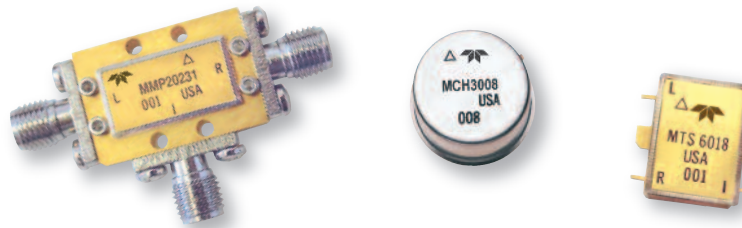


High Performance Frequency Mixers
Typical and Guaranteed Specifications—50 Ω System



| Model | Frequency Range MHz | | | LO Power dBm Nominal | Conversion Loss Noise Figure ^a dB | | Isolation dB | | | | IP3/IP2 dBm Typ. | |
|--|------------------------|------------|-----------|----------------------------|--|------|-----------------|------|--------|------|------------------------|--|
| | RF | LO | IF | | Typ. | Max. | L to R | | L to I | | | |
| | | | | | | | Typ. | Min. | Typ. | Min. | | |
| Available in standard TO-8, TO-8H and Surface Mount Mixer | | | | | | | | | | | | |
| MC1502 | 20-600 | 10-800 | DC-200 | 7 | 6.0 | 7.5 | 40 | 35 | 32 | 25 | 12/35 | |
| | 10-1500 | 10-1500 | DC-200 | | 7.5 | 8.5 | 30 | 25 | 25 | 14 | 12/35 | |
| | 10-1500 | 10-1500 | 200-1000 | | 8.5 | 9.5 | | | | | | |
| MC1505 | 20-600 | 10-800 | DC-200 | 10 | 6.5 | 8.0 | 40 | 27 | 35 | 25 | 17/40 | |
| | 10-1500 | 10-1500 | DC-200 | | 7.5 | 8.5 | 25 | 20 | 24 | 15 | 17/35 | |
| | 10-1500 | 10-1500 | 200-1000 | | 8.0 | 9.0 | 25 | 20 | 24 | 15 | 17/35 | |
| MC1507 | 20-600 | 10-800 | DC-200 | 15 | 7.0 | 8.5 | 40 | 32 | 35 | 25 | 25/42 | |
| | 10-1500 | 10-1500 | DC-200 | | 7.5 | 9.0 | 35 | 22 | 24 | 16 | 25/42 | |
| | 10-1500 | 10-1500 | 200-1000 | | 8.5 | 10.0 | | | | | | |
| MC3002 | 2500-3000 | 2500-3000 | 1-500 | 7 | 4.5 | 5.5 | 35 | 25 | 25 | 20 | 7 | |
| | 2300-3500 | 2300-4000 | DC-2000 | | 5.5 | 6.5 | 35 | 25 | 25 | 18 | 7 | |
| MCH3008 | 5-1000 | 10-1500 | 1-500 | 10 | 6.0 | 7.5 | 43 | 35 | 40 | 32 | 20/50 | |
| | 1-3000 | 1-3100 | 1-2000 | | 7.0 | 9.0 | 40 | 30 | 35 | 25 | 20/50 | |
| | 1-3400 | 1-3400 | 1-2000 | | 8.0 | 9.5 | 40 | 30 | 35 | 25 | 20/50 | |
| MCH3009 | 5-1000 | 10-1500 | 1-500 | 19 | 6.0 | 7.5 | 40 | 22 | 45 | 35 | 28/58 | |
| | 1-3000 | 1-3100 | 1-2000 | | 7.0 | 8.5 | 35 | 22 | 40 | 30 | 28/55 | |
| | 1-3400 | 1-3400 | 1-2000 | | 8.0 | 9.5 | 35 | 22 | 40 | 30 | 28/52 | |
| MTS6018 | 10-2000 | 10-2000 | 5-1000 | 13 | 7.0 | 8.5 | 30 | 22 | 35 | 28 | 22/38 | |
| | 2000-6000 | 2000-6000 | 5-1000 | | 7.5 | 8.5 | 25 | 18 | 30 | 20 | 15/30 | |
| | 2000-6000 | 2000-6000 | 5-3000 | | 8.0 | 9.0 | 25 | 18 | 30 | 20 | 15/30 | |
| MTS6029 | 10-2000 | 10-2000 | 5-1000 | 22 | 7.0 | 8.5 | 30 | 24 | 28 | 20 | 25/45 | |
| | 2000-3000 | 2000-3000 | 5-1000 | | 7.0 | 8.5 | 25 | 18 | 22 | 20 | 24/42 | |
| | 3000-6000 | 3000-6000 | 5-3000 | | 8.0 | 9.0 | 25 | 18 | 24 | 20 | 20/32 | |
| MM8221 | 3000-8000 | 3000-8000 | DC-0.5 | 7 | 5.0 | 6.5 | 45 | 35 | 35 | 22 | 11/45 | |
| | 2000-8000 | 2000-8000 | DC-0.5 | | 6.5 | 7.5 | 45 | 35 | 35 | 22 | | |
| | 2000-8000 | 2000-8000 | 0.5-1.5 | | 8.0 | 9.0 | 45 | 35 | 35 | 22 | | |
| MS10623* | 7000-9000 | 7000-9000 | DC-500 | 16 | 8.5 | 9.5 | 40 | 35 | 30 | 25 | 18/40 | |
| | 6000-10000 | 6000-10000 | DC-2000 | | 9.0 | 10.0 | 40 | 35 | 30 | 25 | 18/40 | |
| MM20421 | 4000-20000 | 4000-20000 | DC-2000 | 10 | 7.5 | 10.0 | 28 | 20 | 22 | 16 | 13/38 | |
| MM20441 | 4000-20000 | 4000-20000 | DC-4000 | 10 | 8.5 | 11.5 | 27 | 20 | 21 | 16 | 13/38 | |
| MM24422 | 4000-24000 | 4000-24000 | 1000-6000 | 13 | 8.2 | 11.5 | 23 | 17 | 22 | 15 | 15/36 | |

Current data sheets available on website. ^a Noise Figure is specified only down to 1 MHz for the IF frequency to avoid 1/F contributions.
 *SMTO-8 Mixer Package

High Performance Frequency Mixers

Typical and Guaranteed Specifications—50 Ω System

| Model | Frequency Range | | | LO Power dBm Nominal | Conversion Loss Noise Figure ^A | | Isolation dB | | | | IP3/IP2 dBm Typ. |
|---|-----------------|-------------|-----------|----------------------------|--|------|-----------------|------|--------|------|------------------------|
| | RF | MHz LO | IF | | dB | dB | L to R | | L to I | | |
| | | | | | Typ. | Max. | Typ. | Min. | Typ. | Min. | |
| Available in standard Cougar Hi-Rel MixerPak | | | | | | | | | | | |
| MMP12241 <i>(see note 1)</i> | 3000-12000 | 3000-12000 | DC-1000 | 7 | 6.0 | 7.0 | 40 | 30 | 22 | 15 | 10/40 |
| | 2000-12000 | 2000-12000 | DC-1000 | | 7.0 | 8.5 | 40 | 30 | 22 | 15 | |
| | 2000-12000 | 2000-12000 | 1000-2000 | | 8.5 | 9.5 | 40 | 30 | 22 | 15 | |
| MMP12244 <i>(see note 1)</i> | 3000-12000 | 3000-12000 | DC-1000 | 16 | 6.0 | 7.0 | 40 | 30 | 22 | 15 | 19/45 |
| | 2000-12000 | 2000-12000 | DC-1000 | | 7.0 | 9.0 | 35 | 25 | 18 | 13 | |
| | 2000-12000 | 2000-12000 | 1000-2000 | | 8.5 | 10.0 | 35 | 25 | 18 | 13 | |
| MMP12321 <i>(see note 1)</i> | 3500-12000 | 3500-12000 | DC-1000 | 7 | 4.5 | 6.0 | 42 | 35 | 32 | 25 | 12/42 |
| | 3500-12000 | 3500-12000 | 1000-3000 | | 7.0 | 8.0 | 42 | 35 | 32 | 25 | |
| MMP12324 <i>(see note 1)</i> | 3500-12000 | 3500-12000 | DC-1000 | 13 | 5.5 | 7.0 | 40 | 35 | 32 | 25 | 20/50 |
| | 3500-12000 | 3500-12000 | DC-2000 | | 7.5 | 8.5 | 40 | 35 | 32 | 25 | |
| MMP18441 <i>(see note 1)</i> | 5000-17000 | 5000-17000 | DC-2000 | 10 | 5.5 | 6.5 | 30 | 20 | 30 | 15 | 12/35 |
| | 4000-18000 | 4000-18000 | DC-2000 | | 7.0 | 8.0 | 30 | 20 | 30 | 15 | |
| | 4000-18000 | 4000-18000 | 2000-4000 | | 8.5 | 9.5 | 30 | 20 | 30 | 15 | |
| MMP18444 <i>(see note 1)</i> | 5000-17000 | 5000-17000 | DC-500 | 16 | 5.5 | 6.5 | 30 | 20 | 25 | 10 | 22/50 |
| | 4000-18000 | 4000-18000 | DC-1000 | | 7.0 | 8.0 | 30 | 20 | 25 | 10 | |
| | 4000-18000 | 4000-18000 | 1000-2000 | | 8.5 | 9.5 | 30 | 20 | 25 | 10 | |
| MMP18641 <i>(see note 1)</i> | 6000-16000 | 6000-16000 | DC-1000 | 7 | 5.0 | 7.0 | 38 | 32 | 25 | 15 | 12/50 |
| | 6000-18000 | 6000-18000 | DC-1000 | | 7.0 | 7.0 | 38 | 32 | 25 | 15 | |
| | 6000-18000 | 6000-18000 | 1000-4000 | | 8.0 | 9.0 | 38 | 32 | 25 | 15 | |
| MMP18644 <i>(see note 1)</i> | 6000-16000 | 6000-16000 | DC-1000 | 16 | 5.0 | 7.0 | 38 | 32 | 15 | 10 | 22/50 |
| | 6000-18000 | 6000-18000 | DC-1000 | | 6.0 | 8.0 | 38 | 32 | 15 | 10 | |
| | 6000-18000 | 6000-18000 | 1000-4000 | | 8.0 | 9.0 | 38 | 32 | 15 | 10 | |
| MMP20221 <i>(see note 1)</i> | 2000-20000 | 2000-20000 | DC-500 | 7 | 7.0 | 8.0 | 30 | 20 | 25 | 18 | 12/35 |
| | 2000-20000 | 2000-20000 | 500-1000 | | 8.0 | 9.0 | 30 | 20 | 25 | 18 | |
| MMP20224 <i>(see note 1)</i> | 2000-20000 | 2000-20000 | DC-500 | 16 | 7.0 | 8.5 | 30 | 22 | 25 | 18 | 20/40 |
| | 2000-20000 | 2000-20000 | DC-1000 | | 8.0 | 9.5 | 30 | 22 | 25 | 18 | |
| MMP20281 <i>(see note 2)</i> | 2000-20000 | 2000-20000 | 5-2000 | 13 | 7.0 | 8.5 | 25 | 15 | 20 | 15 | 18/42 |
| | 2000-20000 | 2000-20000 | 2000-4000 | | 7.0 | 8.5 | 25 | 15 | 20 | 15 | |
| | 2000-20000 | 2000-20000 | 4000-6000 | | 8.5 | 9.5 | 25 | 15 | 20 | 15 | |
| MMP20284 <i>(see note 2)</i> | 2000-20000 | 2000-20000 | 5-2000 | 19 | 7.0 | 8.0 | 25 | 15 | 20 | 15 | 22/50 |
| | 2000-20000 | 2000-20000 | 2000-4000 | | 7.0 | 8.0 | 25 | 15 | 20 | 15 | |
| | 2000-20000 | 2000-20000 | 4000-6000 | | 8.5 | 9.5 | 25 | 15 | 20 | 15 | |
| MMP20291 | 2000-10000 | 2000-10000 | 1-8000 | 10 | 7.5 | 9.0 | 32 | 24 | 27 | 20 | 15/35 |
| | 10000-20000 | 10000-20000 | 1-8000 | | 8.0 | 9.5 | 32 | 24 | 27 | 20 | |
| MMP20294 | 2000-10000 | 2000-10000 | 1-7000 | 19 | 8.0 | 10.0 | 22 | 15 | 25 | 20 | 19/40 |
| | 10000-20000 | 10000-20000 | 1-7000 | | 9.5 | 11.0 | 22 | 15 | 25 | 20 | |
| | | | 1-12000 | | 10.5 | 12.0 | 22 | 15 | 25 | 20 | |
| MMP20421 | 4000-20000 | 4000-20000 | DC-2000 | 10 | 7.5 | 10.0 | 28 | 20 | 22 | 16 | 13/38 |
| MMP20441 | 4000-20000 | 4000-20000 | DC-2000 | 10 | 7.5 | 10.0 | 28 | 20 | 22 | 16 | 13/38 |

Double Balanced Mixers

| Note 1: Last digit of Model ¹ | Lo Drive dBm | Input P -1dB dBm Typ | Input IP3 dBm Typ |
|--|-----------------|----------------------------|-------------------------|
| (1) | +7 to +10 | +2 | +12 |
| (2) | +10 to +13 | +5 | +15 |
| (3) | +13 to +16 | +8 | +18 |
| (4) | +16 to +19 | +11 | +21 |
| (5) | +19 to +22 | +14 | +24 |

Triple Balanced Mixers²

| Note 2: Last digit of Model ¹ | Lo Drive dBm | Input P -1dB dBm Typ | Input IP3 dBm Typ |
|--|-----------------|----------------------------|-------------------------|
| (1) | +10 to +13 | +5 | +15 |
| (2) | +13 to +16 | +8 | +18 |
| (3) | +16 to +19 | +11 | +21 |
| (4) | +19 to +22 | +14 | +24 |

¹ Last digit in model number signifies diode option. All models in tables for Note 1 and Note 2 have same conversion loss and isolation as shown above.

² Extra drive is needed for low end of the (n) Series Triple Balance Mixers.

Current data sheets available on website. ^A Noise Figure is specified only down to 1 MHz for the IF frequency to avoid 1/F contributions.