

Amplifiers & Components

Catalog Products (EAR99/Non-ITAR)

Amplifiers

- LNA
- High Dynamic Range
- Medium Power (GaN)
- Amplitude / Φ -matched sets
- Low Φ -Noise

Limiters / Limiting Amps

Gain Control Amps

Mixers

VCOs

Switches

IQ Mods / DeMods

Detectors Analog / Threshold

Teledyne Microwave Solutions designs and manufactures the most extensive line of hybrid amplifiers and signal processing components on the market today.

- Strong heritage of pushing the envelope of performance
- Flexibility to tune for application/customer specific requirements
- Unparalleled experience in the Hi-Rel arena



TELEDYNE MICROWAVE SOLUTIONS
Everywhere you look™

CATALOG PRODUCT LINE

With our strong heritage of pushing the envelope of performance, coupled with the flexibility to tune for application/customer specific requirements, TMS has the most complete offering to start your **RF/Microwave** designs.



Count on Teledyne Microwave Solutions for the most comprehensive catalog product line of chip-and-wire hybrid Amplifiers & other Signal Processing Components, as well as other RF and Microwave products:

- Limiters
- Limiting Amps
- Gain Control Amps
- Matched Sets
- Low Phase Noise Amps
- Double- and Triple-Balanced Mixers
- Power Dividers
- IQ Networks
- Analog & Threshold Detectors
- VCOs
- Switches

TMS designs are ready for any application in any environment with quality you can count on.

EAR-99 AMPLIFIERS

Amplifiers: 300 KHz to 30 GHz

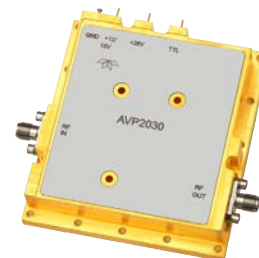
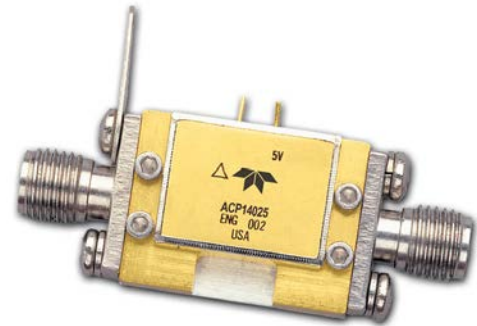
- Single or Multiple Gain Stages
- LDMOS, GaAs, GaN, InP technology
- Tunable parameters specific to application
- Adjustable DC Bias
- Low Power through 1kW
- LNA with NF less than 1.5 dB

Applications for Amplifiers

- Low Noise Receivers
- EW, RADAR, & Communication Systems
- Instrumentation Test Equipment

Advantages / Benefits

- Chip and Wire Hybrid Reliability
- Standard or Custom Package Styles
- Over 400 Catalog Amplifiers
- Phase Noise Testing Capability
- Amplitude/Phase Matching
- Proven Reliability with Military & Space Heritage
- Various Packaging Options



EAR-99 MIXER PRODUCTS

Frequency Mixers to 26 GHz

- Triple and Double Balanced Designs
- Schottky based Designs for High Performance
- Low Conversion Loss and Wide Bandwidth

Application for Mixers

- Communications
- ELINT/SIGINT Receivers
- Synthesizers
- Test & Measurement Equipment

Advantages/Benefits

- Thin Film or Softboard Technology
- Flexible LO Drive
- TO-8, Surface Mount or Custom Packages
- Proven Reliability with Military & Space Heritage



EAR-99 DETECTORS

Detectors : 0.01 to 20 GHz

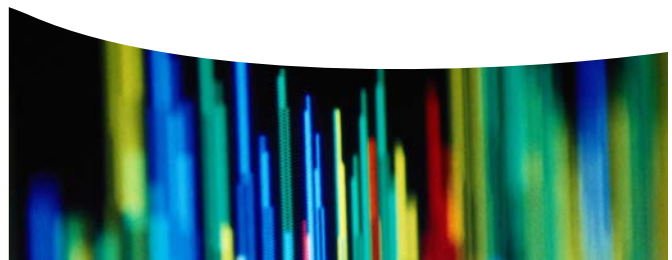
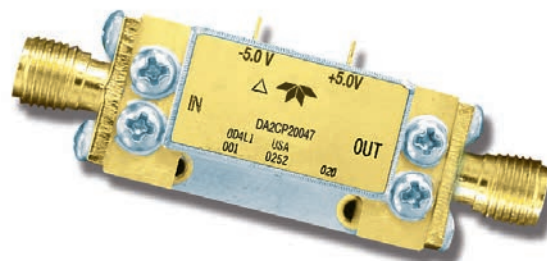
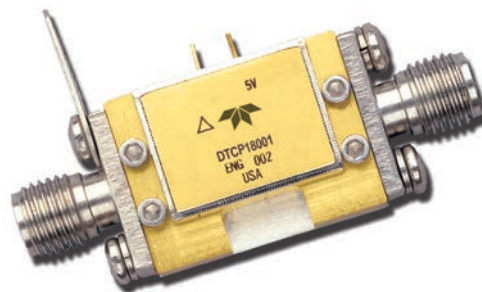
- Analog and Threshold Designs
- +/- 0.5 dB Power Temperature Stability
- 10 nS pulse Response

Applications:

- System Built in Test
- RF/IF Monitoring
- Level Control

Advantages/Benefits:

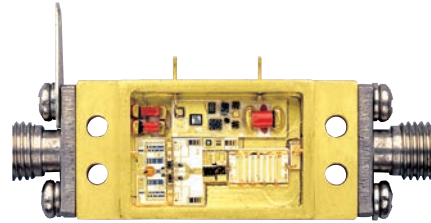
- Wide Power Range
- External Adjustable Threshold Level
- Insensitive Threshold Level to Applied Voltage
- Proven Reliability with Military & Space Heritage
- Various Packaging Options



EAR-99 VOLTAGE-CONTROLLED OSCILLATORS

Voltage Controlled Oscillators: 0.1 to 26 GHz

- Bipolar Transistors and
- Silicon Hyperabrupt Varactor Tuned Designs
- Integrated Amps, Voltage Regulators, Filters

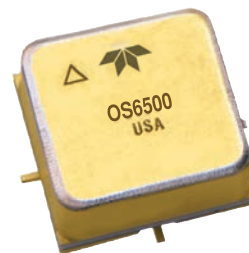


Applications for VCOs

- Synthesizers
- Digitally Tuned Oscillators
- Applications where Low Noise and Fast Tuning is a Requirement

Advantages/Benefits

- Thin Film Technology
- Low Phase Noise with Broad Tuning
- Small & TO-8 packages or Custom Packages
- Proven Reliability with Military & Space Heritage



TMS DESIGN SUPERIORITY

TMS provides every level of design customization to meet your demanding requirements: from economical catalog parts, to custom designs based on current portfolio, to entirely new custom designs in existing or special packages.

These components and integrated subassemblies are designed to meet stringent terrestrial, seaborne, airborne and space environments for commercial and military applications.

Amplifier Circuit Design: TMS designs amplifiers for both excellent stability and cascadability. Gain flatness is maintained to typically ± 0.2 dB or better, which improves cascaded flatness. Each design is laid out with as much tunability as possible to allow maximum flexibility to meet customer requirements. This designed-in flexibility allows TMS to offer “**Custom off-the-shelf products**” that are available with little to no NRE and reduced lead times from true customs.



VCO Circuit Design: TMS VCO designs use silicon bipolar transistors and silicon varactor diodes to give the **best overall phase noise performance and lowest settling time**. Oscillators covering 50 MHz to 9 GHz use a fundamental oscillator approach while oscillators covering the 9 to 20 GHz range use a doubling oscillator approach.



Mixer Circuit Design: TMS Mixer product line uses Schottky diodes and transformers in double and triple balanced configurations covering DC to over 20 GHz. For greater ease of specifying mixers for military or space applications, TMS has developed a screening flow based on **MIL-DTL-28837**.



Detector Circuit Design: TMS Detector designs incorporate tunnel diodes or silicon Schottky diodes with video amplifiers and comparators to provide analog or threshold detector functional blocks. The tunnel detector provides excellent temperature stability in a **simple, unbiased configuration** while the biased or unbiased Schottky designs are offered for the **most demanding temperature environments**. Precision video components offer low-level detection with low output offset voltage and drift and exhibit moderate pulse response times. High speed video models provide fast pulse response at generally lower dynamic range due to a higher offset and drift penalty. All designs focus on flat frequency response, low VSWR and good temperature stability in multiple package options.



HIGH-RELIABILITY PRODUCTS

Teledyne Microwave Solutions is QML listed to MIL-PRF-38534 Classes H&K with TRB Option, ISO-9001:2008 and AS9100C.

Choose your required screening level from TMS standard flows. Whether your program calls for routine MIL-STD-883 flow or Class G, H or K of MIL-PRF-38534, our standard processes and procedures are in place to support your needs.

If the need requires a departure from the standard flows presented in TMS Q-series screening flow tables, TMS will be happy to provide a cost-effective solution for you.



TMS provides microwave solutions for **your demanding requirements.**