

Features

- Microstrip compatible
- Hermetic Case
- Small, versatile gain blocks
- Premium performance over 2 to 20 GHz
- Easy integration
- Low cost

Description

The μ AVPAK package is a small, hermetically sealed package which allows microstrip interfacing of circuit functions. It is ideally suited for incorporating small blocks of gain into microstrip subassemblies where other components are realized in microstrip form. Hermetic microstrip feedthru windows provide an inert environment within the package and allow either hand wedge or gap weld microstrip connections to the outside.

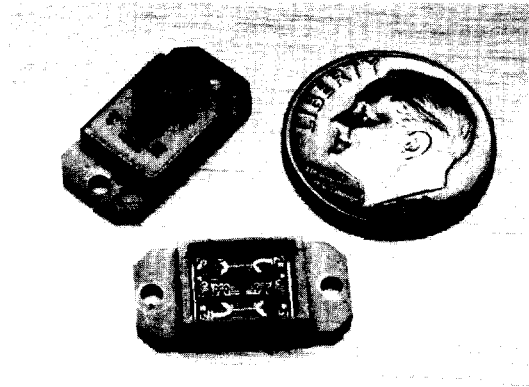
Frequency coverage from 2-20 GHz is provided in greater than octave bandwidths from C to Ku Band with two versions available covering the entire 2-18 GHz band. AvanteK will supply PGM series amplifiers in small quantities for breadboard/prototype systems and, with our strong manufacturing capabilities, can provide large production quantities with reliability and repeatability of performance unparalleled in the industry. This approach to integration with small blocks of gain into microstrip subassemblies gives a compact, low cost unit.

The ruggedness of the package is demonstrated by its ability to sustain environments to our R-series screening levels. These include:

- | | |
|-------------------------|------------------------------------|
| • Stabilization Bake | Method 1008 |
| • Temperature Cycle | Method 1010 |
| • Constant Acceleration | Method 2001 |
| • Hermetic Seal (Fine) | Method 1014 (AvanteK process spec) |
| • Hermetic Seal (Gross) | Method 1014 (AvanteK process spec) |
| • Burn-In | Method 1015 |

The reference document for the above methods is MIL-STD 883.

PGM Series: μ AVPAK Package



Application Notes

The μ AVPAK package has a gold-plated copper-tungsten carrier base. It can be either bolted down via carrier thru holes or soldered onto an assembly. For bolt-down applications, a #0 pan head screw is recommended, while for solder applications a silver-bearing solder is recommended. Maximum case temperature should not exceed 250° C during assembly. The mounting surface should be flat to within .003" and with a Rz finish or better.

For DC connections to the +V terminals, use two .001" diameter gold wires and thermal compression bond to the microstrip windows (marked +V). Connect in two places. Specified operating voltage is 8.0 \pm .3 volts. For RF connections, it is recommended to parallel gap weld .002" thick by .015" wide gold ribbons from the assembly transmission lines up to the micro-strip windows (marked IN and OUT). For optimum performance both bonding surfaces should be of equal height. For operation at lower frequencies (up to 8 GHz) an alternate connection could be to thermal compression bond three .001" diameter gold wires to each RF transition. For all connections appropriate stress relief is required.

Other methods of transitioning to the package could include spring contacts to the microstrip feedthrus. Care must be taken not to exceed 750 grams pressure on the feedthrus. Epoxy contact can be used but runoff along transmission line on the microstrip feedthrus will degrade performance. Solder contacts are not recommended.

For additional detail, refer to the Application Note section that appears earlier in this Data Book.

PGM Series

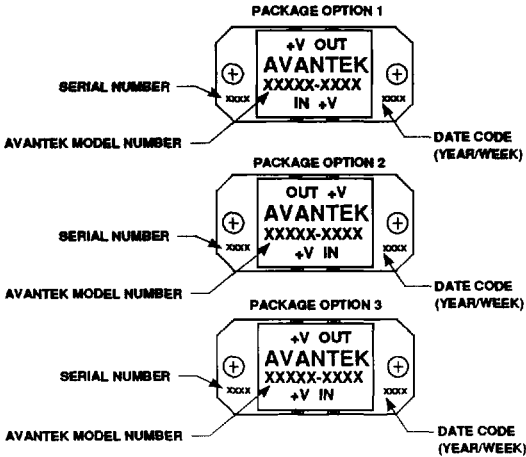
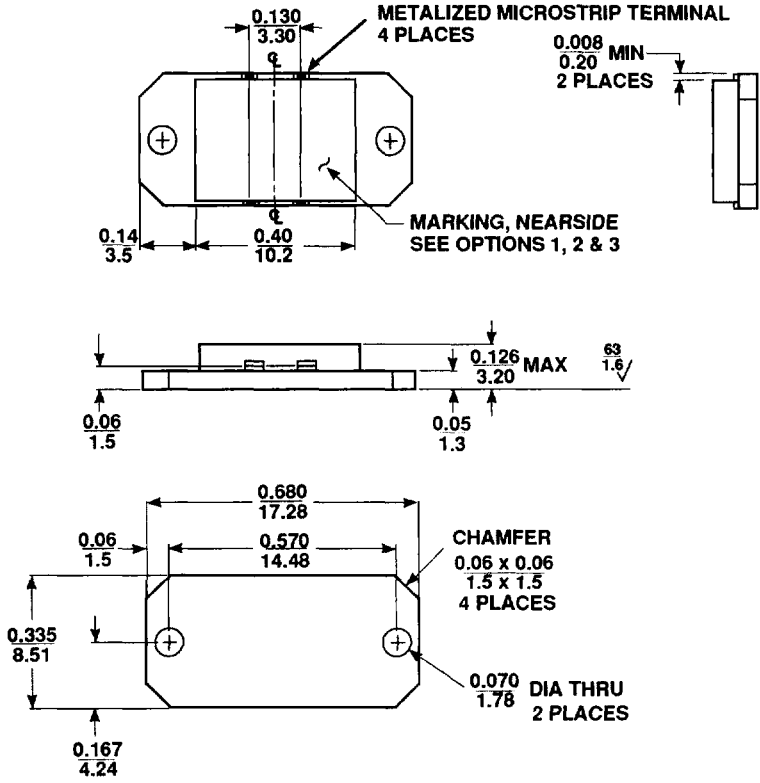
Guaranteed Specifications @ 25°C and -54°C to +100°C Case Temperature

Model	Frequency Response (GHz) Minimum	Temp. Range °C	Gain (dB) Min.	Gain (dB) Max.	Noise Figure (dB) Typ./Max.	Power Output for 1 dB Gain Compression (dBm) Minimum	Gain Flatness (dB) Maximum	Typical Third Order Intercept Point (dBm)	VSWR (50 ohms) Maximum In Out	Input Power Voltage ⁽¹⁾ (VDC)	Current (mA) Max.
PGM-6221-X ⁽²⁾	2-6	25 -54 to +100	10.0 8.8	13.0 14.2	2.5/2.7 3.4/3.6	+10 +8	± 0.5 ± 0.8	+18 +17	2.0 2.0 2.0 2.0	+8 +8	50 50
PGM-8231-X ⁽²⁾	2-8	25 -54 to +100	9.5 8.3	12.5 13.7	4.0/4.5 4.9/5.4	+16 +15	± 0.5 ± 0.8	+28 +24	2.0 2.0 2.0 2.0	+8 +8	80 80
PGM-11421-X ⁽²⁾	4-11	25 -54 to +100	8.0 6.9	11.0 12.2	2.3/2.5 3.3/3.5	+5 +4	± 0.8 ± 1.1	+13 +12	2.0 2.0 2.0 2.0	+8 +8	60 60
PGM-11461-X ⁽²⁾	4-11	25 -54 to +100	8.0 6.9	11.0 12.2	3.6/4.0 4.6/5.0	+18 +17	± 0.5 ± 0.8	+26 +25	2.0 2.0 2.0 2.0	+8 +8	70 70
PGM-12721-X ⁽²⁾	7-12.4	25 -54 to +100	9.5 8.4	12.5 13.7	2.0/2.5 3.0/3.5	+5 +4	± 0.5 ± 0.8	+13 +12	2.0 2.0 2.0 2.0	+8 +8	70 70
PGM-12741-X ⁽²⁾	7-12.4	25 -54 to +100	8.0 6.9	11.0 12.2	4.8/5.5 5.8/6.5	+12 +11	± 0.4 ± 0.7	+20 +19	2.0 2.0 2.0 2.0	+8 +8	60 60
PGM-12761-X ⁽²⁾	7-12.4	25 -54 to +100	8.0 6.9	11.0 12.2	5.3/6.0 6.3/7.0	+17 +16	± 0.4 ± 0.7	+25 +24	2.0 2.0 2.0 2.0	+8 +8	70 70
PGM-12781-X ⁽²⁾	7-12.4	25 -54 to +100	6.0 4.9	9.0 10.2	6.5/7.5 7.5/8.5	+23 +22	± 0.5 ± 0.8	+30 +29	2.0 2.0 2.0 2.0	+8 +8	180 180
PGM-13561-X ⁽²⁾	5-13	25 -54 to +100	8.5 7.3	11.5 12.7	3.5/4.0 4.5/5.0	+17 +16	± 0.5 ± 0.8	+25 +24	2.0 2.0 2.0 2.0	+8 +8	65 65
PGM-18232-3	2-18	25 -54 to +100	12.0 10.5	16.5 18.0	6.7/7.0 7.7/8.0	+10 +9	± 2.0 ± 2.5	+18 +17	2.0 2.0 2.0 2.0	+8 +8	175 175
PGM-18241-3	2-18	25 -54 to +100	5.0 3.8	7.5 9.0	7.8/8.5 10.0/11.0	+11 +10	± 0.9 ± 1.2	+19 +18	2.0 2.0 2.0 2.0	+8 +8	100 100
PGM-18621-X ⁽²⁾	6-18	25 -54 to +100	7.5 6.3	10.5 11.7	3.4/3.6 4.4/4.6	+6 +5	± 0.8 ± 1.1	+14 +13	2.0 2.0 2.0 2.0	+8 +8	60 60
PGM-18631-X ⁽²⁾	6-18	25 -54 to +100	9.0 7.8	12.0 13.2	3.8/4.5 4.9/5.6	+11 +10	± 0.6 ± 0.9	+19 +18	2.0 2.0 2.0 2.0	+8 +8	70 70
PGM-18641-X ⁽²⁾	6-18	25 -54 to +100	6.5 5.3	9.5 10.7	6.5/7.0 7.5/8.0	+17 +16	± 0.5 ± 0.8	+25 +24	2.0 2.0 2.0 2.0	+8 +8	60 60
PGM-18661-X ⁽²⁾	6-18	25 -54 to +100	5.5 4.3	8.5 9.7	6.8/8.0 7.8/9.0	+19 +18	± 0.5 ± 0.8	+27 +26	2.0 2.0 2.0 2.0	+8 +8	70 70
PGM-18671-X ⁽²⁾	6-18	25 -54 to +100	4.5 3.3	7.5 8.7	7.5/8.5 8.5/9.5	+21 +20	± 0.7 ± 1.0	+29 +28	2.0 2.0 2.0 2.0	+8 +8	180 180
PGM-20061-X ⁽²⁾	12-20	25 -54 to +100	5.0 3.8	8.0 9.2	4.8/5.2 5.8/6.2	+17 +16	± 0.5 ± 0.8	+26 +25	2.0 2.0 2.0 2.0	+8 +8	70 70

Notes

1. Voltage is 8.0 \pm 3 Volts.
2. X designates package option 1 or 2. Please specify option at time of order.

Case Drawing



NOTES (UNLESS OTHERWISE SPECIFIED):

1. DIMENSIONS ARE SPECIFIED IN $\frac{\text{INCHES}}{\text{MM}}$
2. TOLERANCES: INCHES .xx \pm 0.01
.xxx \pm 0.005
MILLIMETERS x.x \pm 0.25
x.xx \pm 0.13
3. AMPLIFIER UNIT MARKINGS PER MIL-STD-130.
4. 63 MOUNTING SURFACE FINISH OR BETTER
REQUIRED TO MOUNT AMPLIFIER.
5. TYPICAL WEIGHT IS 3 GRAMS.