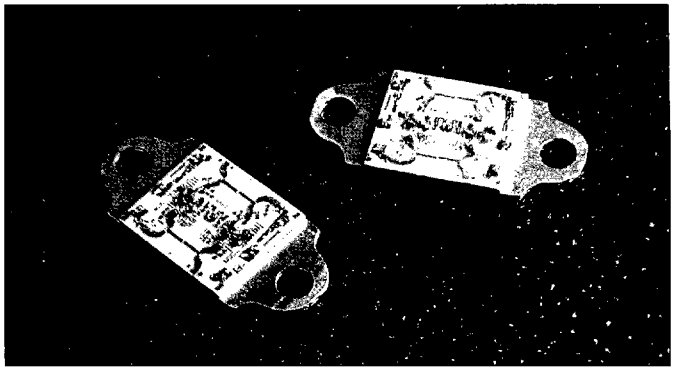
0.5 to 20.0 GHz Microwave Gain Modules

T-74-13-01

- **Frequency Coverage:**
  0.5-4 GHz 2-6 GHz 2-8 GHz
  2-18 GHz 6-18 GHz 2-20 GHz
- **MIC & MMIC Gain Modules on Kovar Carriers**
- **Small Carrier Sizes:**
  0.560 in. x 0.246 in.
  0.680 in. x 0.328 in.
- **Suitable for Military and Commercial Applications**



Microwave Gain Modules with Guaranteed Specifications at +25°C

Model	Frequency Response (GHz)	Gain (dB)	Gain Flatness vs Frequency (±dB)	Gain Temperature Coefficient Per 1°C (1) (dB)	Noise Figure (dB)	Power Output for 1dB Compression (+dBm)	Input DC current (mA)	Carrier Type (2)
	Min	Min	Max	Typ	Max	Min	Typ	
CGM-04-0001	0.5-4.0	11.0	0.5	-0.007	4.5	16.0	100	1006
CGM-04-0002	0.5-4.0	11.5	0.6	-0.007	2.5	15.0	90	1006
CGM-04-0003	0.5-4.0	22.0	0.5	-0.014	4.5	16.0	200	1006
CGM-04-0004	0.5-4.0	22.0	0.6	-0.014	2.8	15.0	180	1006
CGM-04-0005	0.5-4.0	33.0	0.5	-0.021	4.5	16.0	300	1006
CGM-04-0006	0.5-4.0	33.0	0.6	-0.021	2.8	15.0	270	1006
CGM-04-2001	2-4	13.0	0.5	-0.011	1.8	10.0	60	1006
CGM-06-2001	2-6	11.5	0.5	-0.011	5.5	19.0	80	1006-P (-N)
CGM-06-2002	2-6	12.0	5 dB Slope(5)	-0.011	2.5	14.0	80	1006-P
CGM-06-2003	2-6	12.5	0.5	-0.011	4.5	16.0	70	1006-P (-N)
CGM-08-2001	2-8	8.0	0.5	-0.011	7.5	24.0	320	1006-P (-N)
CGM-08-2002	2-8	9.5	0.5	-0.011	6.5	22.0	200	1006-P (-N)
CGM-08-2003	2-8	10.0	0.5	-0.011	6.0	19.0	80	1006-P (-N)
CGM-08-2004	2-8	10.5	0.5	-0.011	5.0	16.0	70	1006-P (-N)
CGM-08-2005	2-8	12.0	5 dB Slope(5)	-0.011	2.5	14.0	80	1006-P
CGM-08-4001	4-8	12.0	0.5	-0.011	1.8	10.0	60	1006
CGM-10-8001(6)	8-10	12.0	0.25	-0.011	1.9	10.0	60	1248-P (-N)
CGM-18-2001	2-18	7.5	1.0	-0.011	5.0	11.0	60	1248
CGM-18-2002	2-18	9.0	0.8	-0.022	11.0	18.0	330	1248
CGM-18-2003	2-18	10.0	0.8	-0.022	9.5	15.0	220	1248
CGM-18-2004	2-18	15.0	0.75	-0.022	9.0	12.0	120	1248
CGM-18-2005	2-18	15.0	1.0	-0.022	5.0	11.0	120	1248
CGM-18-2006	2-18	15.0	1.0	-0.022	8.0	11.0	120	1248
CGM-18-6001	6-18	4.0	0.8	-0.011	N/A	28.0	640	1248-P (-N)
CGM-18-6002	6-18	5.0	0.6	-0.011	9.5	25.0	320	1248-P (-N)
CGM-18-6003	6-18	5.5	0.6	-0.011	8.0	22.0	200	1248-P (-N)
CGM-18-6004	6-18	5.5	0.5	-0.011	6.5	18.0	80	1248-P (-N)
CGM-18-6005	6-18	6.0	0.5	-0.011	5.8	16.0	70	1248-P (-N)
CGM-18-6006	6-18	7.0	0.5	-0.011	5.0	14.0	70	1248-P (-N)
CGM-18-6007	6-18	7.0	3 dB Slope(5)	-0.011	3.2	14.0	80	1248-P (-N)
CGM-18-6008(3)	6-18	10.0	1.0	-0.015	7.0	14.0	100	1248-P (-N)
CGM-20-2001(4)	2-20	8.0	1.0	-0.012	8.0	22.0	250	1248
CGM-20-2002(4)	2-20	6.0	1.0	-0.012	6.0	16.0	100	1248
CGM-20-2003(4)	2-20	12.0	1.5	-0.024	7.0	15.0	100	1248
CGM-20-2004(4)	2-20	14.0	1.5	-0.024	7.5	20.0	350	1248

NOTES:
1. Gain will increase with decreasing temperature and decrease with increasing temperature.
2. Some circuits are supplied with a positive (-P) or negative (-N) configuration. See package Outlines. When ordering, include a -P or -N on the end of the Model Number.
3. Dual gate GaAs FET.
4. MMIC chip on MIC circuit.
5. Negative slope from low to high frequency.
6. Specification over any 500 MHz bandwidth.

CELERITEK

0.5 to 20.0 GHz Microwave Gain Modules

T-74-13-01

QUALITY AND RELIABILITY

Celeritek's MIL-I-45208 inspection system and MIL-Q-9858A quality assurance program establishes and maintains product standards and workmanship practices. All modules are burned-in for 48 hours at +85°C to insure reliability. When these modules are properly sealed in a hermetic enclosure, they are capable of meeting the screening and testing requirements of MIL-STD-883. These modules are designed and constructed to meet the testing required by MIL-E-5400 and MIL-E-16400 specifications.

GUARANTEED SPECIFICATIONS

Module specifications are guaranteed at +25°C as shown in the table on the front side of this data sheet. The amplifiers are designed to operate over full military environments when they are installed in hermetic enclosures. Typical gain shifts for each module are listed in the typical data. Typically, noise figures at high temperatures will increase 1/2 to 1 dB and output power will drop by 1 dB.

TESTING/DATA

Celeritek's gain modules are 100% tested at +25°C and test data will be supplied as follows:

- Swept Gain Plot
- Noise Figure at 5 Frequencies
- Po^{-1} dB at 5 Frequencies
- Swept VSWR, In and Out

SHIPPING AND HANDLING

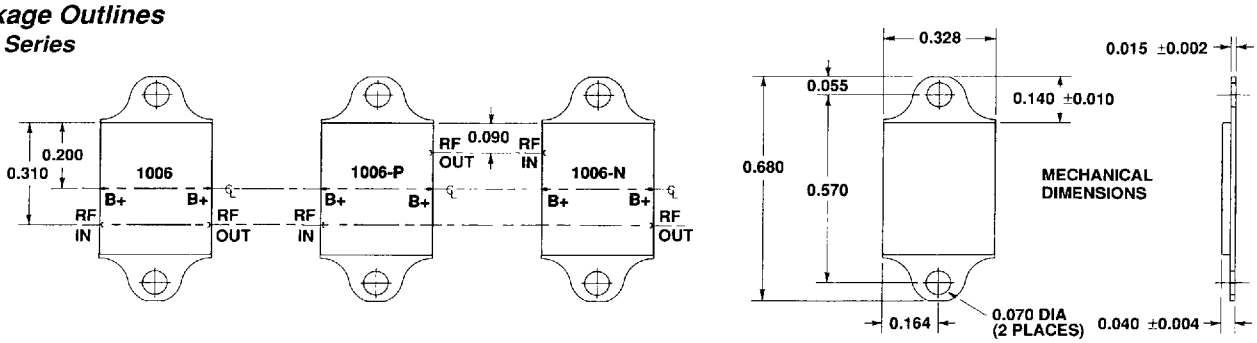
Each gain module is shipped in an individual static resistant, plastic see-through case. This allows the part to be physically examined before the seal is broken and the unit removed. All modules should be stored in a dry nitrogen environment prior to and/or after they are removed from their shipping cases. All amplifiers should be properly mounted to ensure adequate heat sinking during operation.

INSTALLATION

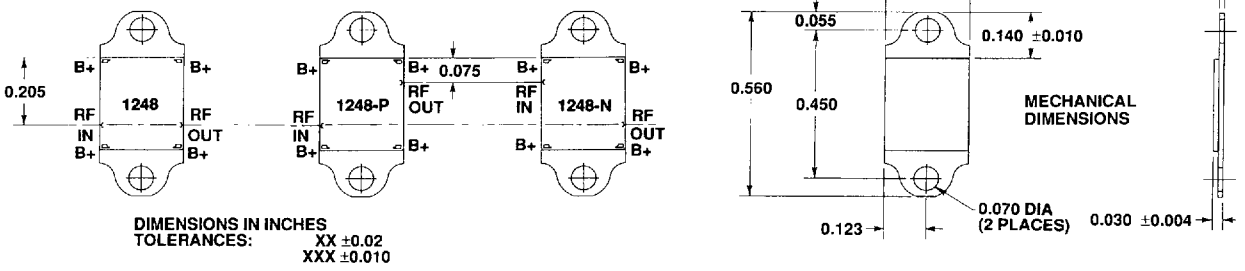
All modules are provided on carriers which are mounted using two 0-80 screws. Care must be taken to ensure the mounting surface is flat to ±0.001 inch with no strips >0.0005 inches. Detailed dimensions of bonding pad locations and bonding recommendations will be supplied with each module. Advanced copies are available.

Package Outlines

1006 Series



1248 Series



DIMENSIONS IN INCHES
TOLERANCES: XX ±0.02
XXX ±0.010

617 River Oaks Parkway
San Jose, California 95134
(408) 433-0335
Telex: 171728
Fax: (408) 433-0991 01-92

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