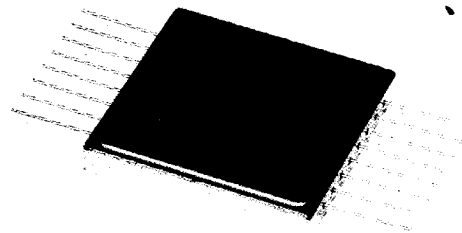
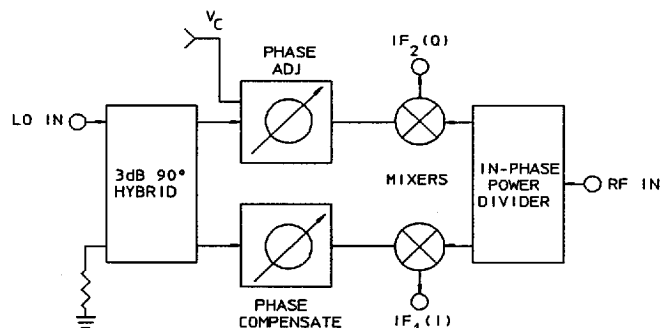




IQF-25F series

PRECISION I & Q PHASE DEMODULATORS
In-Circuit Adjustable Phase Balance



- Catalog and Custom to 1000 MHz
- 10% Bandwidth, Low Conversion Loss
- Voltage Controlled Phase Accuracy
- Space saving hermetic design.

MERRIMAC I & Q Phase Detectors are integrated networks which when fed by an RF and LO signal, produces two equal amplitude signals that are in phase quadrature. Other nomenclature assigned to this versatile system building block is quadrature generator, quadrature IF mixer, and quadrature phase detector.

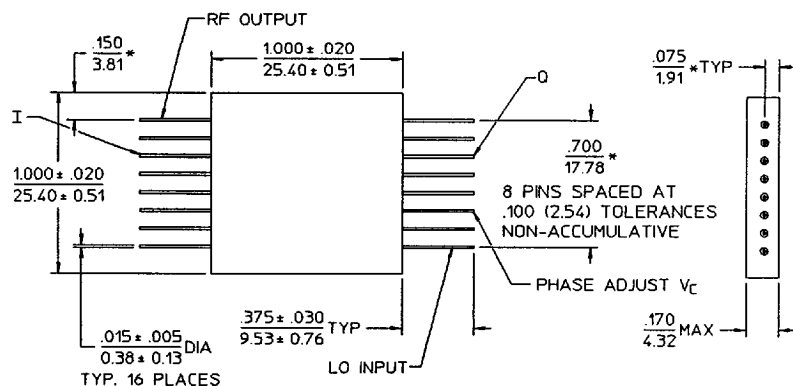
I & Q Phase Detectors are popular for application in image rejection and single sideband modulator circuits, whereby with the addition of an external IF 90° Hybrid, complete systems are formed. Additionally, they are popular as phase correlators in closed loop applications and vector modulator sub-systems. The I & Q Phase Detector can also be used in digital systems as a QPSK demodulator, which recovers two data channels from the incoming phase information. The QPSK input is applied to the RF port while the recovered carrier is applied to the LO port, and generates the two independent I and Q data outputs.

The voltage controlled phase balance allows fine adjustment of phase in the actual system; enabling accuracies not previously available in a small package. Additionally the voltage controlled nature allows closed loop feedback systems to be developed. These I & Q Phase Detectors are designed for high reliability in accordance with MIL-M-28837 requirements, and can be supplied screened to meet specific military and space applications.

Model Number	Center Frequency, f_0	[†] Bandwidth RF Input
IQF-25F-***B	20 – 1000 MHz	10% of f_0

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

F-Package Outline



- NOTES:
1. Tolerance on 3 place decimals $\pm .010(.25)$ except as noted.
 2. Dimensions in inches over millimeters.
 3. Dimensions marked with an * apply only at the body.
 4. All unmarked pins are case ground.

SPECIFICATIONS - All Specs @ $LO = f_0$

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, nom:	DC to [†] 50 MHz
Output Impedance:	50 Ω nom.

Conversion Loss

(RF to I or Q):	10 dB typ. 12 dB max.
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IF Balance (I to Q)

Phase, @ $V_c = +5V$:	$90^\circ \pm 2^\circ$
Bias Control:	0 to +15V
Adjustable Range:	$\pm 10^\circ$ nom.
Sensitivity:	$5^\circ/V$ nom.
Temperature Stability:	$\pm 1^\circ$ max.
Amplitude:	0.2 dB max.

Weight, nominal: 0.35 oz (10g)

Operating Temperature: -55° to $+85^\circ C$

[†]RF and Video Bandwidths typically much greater than that specified.

Contact MERRIMAC for further details. (2/92)

41 Fairfield Place, West Caldwell, N.J. 07006 • (201) 575-1300 • FAX: (201) 575-0531