

# Low Cost High IP3 Mixer for Next Generation Base Station/Repeater Applications (2.5 & 3G)

**CSM2N-17**

V3

## Features

- RF 1900 to 2200 MHz
- LO 1500 to 2200 MHz
- IF 160 to 390 MHz
- LO Drive +17 dBm (nominal)
- High Intercept +32 dBm (typ)
- +260°C Reflow Compatible

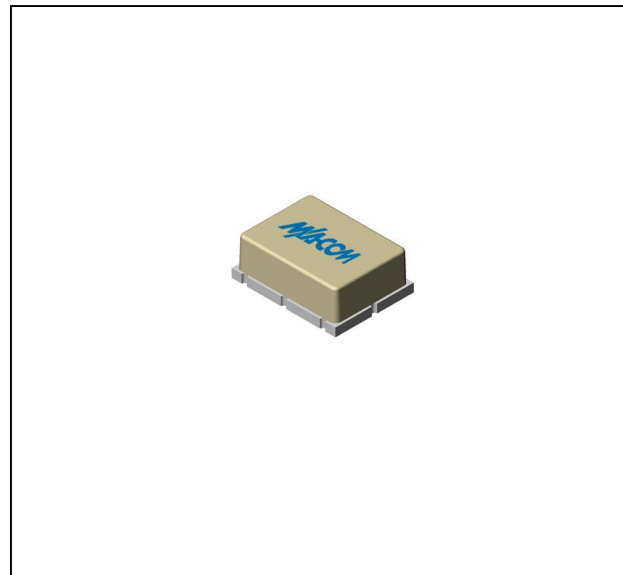
## Description

The CSM2N-17 is a double balanced mixer, designed for use in the high volume wireless applications. The design utilizes Schottky ring quad diodes and broadband baluns to attain excellent performance.

## Ordering Information

| Part Number | Package       |
|-------------|---------------|
| CSM2N-17    | Surface Mount |

## Product Image



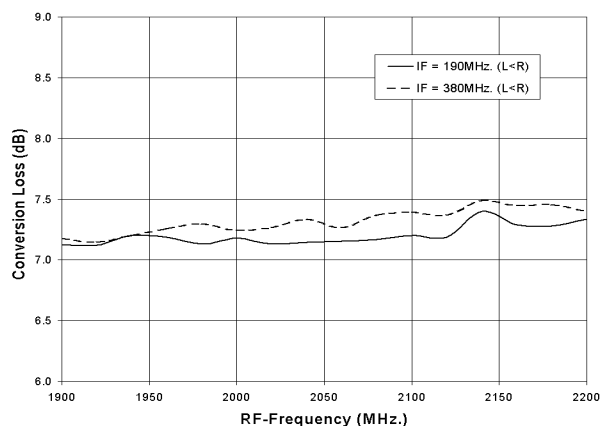
## Electrical Specifications: $Z_0 = 50\Omega$ $Lo = +17$ dBm (Downconverter application only)

| Parameter                 | Test Conditions                                                     | Units | Typical                        | Guaranteed |               |
|---------------------------|---------------------------------------------------------------------|-------|--------------------------------|------------|---------------|
|                           |                                                                     |       |                                | +25°C      | -40° to +85°C |
| SSB Conversion Loss (max) | fR = 1.9 GHz to 2.2 GHz, fL = 1.52 to 2.01 GHz, fI = 190 to 380 MHz | dB    | 7.3 dB                         | 8.0        | 8.5           |
| SSB Noise Figure          |                                                                     | dB    | Within 1 dB of conversion loss |            |               |
| L - R Isolation (min)     | fL = 1.5 to 2.2 GHz                                                 | dB    | 43                             | 40         | 38            |
| L - I Isolation (min)     | fL = 1.5 to 2.2 GHz                                                 | dB    | 39                             | 35         | 33            |
| 1 dB Conversion Comp.     | fL = +17 dBm                                                        | dBm   | +10                            |            |               |
| Input IP3                 | fR1 = 1.73 to 1.79 GHz, fR2 = 1.92 to 1.98 GHz, fL = 190 MHz        | dBm   | +32                            | +30        |               |
| R-Port VSWR               | fR = 1.9 to 2.2 GHz                                                 |       | 1.4:1                          |            |               |
| L-Port VSWR               | fL = 1.5 to 2.2 GHz                                                 |       | 1.8:1                          |            |               |
| I-Port VSWR               | fI = 160 to 390 MHz                                                 |       | 1.2:1                          |            |               |

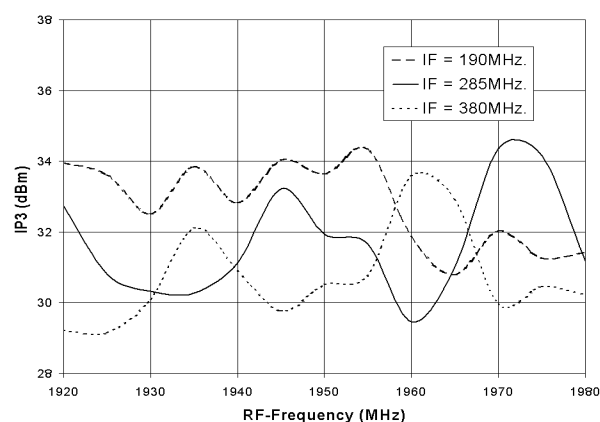
# Low Cost High IP3 Mixer for Next Generation Base Station/Repeater Applications (2.5 & 3G)

## Typical Performance Curves

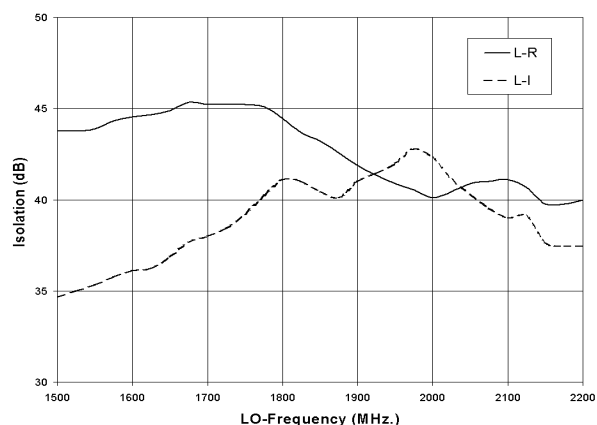
**Conversion Loss vs. RF-Frequency**



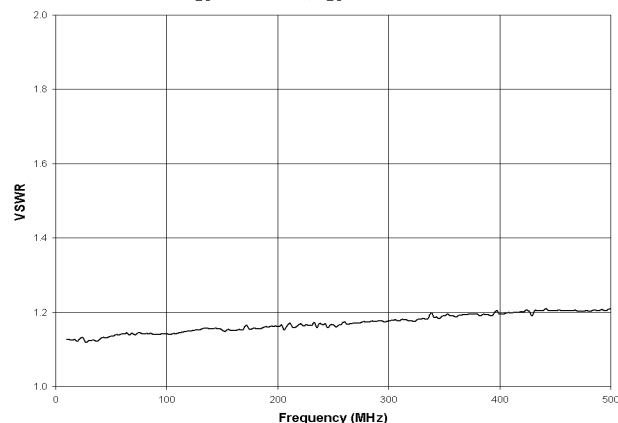
**Third Order Intercept Point vs. RF-Frequency**



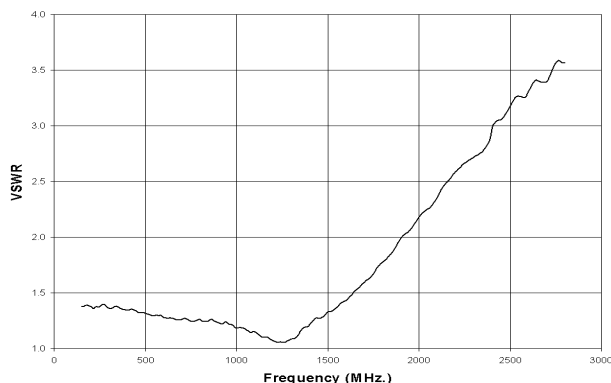
**Isolation vs. LO-Frequency**



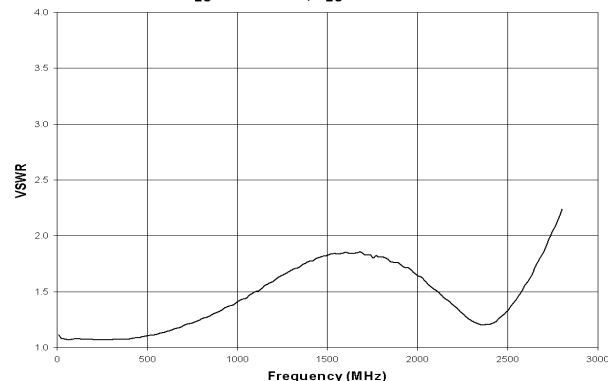
**CSM2N-17: IF-Port VSWR**  
 $P_{LO}=+17\text{dBm}$ ,  $f_{LO}=1760\text{MHz}$ .



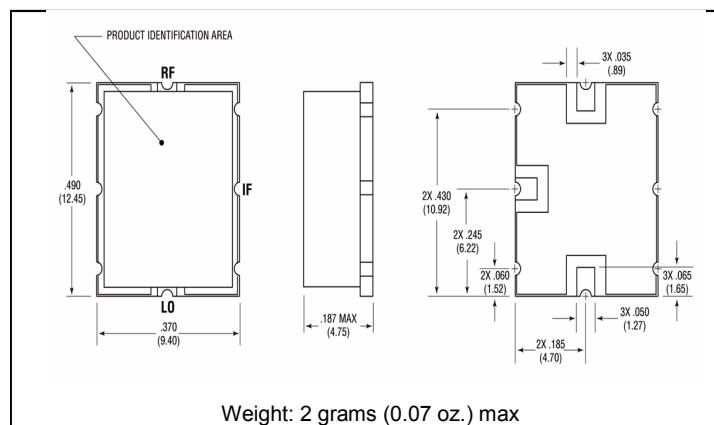
**CSM2N-17: LO-Port VSWR**  
 $P_{LO}=+17\text{dBm}$



**CSM2N-17: RF-Port VSWR**  
 $P_{LO}=+17\text{dBm}$ ,  $f_{LO}=1760\text{MHz}$ .



**Outline Drawing: Surface Mount \***



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

**Absolute Maximum Ratings**

| Parameter             | Absolute Maximum                           |
|-----------------------|--------------------------------------------|
| Operating Temperature | -40°C to +85°C                             |
| Storage Temperature   | -65°C to +100°C                            |
| Peak Input Power      | +20 dBm max @ +25°C<br>+17 dBm max @ +85°C |
| Peak Input Current    | 50 mA DC                                   |