

## Double-Balanced Mixer

Rev. V3

### Features

- LO 5 TO 500 MHz
- RF 5 TO 500 MHz
- IF DC TO 500 MHz
- LO DRIVE +7 dBm (nominal)
- HIGH ISOLATION 40 dB (TYP.)

### Description

The M6E-50 is a double balanced mixer, designed for use in military, commercial and test equipment applications. The design utilizes Schottky ring quad diodes and broadband ferrite baluns to attain excellent performance. This mixer can also be used as a phase detector and/or bi-phase modulator since the IF port is DC coupled to the diodes. Environmental screening available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.



### Ordering Information

| Part Number | Package      |
|-------------|--------------|
| M6E-50      | Relay Header |

### Electrical Specifications: $Z_0 = 50\Omega$ $Lo = +7$ dBm (Downconverter application only)

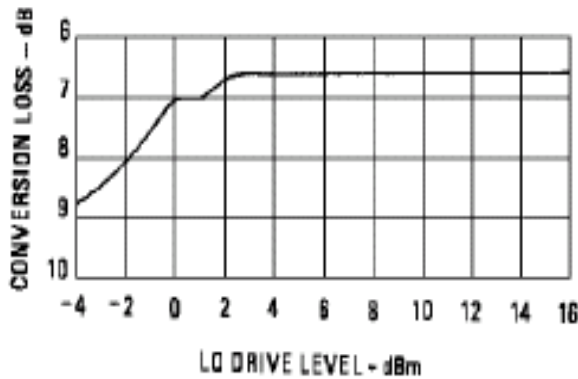
| Parameter                                          | Test Conditions                                                                                                                                                                         | Units | Typical | Guaranteed |               |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------|------------|---------------|
|                                                    |                                                                                                                                                                                         |       |         | +25°C      | -54° to +85°C |
| SSB Conversion Loss (max) & SSB Noise Figure (max) | fR = 10 to 100 MHz, fL = 10 to 100 MHz, fI = 10 to 100 MHz<br>fR = 100 to 200 MHz, fL = 100 to 200 MHz, fI = 10 to 200 MHz<br>fR = 5 to 500 MHz, fL = 5 to 500 MHz, fI = 0.5 to 500 MHz | dB    | 6.5     | 7.0        | 7.5           |
|                                                    |                                                                                                                                                                                         | dB    | 7.5     | 8.0        | 8.5           |
|                                                    |                                                                                                                                                                                         | dB    | 8.5     | 9.0        | 9.0           |
| Isolation, L to R (min)                            | fL = 5 to 50 MHz<br>fL = 50 to 500 MHz                                                                                                                                                  | dB    | 50      | 40         | 38            |
|                                                    |                                                                                                                                                                                         | dB    | 35      | 30         | 28            |
| Isolation, L to I (min)                            | fL = 5 to 50 MHz<br>fL = 50 to 500 MHz                                                                                                                                                  | dB    | 45      | 35         | 33            |
|                                                    |                                                                                                                                                                                         | dB    | 30      | 25         | 23            |
| 1 dB Conversion Comp.                              |                                                                                                                                                                                         |       |         |            |               |
| Input IP3                                          |                                                                                                                                                                                         |       |         |            |               |

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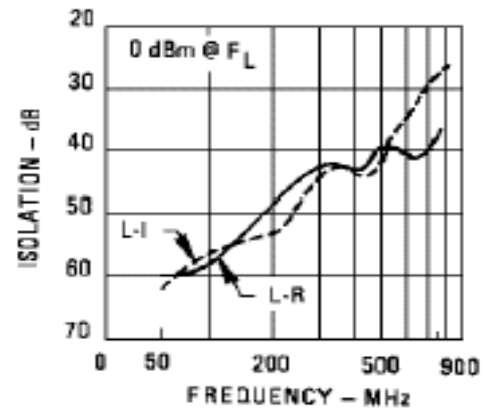
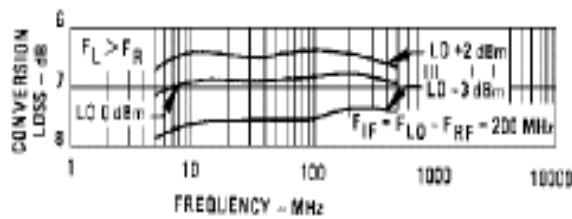
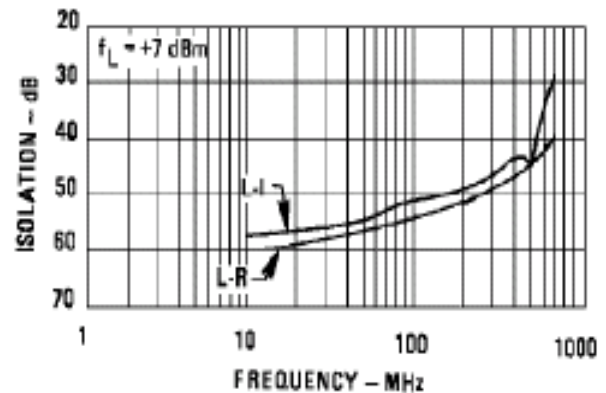
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### Typical Performance Curves

Conversion Loss



Isolation



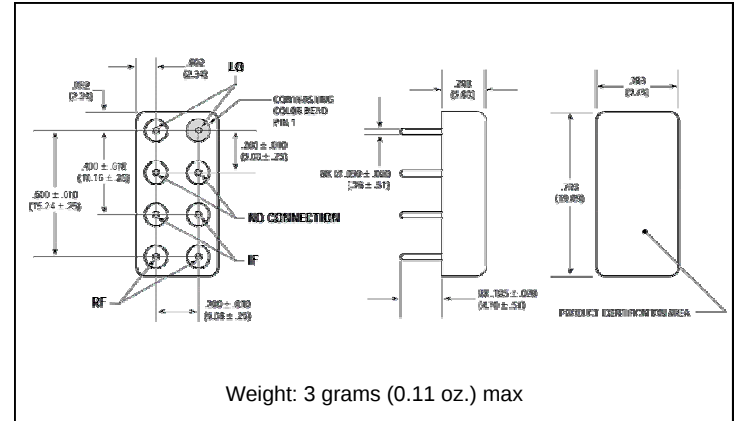
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### Absolute Maximum Ratings

| Parameter             | Absolute Maximum                        |
|-----------------------|-----------------------------------------|
| Operating Temperature | -54°C to +100°C                         |
| Storage Temperature   | -65°C to +100°C                         |
| Peak Input Power      | +17 dBm max @ +25°C<br>dBm max @ +100°C |
| Peak Input Current    | 50 mA DC                                |

### Outline Drawing: Relay Header \*



Weight: 3 grams (0.11 oz.) max

\* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.