

Value-Added Services for Aerospace, Defense and Space Microelectronics

A Trusted Partner



EUROFIGHTER

MARS ROVER

PATRIOT

GPS

- Environmental Screening
 - Element Evaluations
- Electrical and Life Testing
 - Die Services

Overview

Teledyne RF & Microwave has more than 50 years of experience in the design, development, manufacture, and test of sophisticated RF and microwave solutions to ensure the highest levels of reliability, from deep sea to space applications. Working together with our customers, we successfully push the boundaries of RF and microwave engineering to deliver unprecedented capabilities for next-generation program architectures.

Example Products Tested

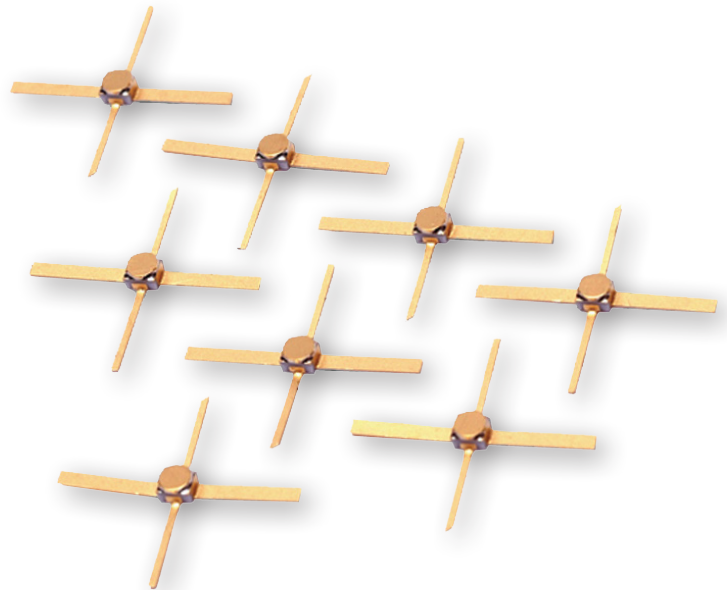
We regularly test and upscreen a wide range of COTS microelectronics for our diverse customer base, including:

- Amplifiers
- Attenuators
- Bare die (transistors, diodes, and MMIC)
- Detectors
- Filters
- Frequency converters
- Mixers
- Packaged diodes (Axial and beam-lead)
- Packaged MMIC devices
- Packaged transistors
- Voltage controlled attenuators
- Voltage controlled oscillators

Please consult with us for alternate products not listed above.

Environmental Screening

We offer MIL-STD-750 and MIL-STD-883 environmental testing for our customers along with a robust program management philosophy and organization. We routinely screen microelectronics to customer-specified or standard military specifications, including MIL-PRF-19500, MIL-PRF-38534, and MIL-PRF-38535 Groups A, B, C, D, and E testing.



Our space-level production facility



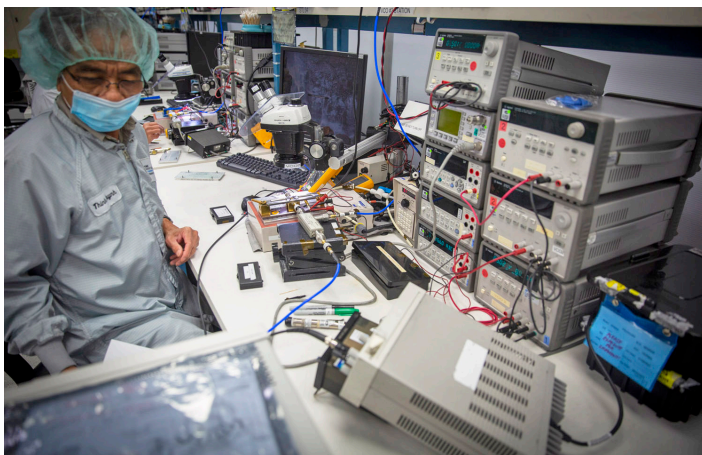
Element Evaluations

Teledyne RF & Microwave performs full microcircuit and semiconductor die evaluation per MIL-PRF-38534 for both Class H and Class K standards. We also support customer-specified evaluation procedures in addition to other industry standards, including MIL-DLT-28837 for diode screening.

Class H	Class K
Element electrical	Element electrical
Element visual	Element visual
Internal visual	Internal visual
Final electrical	Temperature cycling
Wire bond evaluation	Constant acceleration
Attribute data	Interim electrical
Certificate of conformance	Burn-in
	Post burn-in electrical
	Steady state life
	Final electrical
	Wire bond evaluation
	SEM examination

Standard testing
to 26.5 GHz

Internal Visual
Inspection



Electrical and Life Testing

We have full DC and RF test capabilities to allow for element, hybrid, component, and subassembly testing. Using fully documented and controlled testing procedures, we quickly provide complete test results across both ambient and full military-grade temperature ranges. We also routinely test to space-grade temperature extremes. When deemed necessary by our customers, we also readily support full burn-in and life testing to ensure delivery of product with the absolute highest levels of reliability.

Simply specify your testing parameters, temperature ranges, and data format, and let Teledyne RF & Microwave deliver accurate and reliable test results for your lot acceptance testing.

DC Test: MMIC and Transistors

- Bipolar devices: I_{CBO} , I_{EBO} , H_{FE} , BV_{CEO} , BV_{CBO} , BV_{EBO}
- FET devices: I_{DSS} , V_p , G_m , I_{GSS} , and Breakdown voltage
- MMIC devices: I_D

RF Testing

- 1 dB compression point
- 3rd order intercept point
- Noise Figure
- Phase and amplitude matching
- Phase noise
- Reverse isolation
- Saturated output power
- Small signal gain
- S-parameter testing
- Voltage Standing Wave Ratio





Die Services

Die services from Teledyne RF & Microwave include fast, reliable, and cost-effective sorting of die to help you maintain a consistent flow of product to your manufacturing line. We also provide visual die inspection to military and space standards, including MIL-PRF 19500, MIL-STD-750, MIL-STD-883, MIL-PRF-38534, and MIL-PRF-38535.

- Wafer storage in dry nitrogen dessicators
- Commercial-grade, military-grade, and space-grade visual inspection
- Die placement in waffle packs or gel packs

Contact Us

To start increasing your product yields while reducing labor costs, visit www.teledynemicrowave.com or contact us by e-mail at microwave@teledyne.com.



About Teledyne RF & Microwave

Teledyne RF & Microwave has more than 50 years of experience in the design, development, manufacture, and test of RF and microwave solutions to ensure the highest levels of reliability, from deep sea to space applications.