

Custom Amplifier Capability

Features

- Customer Packaging
- Multiple Inputs and Outputs
- Input Power Limiters
- Activity and Fault Detection
- Internal filtering and Gain Shaping
- Gain and Power Control
- Special Performance (Low Phase Noise, Low Noise High Dynamic, High Linearity)
- Phase and Gain Tracking and Matching
- High Reliability

The catalog products shown on the proceeding pages reflect only a small percentage of all the amplifiers, which MwT has produced during the past 20 years. Most amplifiers built by MwT are custom made to meet application specific electrical, mechanical, screening or testing requirements and may contain additional features or functions. MwT owns a patented series-bias design, which can reduce DC current by 40%. Gain and phase tracking and matching are available on sets of amplifiers. The following is a partial listing of available options, which may be selected. Please contact MwT's factory and/or sales rep using the email address and/or the attached design sheet.

Customer Packaging

MwT standard amps have field-replaceable SMA female connectors. Alternative connectors available include SMA Male and microstrip compatible pins. MwT also offers open carrier style packages for custom assemblies. As seen in the outline section of this catalog, MwT can emulate many commonly available amplifier package styles and has a broad capability to create special housings to meet extreme size constraints, and for spares, retrofit, upgrade or replacement requirements.

Multiple Inputs and Outputs

MwT has delivered amplifiers with couplers, power dividers, and PIN diode switches at RF input and output ports to reduce size in system applications.

Input Power Limiters

Input protection can be added to any MwT amplifier. Internal PIN diode power limiters are low loss and cost effective additions, which provide protection against large CW or pulse signals. MwT has delivered units with CW power handling capability of 2 Watts and pulse survival of over 500 W peaks. Duty cycle and pulse width are important factors

when specifying input survival requirements.

Activity and Fault Detection

For many power amplifiers, an output coupler and integral diode detector are used for built-in-test output and power monitoring. MwT has also built fault detection circuits, which sense operating current and provide TTL output.

Internal Filtering and Gain Shaping

For specific frequency dependent gain characteristics, MwT has the capability to tune for positive gain slope and to integrate filters and gain equalizers into its products. These can be realized in thin film distributed or lumped element designs.

Gain and Power Control

MwT has a variety of gain control techniques available to meet different customer requirements. The most common technique uses PIN diode attenuators embedded within the amplifier stages. Depending upon overall gain of the unit and position of the attenuator within the assembly, noise figure and output power levels will be impacted by the addition of attenuators. MwT has also utilized active FET and MMIC attenuators, which can have advantages in certain designs, particularly over very broad frequency bands.

High performance on Low Phase Noise, High Dynamic Range Low noise, and High Linearity

MwT's unique device capability allows the design and production of special amplifiers with low phase noise required for Doppler radar, low noise and high dynamic range required by EW receivers, and high linearity required by communication systems.

Phase and Gain Tracking and Matching

For special phase and gain tracking and matching requirement, MwT has in-house made semiconductor devices and special circuit design and testing method to make sure the amplifiers within each group can have almost identical performance over the operating environment.

High Reliability (both Class H and Class S)

MwT is equipped and staffed to support high reliability amplifier and module requirements and has participated in numerous programs requiring thorough documentation, program management, and process tracking in support of customer requirements.