

Features

Good carrier suppression and low VSWR
 Low conversion loss
 Good intermodulation performance
 Good bi-phase tracking
 Broadband modulation input

Applications

Up-convertors
 Double-sideband modulators
 Amplitude modulators
 Pulse modulators
 Current-controlled attenuators
 Suppressed carrier systems
 Bi-phase modulators
 Digital PSK systems

Description

A series of balanced modulators specifically designed to provide excellent carrier suppression and low VSWR. These modulators are a companion line to the ORTHO-QUAD® series of high isolation, low VSWR balanced mixers.

In a typical double-sideband, balanced modulator application an RF (carrier) input and an IF (modulation) input are applied. The RF output consists of the upper (RF + IF) and lower (RF - IF) sidebands. The original RF input (carrier) is suppressed at the output.

The good match of these balanced modulators is independent of the power level at any port. This minimizes the effects of reactive port terminations on intermodulation performance.

In addition to their use as up-convertors, these units provide outstanding performance as bi-phase modulators for high data-rate and digital PSK systems, AM and pulse modulators, and current-controlled attenuators.

See pages 151-154 for detailed technical application information.

Electrical Specifications

Model No.	Frequency		Carrier* Suppression Min/Typ (dB)	RF VSWR Max/Typ	Conversion Loss** Max/Typ (dB)
	RF Input (GHz)	IF Input (MHz)			
70664	0.5-1.0	DC-150	16/21	1.50/1.20	8.0/6.5
70665	1.0-2.0	DC-250	16/21	1.50/1.20	8.0/6.5
70666	2.0-4.0	DC-250	16/21	1.60/1.20	8.0/6.5
70667	4.0-8.0	DC-400	15/20	1.70/1.25	8.5/7.5
70668	8.0-12.4	DC-400	15/20	1.80/1.35	9.5/8.5
70669	12.4-18.0	DC-600	12/18	2.20/1.50	10.5/9.0

*Relative to desired output

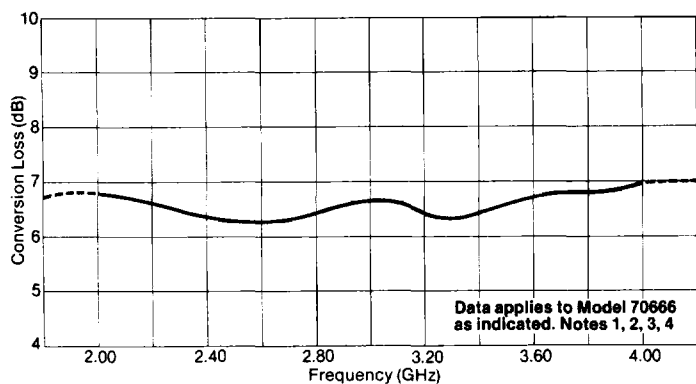
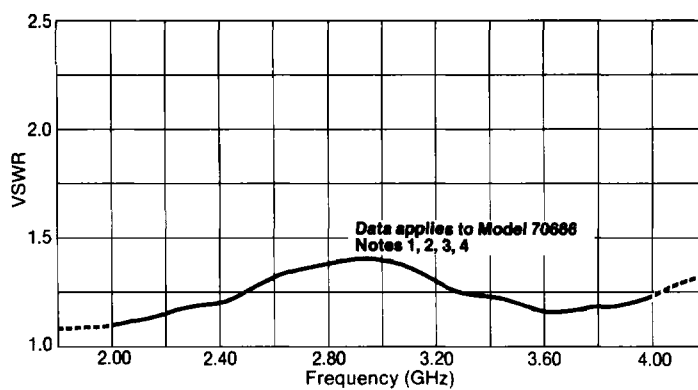
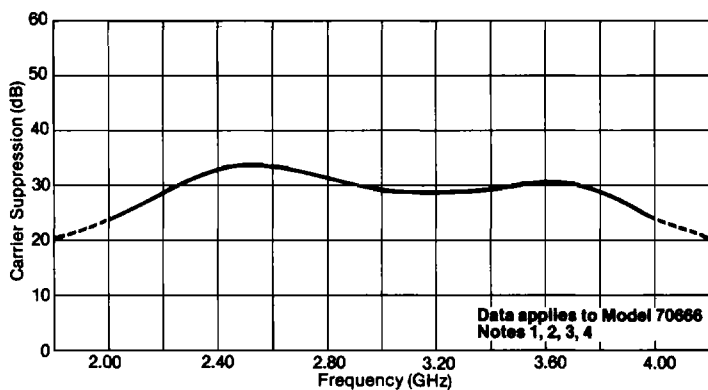
**Approximately .5 dB degradation @+95°C.

RF Input: -5 dBm typ.

IF (Modulation Input): +10 dBm nom. (±10 mA when used as a bi-phase modulator)

Specifications subject to change without notice.

Typical Modulator Characteristics



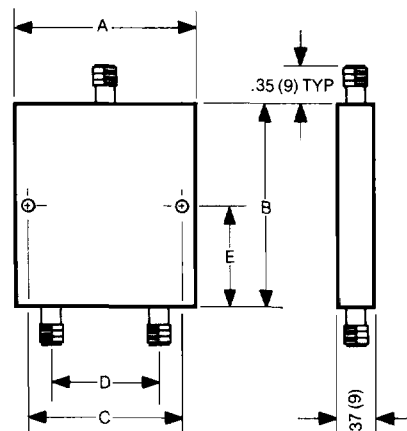
Test Conditions:

1. $T_A = 25^\circ\text{C}$
2. Modulation (IF) frequency = 60 MHz @ +10 dBm
3. RF input power: -10 dBm
4. All measurements made in 50 ohm system

Mechanical Specifications

Model No.	A		B		C		D		E		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	oz	gm
70664	3.00	76	3.00	76	2.75	70	1.40	36	1.50	38	5.9	167
70665	2.35	60	2.35	60	2.10	53	1.41	36	1.17	30	3.5	99
70666	2.35	60	2.35	60	2.10	53	1.41	36	1.17	30	3.8	108
70667	2.35	60	2.35	60	2.10	53	1.41	36	1.17	30	3.6	102
70668	2.35	60	2.35	60	2.10	53	1.41	36	1.17	30	3.6	102
70669	2.35	60	2.35	60	2.10	53	1.41	36	1.17	30	3.6	102

Contact Anaren for latest outline details.



All dimensions in inches and (mm)
Connectors: SMA, female, per MIL-C-39012
Mounting Hole Dia.: .145 ± .005 (3.7 ± .1)

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