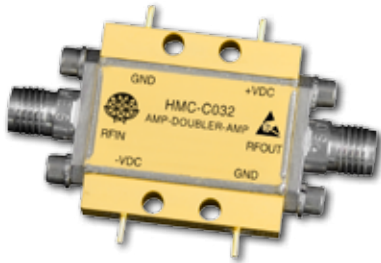




GaAs MMIC x2 ACTIVE FREQUENCY MULTIPLIER MODULE, 18 - 29 GHz OUTPUT



Features

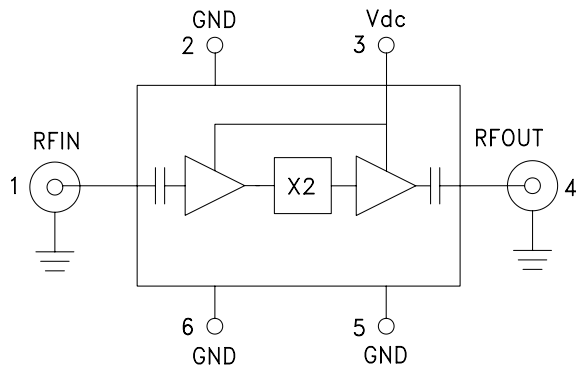
- High Output Power: +16 dBm
- Low Input Power Drive: 0 to +6 dBm
- Fo Isolation: >20 dBc @ Fout= 24 GHz
- 100 KHz SSB Phase Noise: -132 dBc/Hz
- Single Supply: +5V@ 82 mA
- Hermetically Sealed Module
- Field Replaceable 2.92mm Connectors
- 55 °C to +85 °C Operating Temperature

Typical Applications

The HMC-C032 is suitable for:

- Clock Generation Applications:
SONET OC-192 & SDH STM-64
- Point-to-Point & VSAT Radios
- Test Instrumentation
- Military & Space

Functional Diagram



General Description

The HMC-C032 is a x2 active broadband frequency multiplier utilizing GaAs PHEMT technology in a miniature hermetic module. When driven by a +3 dBm signal, the multiplier provides +16 dBm typical output power from 18 to 29 GHz. The Fo and 3Fo isolations are >20 dBc at 24 GHz. The HMC-C032 is ideal for use in LO multiplier chains for Pt to Pt & VSAT Radios yielding reduced parts count vs. traditional approaches. The low additive SSB Phase Noise of -132 dBc/Hz at 100 kHz offset helps maintain good system noise performance.

Electrical Specifications, $T_A = +25^\circ C$, $V_{dc} = +5V$, 3 dBm Drive Level

| Parameter | Min. | Typ. | Max. | Units |
|----------------------------------------------|----------|------|------|--------|
| Frequency Range, Input | 9 - 14.5 | | | GHz |
| Frequency Range, Output | 18 - 29 | | | GHz |
| Output Power | 11 | 16 | | dBm |
| Fo Isolation (with respect to output level) | 20 | | | dBc |
| 3Fo Isolation (with respect to output level) | 20 | | | dBc |
| Input Return Loss | 10 | | | dB |
| Output Return Loss | 10 | | | dB |
| SSB Phase Noise (100 kHz Offset) | -132 | | | dBc/Hz |
| Supply Current | 82 | | | mA |

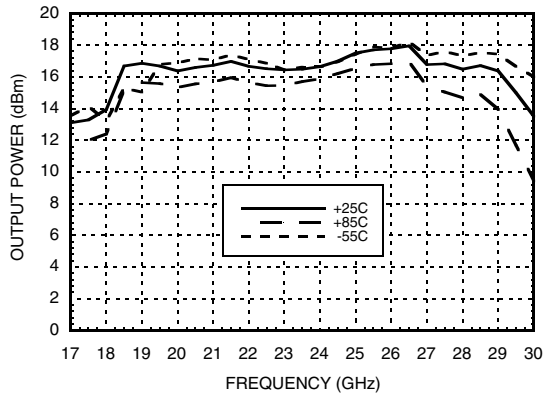
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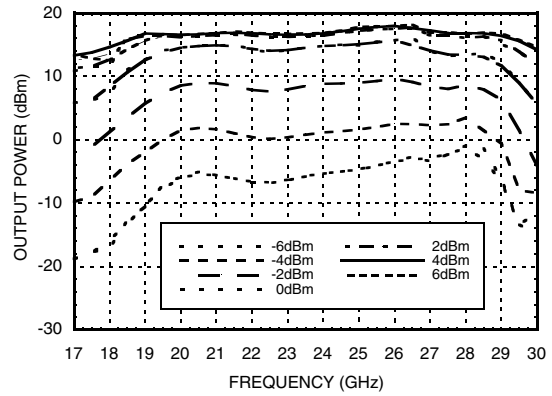


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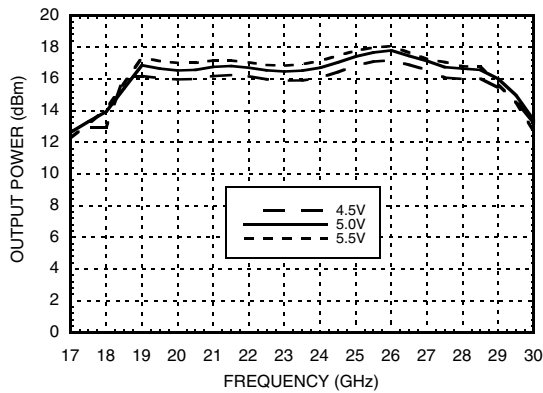
Output Power vs. Temperature @ 3 dBm Drive Level



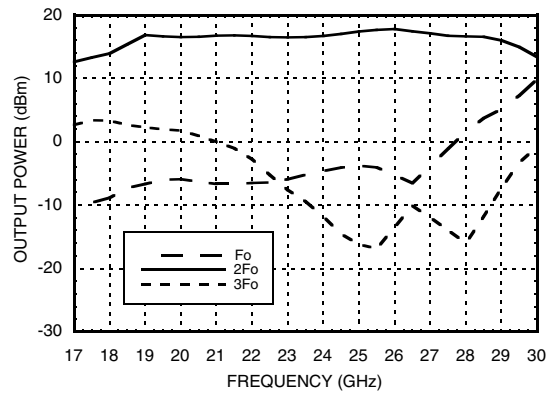
Output Power vs. Drive Level



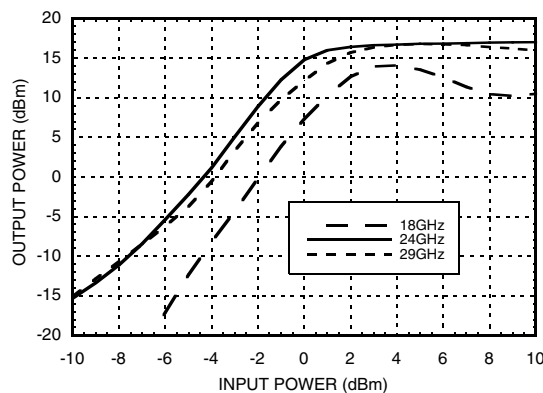
Output Power vs. Supply Voltage @ 3 dBm Drive Level



Isolation @ 3 dBm Drive Level



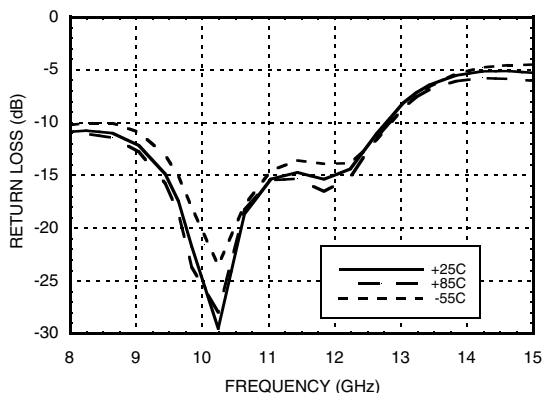
Output Power vs. Input Power



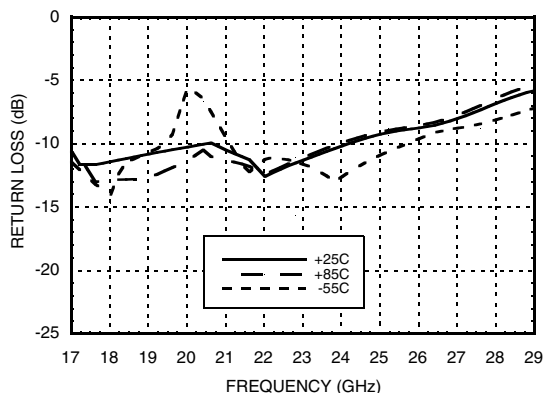


GaAs MMIC x2 ACTIVE FREQUENCY MULTIPLIER MODULE, 18 - 29 GHz OUTPUT

Input Return Loss vs. Temperature @ 0 dBm Drive Level



Output Return Loss vs. Temperature @ 0 dBm Drive Level



Absolute Maximum Ratings

| | |
|-----------------------|----------------|
| RF Input (Vdd = +5V) | +13 dBm |
| Supply Voltage (Vdd) | +6 Vdc |
| Storage Temperature | -65 to +150 °C |
| Operating Temperature | -55 to +85 °C |

Typical Supply Current vs. Vdd

| Vdd (Vdc) | Idd (mA) |
|-----------|----------|
| 4.5 | 82 |
| 5.0 | 82 |
| 5.5 | 83 |

Note:
Multiplier will operate over full voltage range shown above.



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Pin Description

| Pin Number | Function | Description | Interface Schematic |
|------------|---------------------|-------------------------------------------------------------------------------------------------------------------|---------------------|
| 1 | RFIN and RF Ground | Pin is AC coupled and matched to 50 Ohms. RFIN uses a female 2.92mm field replaceable connector. | |
| 2, 5, 6 | GND | One of these pins must be connected to power supply ground. | |
| 3 | Vdc | Power supply voltage for the amplifier includes 7.5V zener diode for over voltage and negative voltage protection | |
| 4 | RFOUT and RF Ground | Pin is AC coupled and matched to 50 Ohms. RFIN uses a female 2.92mm field replaceable connector. | |

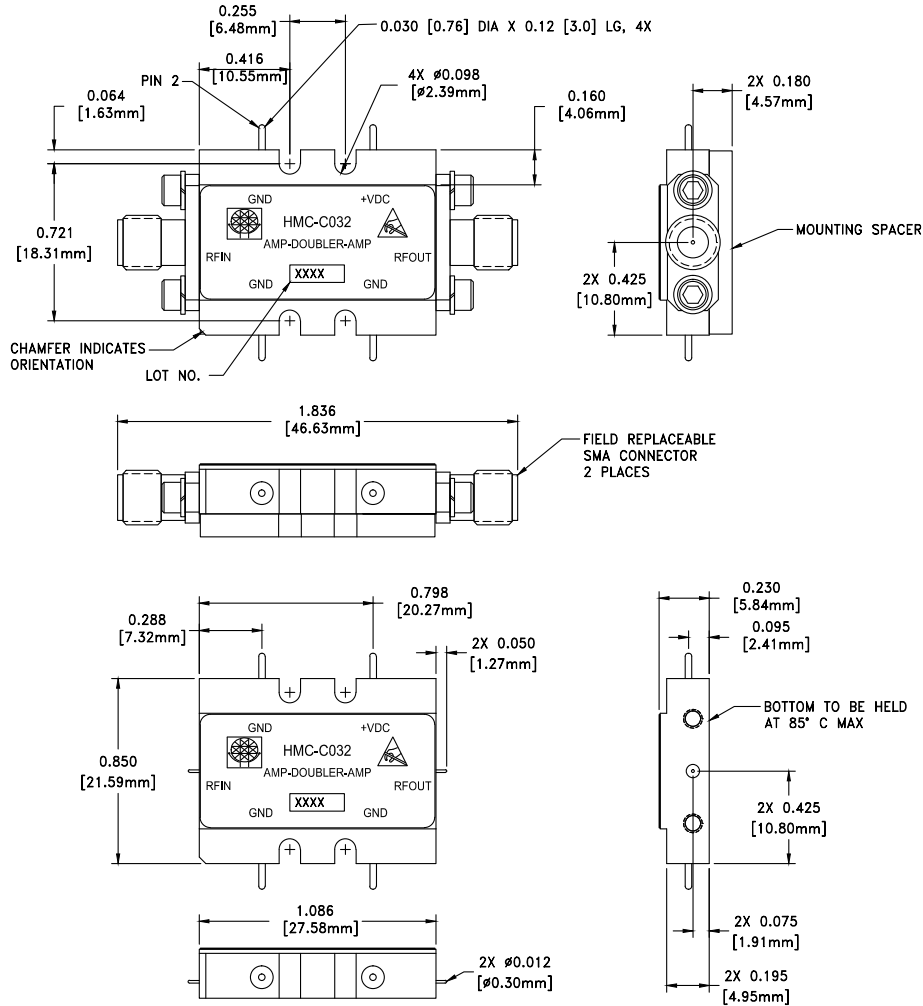
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GaAs MMIC x2 ACTIVE FREQUENCY MULTIPLIER MODULE, 18 - 29 GHz OUTPUT

Outline Drawing



VIEW SHOWN WITH CONNECTORS AND MOUNTING SPACER REMOVED

Package Information

| | |
|--------------------|--------------|
| Package Type | C-10 |
| Package Weight [1] | 18.7 gms [2] |
| Spacer Weight | 3.3 gms [2] |

[1] Includes the connectors

[2] \pm 1 gms Tolerance

NOTES:

1. PACKAGE, LEADS, COVER MATERIAL: KOVAR™
2. FINISH: GOLD PLATE OVER NICKEL PLATE
3. ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]
4. TOLERANCES:
 - 4.1 .XX = \pm 0.02
 - 4.2 .XXX = \pm 0.010
5. FIELD REPLACEABLE 2.92mm CONNECTORS TENSOLITE 231CCSF OR EQUIVALENT