

High Power Solid State and Traveling Wave Tube Amplifiers

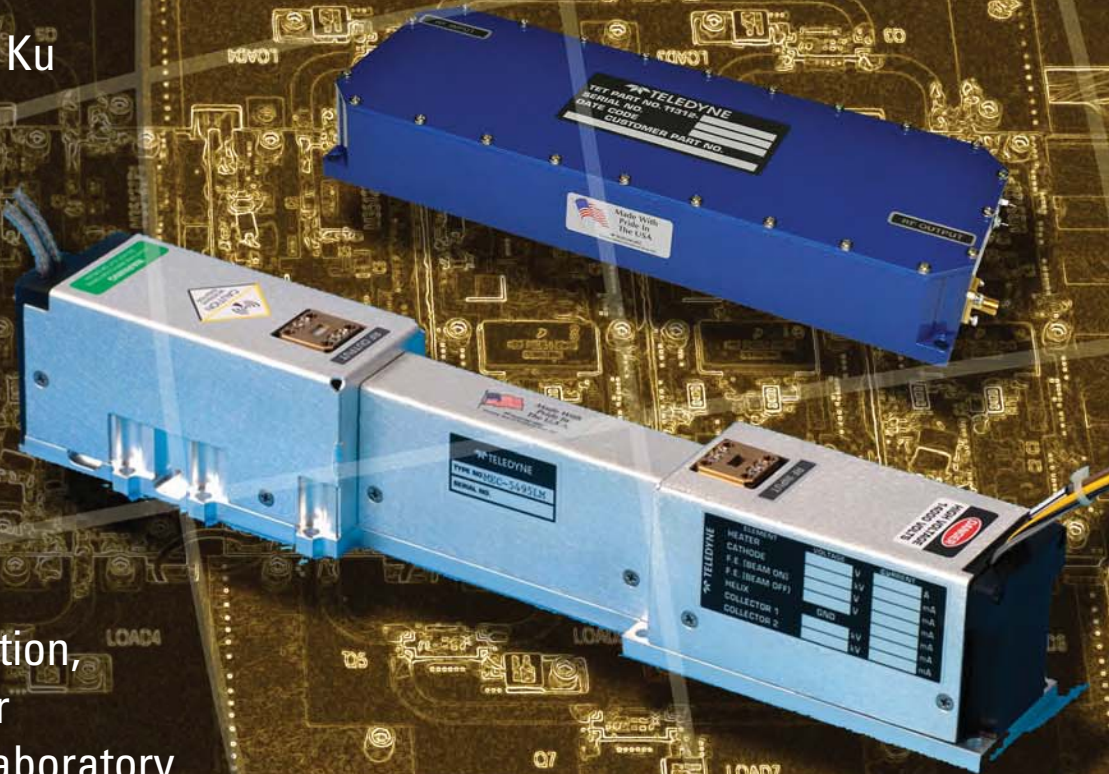
LDMOS, GaN
and GaAs ICs

UHF, L, S, X, and Ku
Band SSPAs

L through Ka Band
Pulse and CW
TWTAs

Power Levels from
100 watts to multi
kilowatt amplifiers

Radar, Communication,
Electronic Counter
Measures, and Laboratory
Instrumentation



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Your single source for microwave electronics, Teledyne Microwave Solutions delivers the world's most
advanced microwave technologies for demanding aerospace, military, commercial, and industrial applications.

Solid State High Power Amplifiers (SSHPAs)

TMS's new Solid State High Power Amplifier (SSHPA) product line offers the industry's best performance to address demanding power and reliability requirements of most modern radars and communication transmitters. The new line of SSHPAs offers small packages by utilizing state of the art thermal management schemes and unique highly efficient coaxial power combiners. The air and liquid cooling techniques improve thermal efficiencies significantly over any other conventionally employed methods and thus allowing designs in smaller form factor with improved reliability.

The new offering covers the most popular radar frequency bands with output power that ranges from 100W at module level, to over 1kW at Amplifier level, in hermetically sealed packages operating over - 40°C to + 80°C. An option of both LDMOS, GaN and GaAs devices are available to address the frequency bands of interest.

Feature set:

- Amplifiers covering frequency bands:
 - UHF
 - L Band
 - S Band
 - X Band
 - Ku Band
- Output power from 100W to multi kW at system level
- Both CW and Peak Pulse Power Capability
- 0.5dB Gain Flatness Peak-Peak
- Excellent VSWR match of 1.5dB over different bands
- Low Harmonic performance of -60dBc with Low Pass Filter
- Internal Circulator for protection from open and short conditions
- Internal Output Forward and Reflected Power Monitoring capability

Model	Frequency Range	P sat Watt	P1 (Min) Watt	Duty Cycle	Pulse Width	Small Signal Gain	Gain Flatness (Peak to Peak)	Harmonics w/ LPF
MEC-7001U	400-500 MHz	1kW	0.9kW	CW	N/A	>30dB	0.5dB	-60 dBc
MEC-7002L	1.2-1.4 GHz	1kW	0.9kW	10%	300µsec	>30dB	0.5dB	-60 dBc
MEC-7003S	2.7-3.5 GHz	220W	200 W	10%	100µsec	>20dB	0.5dB	-60 dBc
MSX-025A	X-Band	300W	250W	20%	100µsec	>30dB	1.0dB	-50 dBc
MSX-050A	X-Band	550W	500W	20%	100µsec	>50dB	1.0dB	-60 dBc
MSX-100A	X-Band	1.1kW	1kW	20%	100µsec	>50dB	1.0dB	-60 dBc
MEC-7005S	2.7-3.5 GHz	1.1kW	1.0 kW	10%	100µsec	>30dB	0.5dB	-60 dBc
MEC-7006S	S-Band	12kW	10kW	5%	100µsec	>30dB	0.5dB	-60dBc
MEC-7008Ku	Ku-Band	100W	80W	10%	100µsec	>30dB	1.0dB	-50 dBc
MEC-7011U	225-400 MHz	200W	100-160W	CW	N/A	>50dB	±1.5dB	-60 dBc

Teledyne Microwave Solutions (TMS) SSHPAs and Traveling Wave Tube Amplifiers

TMS designs and manufactures broadband metal-ceramic Helix TWTs, TWTAs and SSHPAs, meeting stringent airborne, shipboard and transport vehicle environments used in today's ECM, radar and communications markets. With the advent of high power solid-state devices such as LDMOS transistors for frequencies up to S-Band, GaN PHEMT ICs for frequencies up to Ka-Band, and GaAs, SSHPAs can be a more cost effective alternative to TWTs for narrow and broadband applications.



Teledyne Microwave Solutions
250W to 1kW X-Band
Solid State High Power Amplifier (SSHPA)

VSWR	Operating Temperature	DC Power	Size L" x W" x H"	RF Connectors In/Out	DC Connectors Monitor/Control	Power Monitor O/P Fwd/Rev	Protection Circulator
1.5	-40 to +60 ° C	2200W	10" x 6" x 5"	SMA/Type N	7pin D-sub	Yes	None
1.5	-40 to +80 ° C	300W	9" x 12" x 1.75"	SMA/Type N	7pin D-sub	Yes	Yes
1.5	-40 to +80 ° C	80W	3" x 9" x 1.25"	SMA/Type N	9pin D-sub	Yes	Yes
1.5	-40 to +80 ° C	400W	6.5"x 8" x 2"	SMA/Type N	9pin D-sub	Yes	Yes
1.5	-40 to +80 ° C	600W	6.5"x 8" x 2"	SMA/WG	9pin D-sub	Yes	Yes
1.5	-40 to +80 ° C	1.2kW	12"x 8" x 2"	SMA/WG	9pin D-sub	No	Yes
1.5	-40 to +80 ° C	710W	9" x 12" x 6.5"	Type N/Type N	32pin MS-type	Yes	Yes
1.3	-40 to +60 ° C	2000W	12" x 18" x 24"	TNC/WG	9pin D-sub	Yes	Yes
1.3	-40 to +60 ° C	665W	9" x 12" x 6.5"	Type N/Type N	32pin MS-type	Yes	Yes
1.5	-40 to +60 ° C	600W	6.5" x 12.5" x 1.5"	SMA/Type N	9pin D-sub	Yes	None



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