Features
• GaAs FET and MIC Reliability For Military Applications
• Compact Designs Replace Bulky TWTs
• 2 Watts Of Power To 8 GHz
• 1 Watt Of Power To 18 GHz
• Octave And Straddle Band Frequency Ranges
• Welded Aluminum Hermetic Cases

APT Series - 2 to 18 GHz Wideband Thin-Film Power Amplifiers

Description
The Avantek APT Series, GaAs FET amplifiers provides linear power output levels (at 1 dB gain compression) of up to 2 watts in a wide range of microwave frequency bands. The compact and rugged thin-film MIC construction makes these amplifiers particularly well suited for the most demanding environments. Avantek’s own GaAs FETs and MMICs are used to provide the high performance and reliability demanded by military applications.

Stable operation, regardless of source or load conditions, is the result of balanced module design used throughout the amplifier. Thorough characterization of cascadable amplifier modules makes custom gain and power needs readily achievable.

All APT amplifiers feature internal temperature compensation, voltage regulation, and protection for both reverse and dual bias.

Typical Applications Include:
• Driver Amplifiers In ECM Transmitters and Expendables
• Output Amplifiers In Decoy Transmitters
• Driver Amplifiers In RF Distribution Newworks
• Augmentor Amplifiers In Target Drones
• Output Amplifiers In Test Equipment (ATE & AGE)
APT Series: Thin-Film
Wideband Power Amplifiers

2.0 to 18.0 GHz
Frequency Range

Military, Industrial And General Applications

Guaranteed Specifications at 0° to +50°C Case Temperature

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency Response (GHz) Min.</th>
<th>Gain (dB) Min.</th>
<th>Gain (dB) Max.</th>
<th>Noise Figure (dB) Min.</th>
<th>Power Output for 1 dB Gain Comp. (dBm) Min.</th>
<th>Power Output (watts) Min.</th>
<th>Gain Flatness (dB) Max.</th>
<th>Typical Intercept Point for Third Order Intermod Products (dBm)</th>
<th>VBWR (50 ohms) Maximum In Out</th>
<th>Input Power Voltage (VDC/10%)</th>
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Maximum RF input: +20 dBm CW or +30 dBm, 1 μsec, 1% duty cycle.

Notes:
1. Integral voltage regulator
2. SMA connector only
3. Contains internal gate/drain bias sequencing
4. Single +15v supply can be used instead of +15v and +12v dual supply
5. Power output saturated (dBm)
Typical Performance @ 25°C Case Temperature

APT-6065 GAIN

APT-8076 GAIN

APT-8255 GAIN

OUTPUT POWER (1dB Comp)

OUTPUT POWER (1dB Comp)

OUTPUT POWER (1dB Comp)
Typical Performance @ 25°C Case Temperature

```
Frequency, GHz  | Gain, dB  | Power Output, dBm
----------------|-----------|------------------
4.5            | 31        | 31               
5.5            | 32        | 33               
6.5            | 33        | 34               
7.5            | 34        | 35               
8.5            | 35        | 36               
9.5            | 36        | 37               
10.5           | 37        | 38               

Frequency, GHz  | Gain, dB  | Power Output, dBm
----------------|-----------|------------------
6.0            | 35        | 28               
7.5            | 36        | 29               
9.0            | 37        | 30               
9.5            | 38        | 31               
10.5           | 39        | 32               
12.0           | 39        | 33               

Frequency, GHz  | Gain, dB  | Power Output, dBm
----------------|-----------|------------------
6.0            | 35        | 28               
7.5            | 36        | 29               
9.0            | 37        | 30               
9.5            | 38        | 31               
10.5           | 39        | 32               
12.0           | 39        | 33               
```
Performance Curves

Typical Performance @ 25°C Case Temperature

- **APT-18659**: Gain and Output Power curves for this model.
- **APT18-2735**: Gain and Power Output curves for this model.
APT Series: Thin-Film
Wideband Power Amplifiers

Case Drawing
IC/IX Series

**AVAILABLE WITH METRIC THREAD M3 ON REQUEST.
NO THREADS FIRST .062**

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NOTES (UNLESS OTHERWISE SPECIFIED):
1. DIMENSIONS ARE SPECIFIED IN INCHES
2. TOLERANCES (INCHES): .XX ± .02
   .XXX ± .010
   ALL TOLERANCES BEFORE PAINT AND/OR LABELING

Avantek, Inc. • 3175 Bowers Ave., Santa Clara, CA 95054 • Phone: 1-800-AVANTEK

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NOTES (UNLESS OTHERWISE SPECIFIED):
1. DIMENSIONS ARE SPECIFIED IN INCHES
2. TOLERANCES (INCHES): .XX ± .02
   .XXX ± .010
   ALL TOLERANCES BEFORE PAINT AND/OR LABELING
APT Series: Thin-Film Wideband Power Amplifiers

Case Drawing
ICD8

NOTES (UNLESS OTHERWISE SPECIFIED):
1. DIMENSIONS ARE SPECIFIED IN INCHES
2. TOLERANCES: .XX ± .02
   .XXX ± .010
   ALL TOLERANCES BEFORE PAINT AND/OR LABELING
### Case Drawing

**IK_P**

#### Dimensions

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#### Notes (Unless Otherwise Specified):

1. Dimensions are specified in inches.
2. Tolerances (inches): .XX ± .02
   .XXX ± .010
3. All tolerances before paint and/or labeling.
Case Drawing
IKD_P Series

Notes (Unless otherwise specified):
1. Dimensions are specified in inches.
2. Tolerances (inches): .XX ± .02
   XXX ± .010

All tolerances before paint and/or labeling.

### Case Dimensions

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Case Drawing
IKD_P Series

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Notes (Unless otherwise specified):
1. Dimensions are specified in inches.
2. Tolerances (inches): XX ± .02
   XXX ± .010
   All tolerances before paint and/or labeling

APT Series: Thin-Film
Wideband Power Amplifiers

IKO_P Series

GND

DC input
+12 volt

RF input
SMA female

DC input
-12 volt

RF output
SMA female

Label area

#4-40 x .170 DP
(4) Plcs
No threads first .062"
NOTES (UNLESS OTHERWISE SPECIFIED):

1. DIMENSIONS ARE SPECIFIED IN INCHES
   OR MILLIMETERS (MM)

2. TOLERANCES (INCHES): .XX ± .02
   .XXX ± .010

   ALL TOLERANCES BEFORE PAINT AND/OR LABELING

3. WEIGHT: 6 OZ. (170 GMS.) TYP