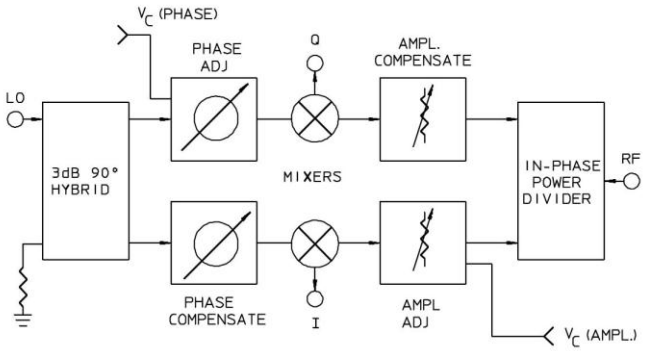
IQP-27U SERIES – I & Q NETWORKS

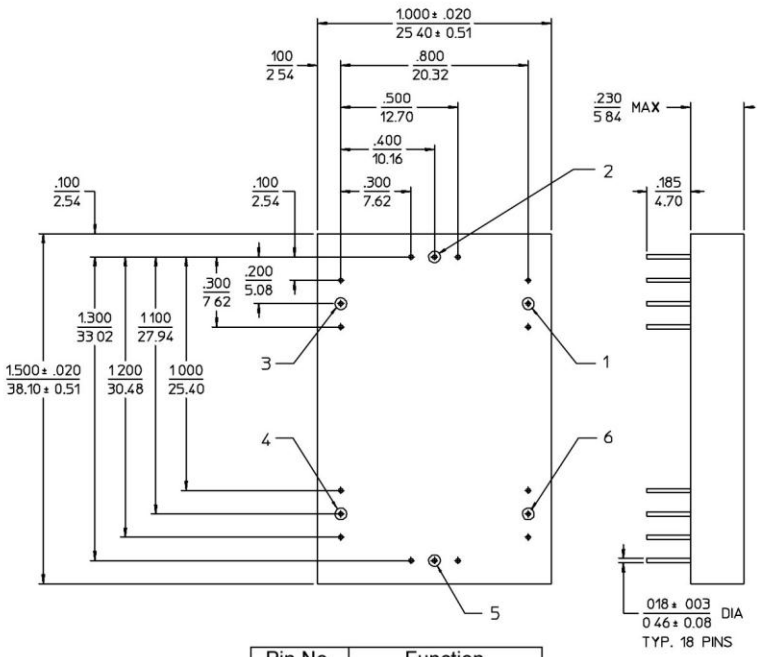
TECHNICAL FEATURE

FEATURES

- 20 to 200 MHz
- 10% Bandwidth
- In-Circuit Phase and Amplitude Balance
- High Precision



U - Package Outline



Pin No.	Function
1	Phase Adjust
2	LO Input
3	I Output
4	Amplitude Adjust
5	RF Input
6	Q Output

NOTES:
1. Tolerance on 3 place decimals ±.010(.25) except as noted.
2. Dimensions in inches over millimeters.
3. Lead dimensions apply only at body.
4. All unmarked pins are case ground.

PRINCIPAL SPECIFICATIONS

Model Number	LO Freq, f_o, MHz	†Bandwidth RF Input
IQP-27U-***B	20 - 200	10% of f_o

For complete Model Number replace *** with desired LO Frequency in MHz.

GENERAL SPECIFICATIONS

RF and LO Input Characteristics

Impedance:	50 Ω nom.
VSWR:	1.5:1 max.
RF Power Level:	0 dBm nom.
LO Power Level	+10 dBm nom.

I & Q Output Characteristics

Video Bandwidth:	DC to †50 MHz nom.
Output Impedance:	50 Ω nom.
Conversion Loss	
(RF to I or Q):	10 dB typ,12 dB max.
IF Balance (I to Q) @ V_c=+5V	
Phase:	90° ± 2°
Amplitude:	0 ± 0.2 dB
Bias Controls, @ f_o:	0 to +10V
Phase Tuning Range:	± 10° nom.
Amplitude Range:	± 1 dB nom.
Temperature Stability:	± 0.2 dB, ±1° max.
Operating Temperature:	– 55° to +85°C
Weight, nominal:	0.55 oz (15.4 g)

†RF and Video Bandwidths are typically much greater than specified.

AVAILABLE OPTIONS

Higher Level Mixers:	Contact Factory
Higher Frequencies:	Contact Factory

General Notes:

1. I & Q networks are integrated devices that produce two quadrature-phased, equal amplitude signals when fed RF and LO signals.
2. The IQF-27L series features in-circuit, voltage controlled phase *and* amplitude balance adjustments that allow fine adjustments when the device is in its normal operating environment. These features provides accuracy not previously attainable in a comparably small package. In addition, the voltage controlled phase and amplitude balance inputs facilitate closed loop, servo operation using the adjustment inputs in the feedback loops.
3. Merrimac I & Q networks comply with the relevant sections of MIL-M-28837 and may be supplied screened for compliance with additional specifications for military and space applications requiring the highest reliability.

13Feb96

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IQP-27U SERIES – I & Q NETWORKS

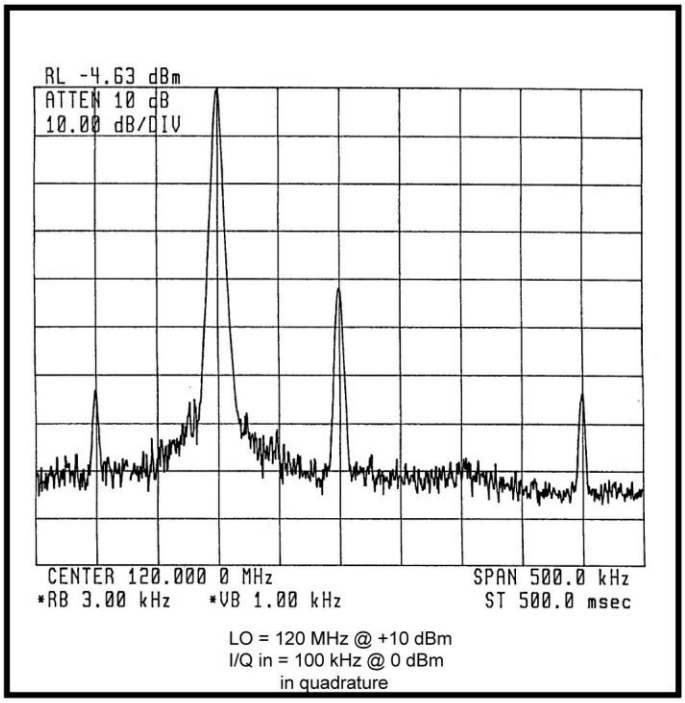
Demodulator

Typical IQP-27U performance; 120 MHz LO design

Temperature °C	LO Freq. (MHz)	RF Freq. (MHz)	Phase Balance	Amp-litude Balance	Conver-sion Loss
+85°C	120.0 @ +10 dBm	120.1 @ 0 dBm	89.5°	0.02 dB	11.5 dB
+60°C	120.0 @ +10 dBm	120.1 @ 0 dBm	89.8°	0.00 dB	11.5 dB
+25°C	120.0 @ +10 dBm	120.1 @ 0 dBm	90.0°	0.00 dB	11.5 dB
0°C	120.0 @ +10 dBm	120.1 @ 0 dBm	90.4°	0.03 dB	11.5 dB

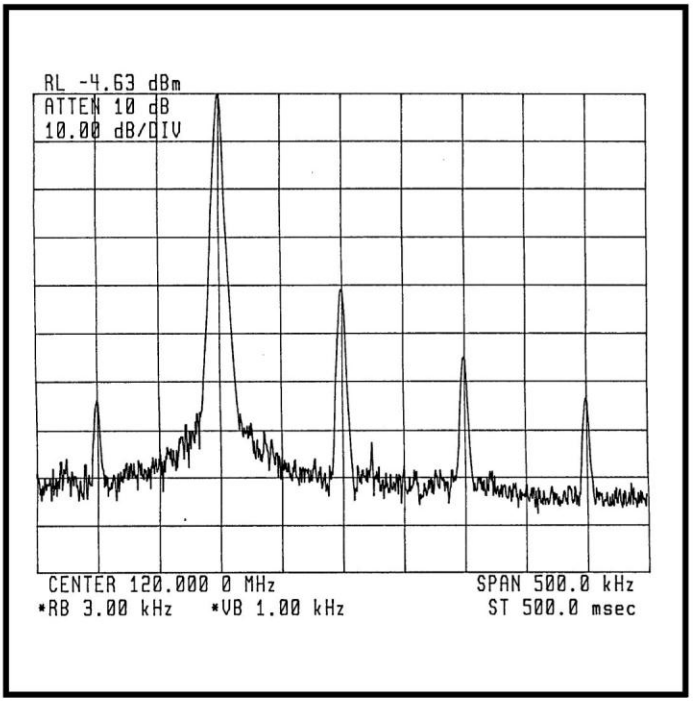
Modulator

Typical Performance at +25°C

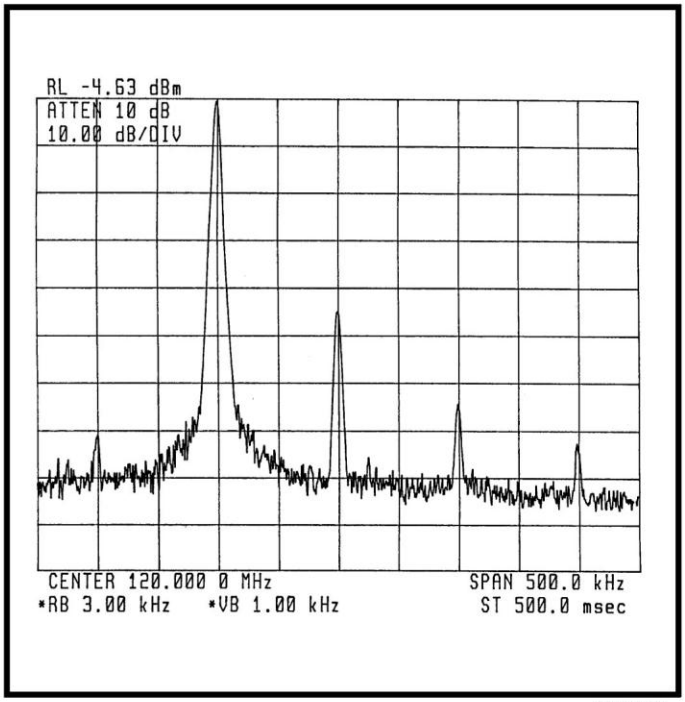


LO = 120 MHz @ +10 dBm
I/Q in = 100 kHz @ 0 dBm
in quadrature

Typical Performance at -55°C



Typical Performance at +85°C



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