



Double Balanced Mixer Operating from 1 MHz to 2.7 GHz with an IF Range from 1 MHz to 2 GHz and LO Power of +10 dBm, SMA

## Mixers Technical Data Sheet

**PE86X1020**

### Features

- Double Balanced Mixer Design
- LO & RF Frequency Range: 1 MHz to 2700 MHz
- IF Frequency Range: 1 MHz to 2000 MHz
- LO Drive Level Range: +7 dBm to +13 dBm
- Schottky Ring Quad Diodes with Optimized Balun Structures
- Conversion Loss: 7 dB typ
- Port Isolations up to 39 dB typ
- High Input IP3 Level: +20 dBm
- RF Input Up to +6 dBm
- SMA Connectors / Operating Temperature Range: -40°C to +85°C
- Designed to Meet MIL-STD-202 Environmental Test Conditions

### Applications

- Electronic Warfare
- Point-to-Point Radios
- Point-to-Multipoint Radios
- VSAT
- Radar
- Space Systems
- Test Instrumentation
- Sensors
- Telecom Infrastructure
- Military End-Use

### Description

The PE86X1020 is a broadband Double Balanced Mixer that operates across an RF and LO frequency range from 1 MHz to 2700 MHz with an IF frequency range of 1 MHz to 2000 MHz and supports an LO drive level range from +7 to +13 dBm, with +10 dBm nominal. The design utilizes Schottky Ring Quad Diodes with optimized balun structures. Exceptional typical performance includes Conversion Loss of 7 dB, RF to LO and LO to IF isolation levels up to 39 dB, and a high input IP3 level of +20 dBm. The 50 ohm hybrid module does not require any external components or matching circuitry. The rugged compact package assembly supports female SMA connectors, operates over a temperature range of -40°C to +85°C, and is designed to meet MIL-STD-202 environmental test conditions for Humidity, Shock, Vibration, and Altitude for high reliability.

### Electrical Specifications

| Description                        | Minimum | Typical | Maximum | Units |
|------------------------------------|---------|---------|---------|-------|
| RF Frequency Range                 | 0.001   |         | 2.7     | GHz   |
| LO Frequency Range                 | 0.001   |         | 2.7     | GHz   |
| IF Frequency Range                 | 0.001   |         | 2       | GHz   |
| Impedance                          |         | 50      |         | Ohms  |
| Conversion Loss                    |         | 7       | 9.5     | dB    |
| LO to RF Isolation                 | 18      | 39      |         | dB    |
| LO to IF Isolation                 | 16      | 36      |         | dB    |
| RF Port VSWR                       |         | 2:1     | 2.5:1   |       |
| IF Port VSWR                       |         | 1.5:1   | 2:1     |       |
| Input at 3rd Order Intercept Point | +17     | +20     |         | dBm   |
| RF Input Power                     |         |         | +6      | dBm   |
| LO Input Power                     |         | +10     |         | dBm   |

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [Double Balanced Mixer Operating from 1 MHz to 2.7 GHz with an IF Range from 1 MHz to 2 GHz and LO Power of +10 dBm, SMA PE86X1020](#)



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### Absolute Maximum Rating

| Parameter             | Rating      | Units |
|-----------------------|-------------|-------|
| RF Power              | +16         | dBm   |
| Operating Temperature | -40 to +85  | °C    |
| Storage Temperature   | -60 to +100 | °C    |



ESD Sensitive Material,  
Transport material in  
Approved ESD bags.  
Handle only in approved  
ESD Workstation.

### Mechanical Specifications

#### Configuration

Design

Package Type

RF Connector

LO Connector

IF Connector

Double Balanced  
Connectorized  
SMA Female  
SMA Female  
SMA Female

### Environmental Specifications

#### Temperature

Operating Range

Storage Range

-40 to +85 deg C

-55 to +100 deg C

Humidity

Shock

Vibration

Altitude

MIL-STD-202F, Method 103B, Condition B

MIL-STD-202F, Method 213B, Condition B

MIL-STD-202F, Method 204D, Condition B

MIL-STD-202F, Method 105C, Condition B

**Compliance Certifications** (see [product page](#) for current document)

### Plotted and Other Data

Notes:

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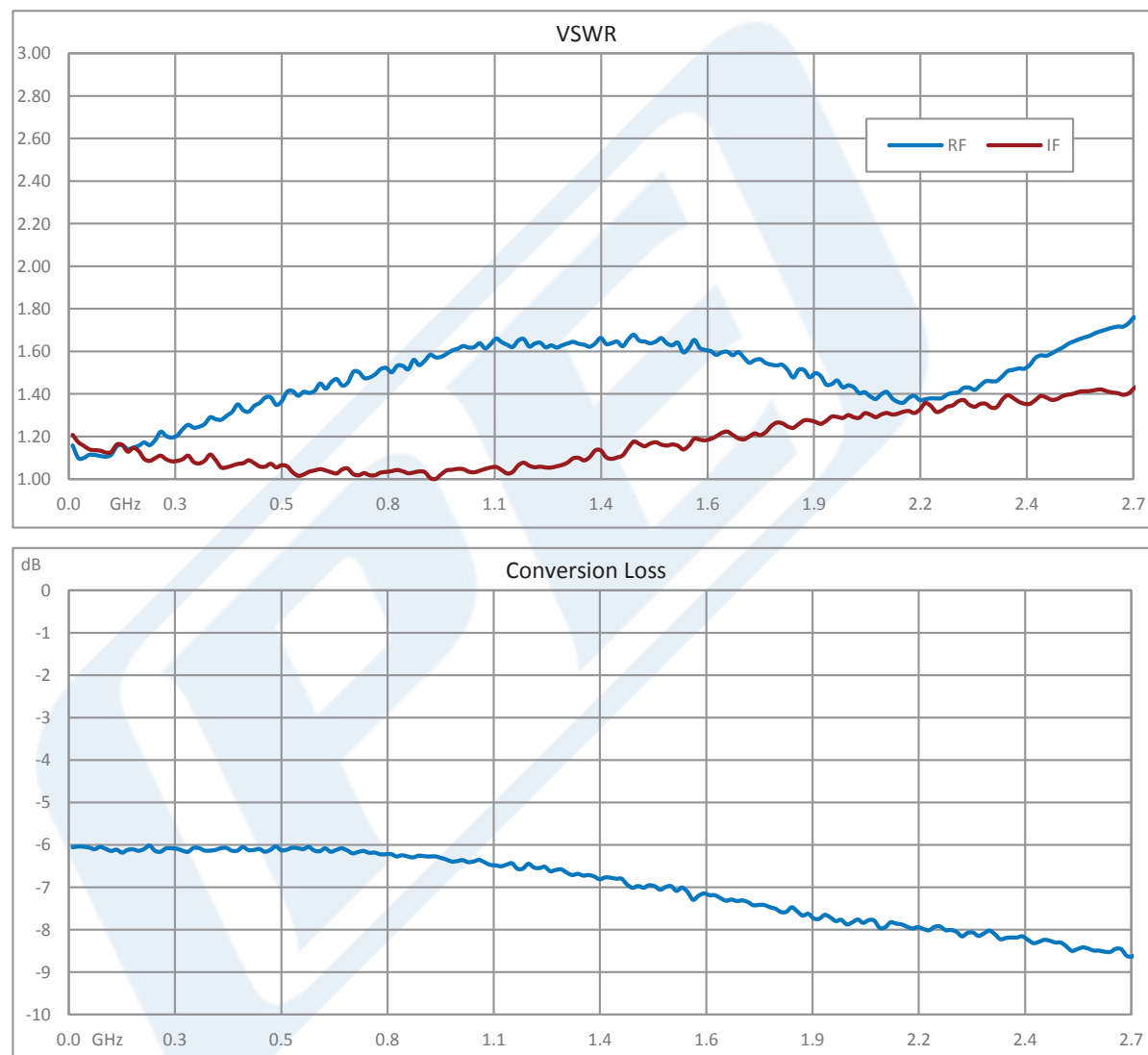


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## Mixers Technical Data Sheet

**PE86X1020**

Typical Performance Data



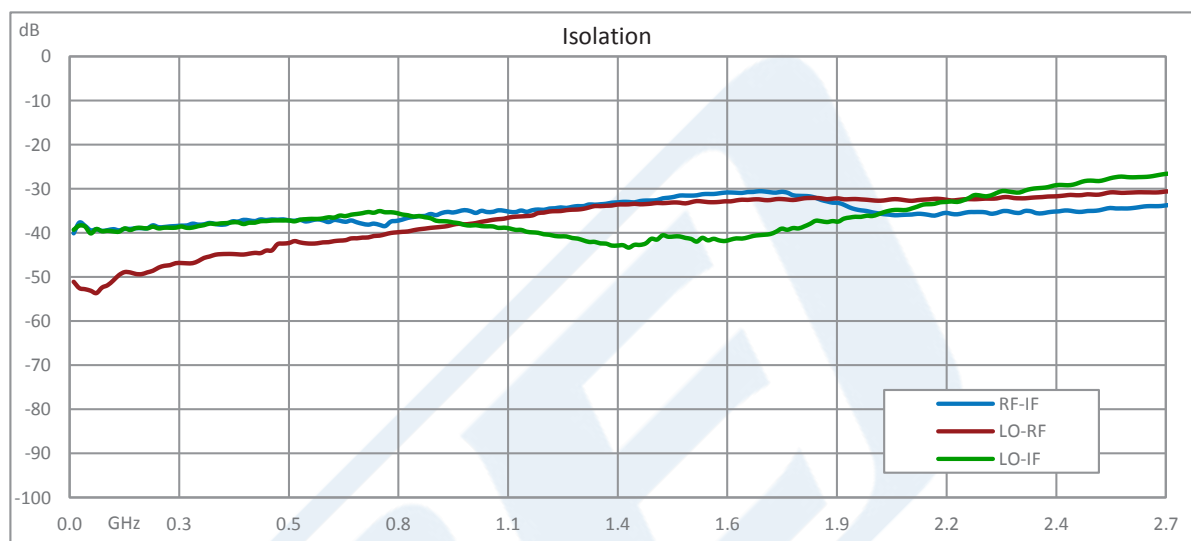
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Double Balanced Mixer Operating from 1 MHz to 2.7 GHz with an IF Range from 1 MHz to 2 GHz and LO Power of +10 dBm, SMA from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

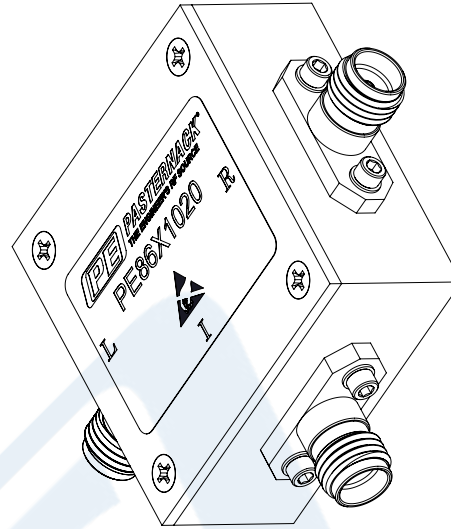
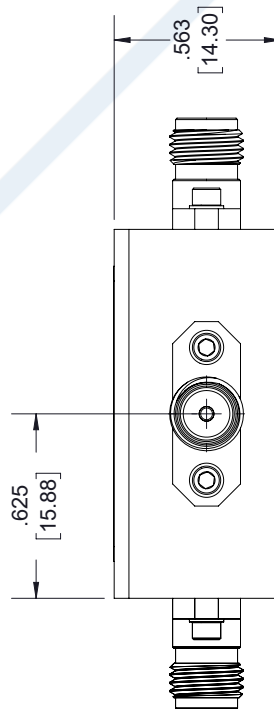
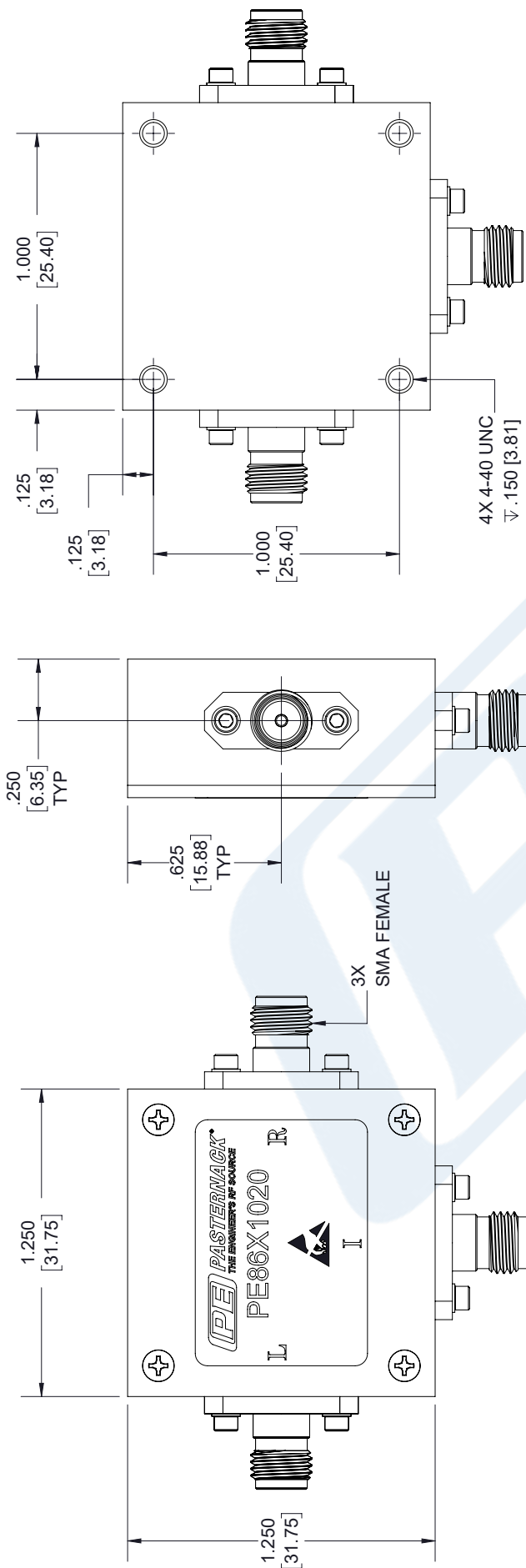
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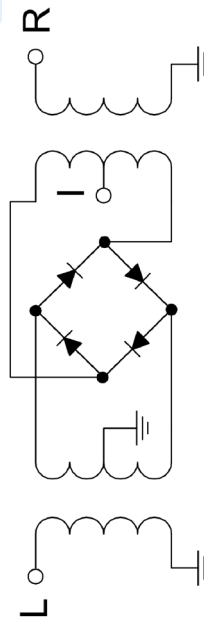
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# PE86X1020 CAD Drawing

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## SCHEMATIC



| STANDARD TOLERANCES |        |
|---------------------|--------|
| .X                  | ±0.2   |
| .XX                 | ±0.01  |
| .XXX                | ±0.005 |

\*STANDARD TOLERANCES APPLY  
ONLY TO DIMENSIONS IN INCHES

**PE PASTERNAK**  
THE ENGINEER'S RF SOURCE

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DWG TITLE

PE86X1020

NOTES:  
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.  
2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.  
3. DIMENSIONS ARE IN INCHES [mm].

CAGE CODE 53919

CAD FILE 04/26/18

SCALE N/A

SIZE A

7361