, 7.86	
Output full scale frequency		kHz		90	
OTHER PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
Digital gain control	4 BIT Binary, TTL; BIT 5 = OFF state	dB	0		7.5
Gain control step size		dB		0.5	
Connectors, RF				SMA	
Connectors, DC control, voltage-frequency outputs				21-pin, micro D	
Supply voltage		Volts		±5	
DC power consumption for each downconverter	At 5 V Supply	mA		325	
	At -5 V Supply	mA		2.5	
Weight		Grams		520	

2.8-9.9 GHz FREQUENCY MULTIPLEXER (CONT.)

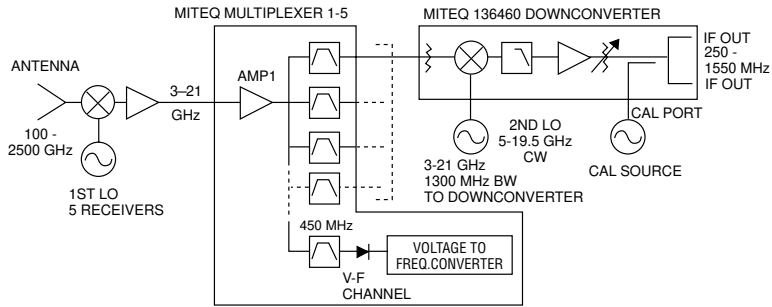
ENVIRONMENTAL CONDITIONS

Operating temperature 10 to 60°C
 Storage temperature -25 to +60°C

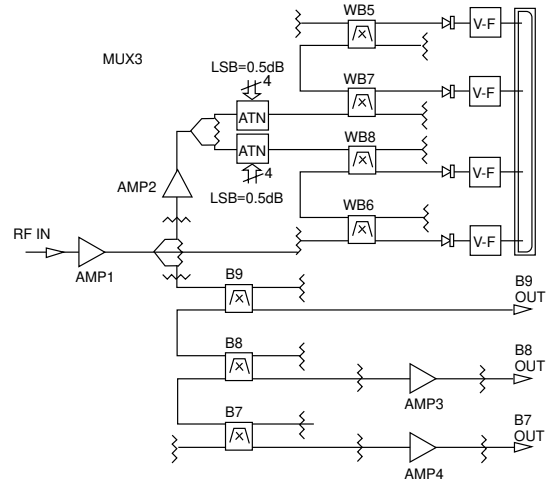
Vibration 6.5 Gs RMS, 20-2000 Hz
 Radiation 30 krads, total DOSP

FUNCTIONAL BLOCK DIAGRAMS

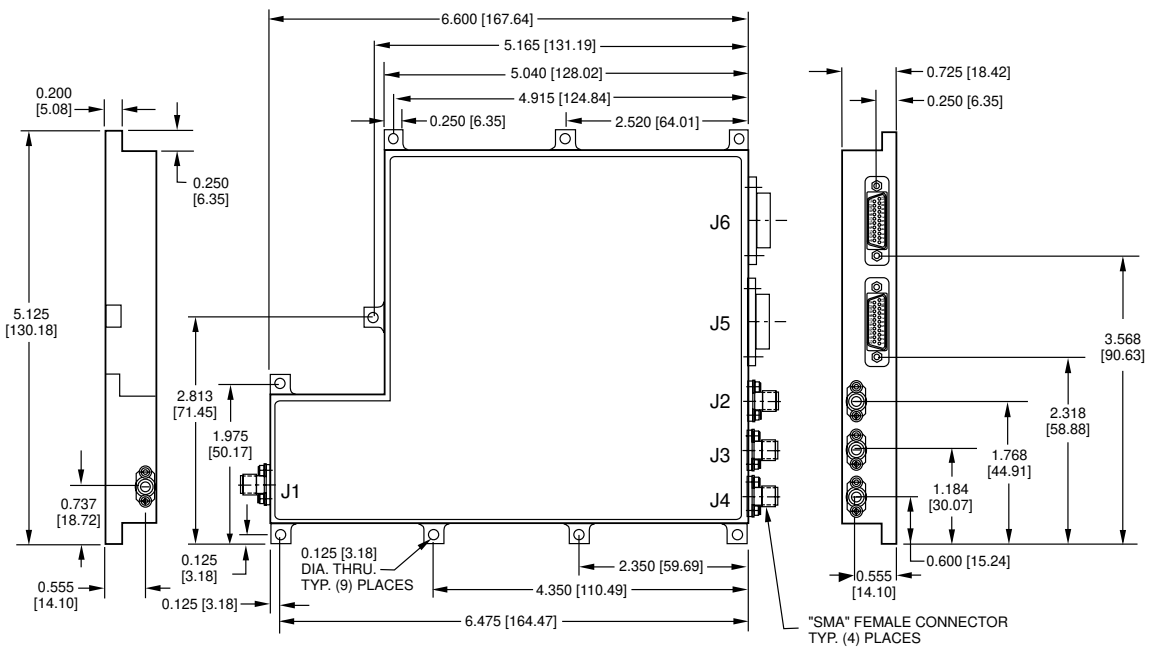
GENERIC SYSTEM



MODEL 136466



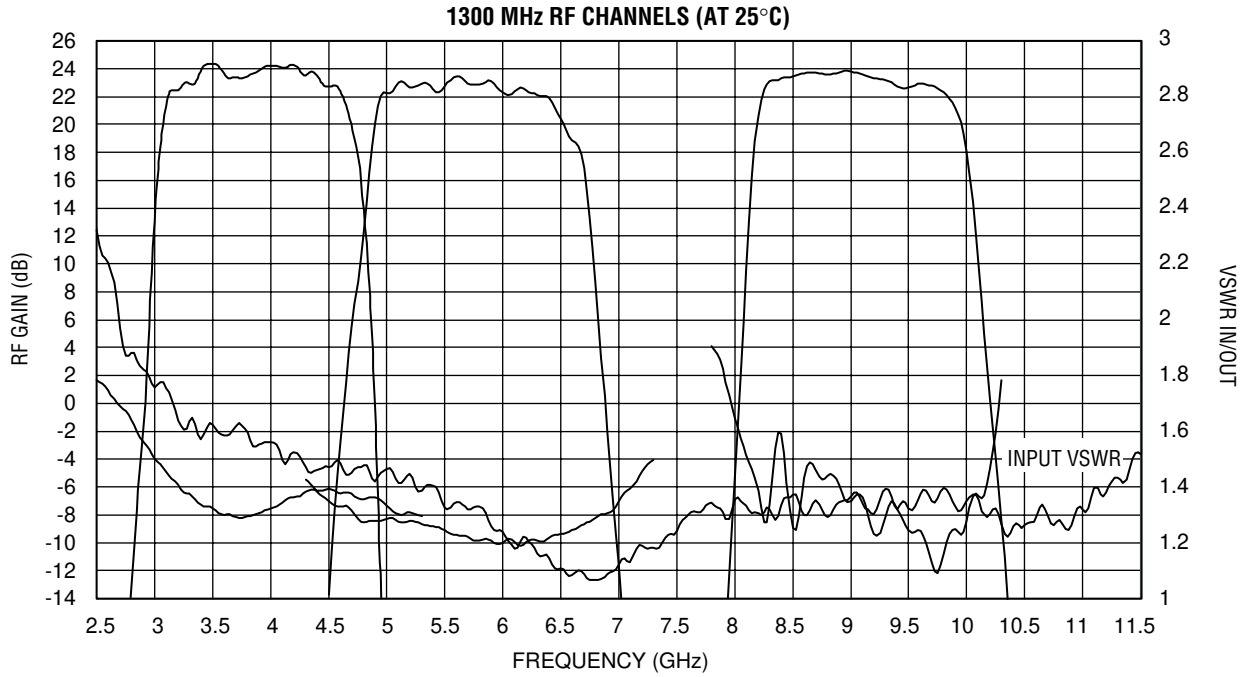
OUTLINE DRAWING



GENERAL NOTES:

1. Dimensions shown in brackets [] are in millimeters.
2. Tolerance as follows: .xx = ±0.01 [.xx = ±0.25], .xxx = ±0.005 [.xxx = ±0.13]

MODEL 136466 TYPICAL DATA



450 MHz DETECTED VOLTAGE TO FREQUENCY OUTPUTS (AT 25°C).

