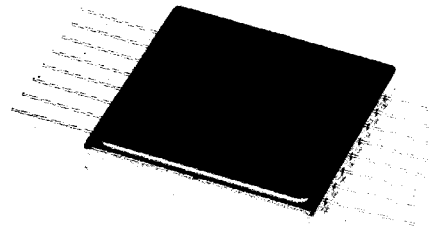
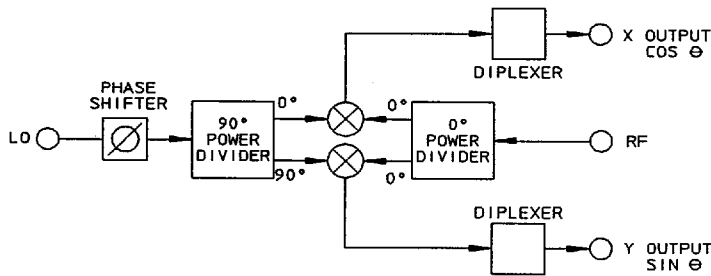




PCF-3F series

0° to 360° PHASE COMPARATORS
High Accuracy, Flatpack



- Catalog and Custom 10 to 500 MHz
- High Signal Isolation
- Low Profile, High Reliability Package

Model Number	Center Frequency, f_0	Usable Bandwidth, MHz
PCF-3F-30	30 MHz	28.5 - 31.5
PCF-3F-60	60 MHz	57 - 63
PCF-3F-70	70 MHz	66.5 - 73.5
PCF-3F-160	160 MHz	152 - 168
PCF-3F-***B	10 - 500 MHz	$f_0 \pm 5\%$

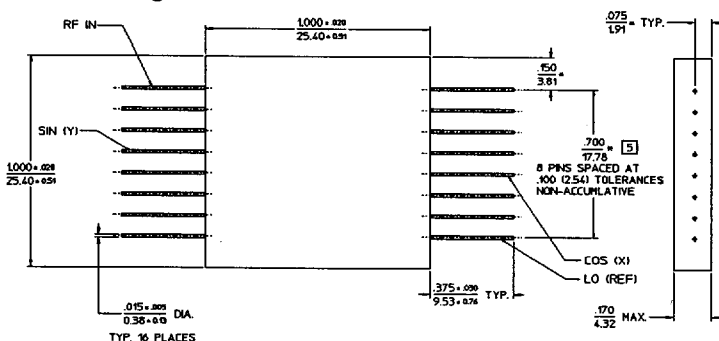
For complete Model Number replace *** with desired Center Frequency, f_0 in MHz.

MERRIMAC Phase Comparators provide two output voltages which together permit unambiguous phase comparisons to be made over the entire 0° to 360° phase shift range. One output is proportional to the *sine* of the phase difference between the reference (LO) and the unknown (RF) input signals; the other output is proportional to the *cosine*.

Basically, each phase comparator is an integrated assembly consisting of a power divider, two balanced mixers and a 90° quadrature hybrid. Two diplexers are also included which attenuate the second harmonic ($2f_0$) at the outputs.

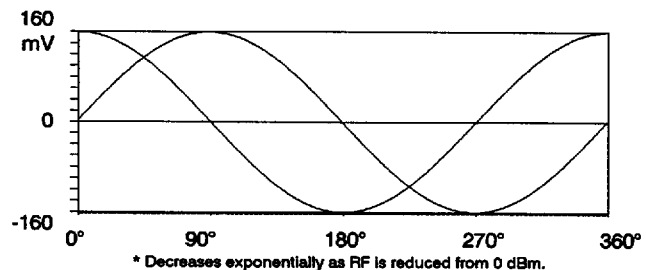
Custom designs with more tightly specified accuracies or other characteristics may be ordered for specific applications.

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 * apply only at body.
 4. All unmarked pins are case ground.

Output Voltage Characteristics*



* Decreases exponentially as RF is reduced from 0 dBm.

COMMON SPECIFICATIONS

RF Characteristics

Phase Difference Range:	0 - 360°
VSWR (RF/LO):	2.0:1 max.
LO Input Power (Ref.):	+10 \pm 1 dBm
RF Input Power (Unknown):	+2 dBm max.
Rise Time/Fall Time:	100 ns typ.
Impedance (Unknown and Ref.):	50 Ω nom.

Video Output Characteristics

"X" Output:	K Cos θ
"Y" Output:	K Sin θ
Peak Amplitude (RF = 0 dBm):	150 mV min. (into 150 Ω)
Bandwidth:	DC - 10% of RF
Impedance (X and Y):	150 Ω nom.
Signal Leakage (Isolation):	30 dB typ.

Output Accuracy

Amplitude Balance:	\pm 5 mV max.
Zero Crossing (In-Phase Inputs):	\pm 2° @ f_0
Phase Error, Arc tan θ :	\pm 5° @ f_0

Weight, nominal:	0.32 oz (9 g)
Operating Temperature:	-55 to +85°C

Contact MERRIMAC for further details. (1/92)

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