



High Power Microwave Amplifiers



Designers and
Manufacturers of
High Power Microwave
and RF Amplifiers



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Innovation

Since 1987 MILMEGA Ltd has been designing, developing and manufacturing solid state high-power broadband amplifiers for commercial and government purposes. Our amplifier products range in frequency from 200 MHz to 14 GHz, with power levels from one Watt to above one kilowatt.

Reputation

Based on the Isle of Wight, off the south coast of England, MILMEGA prides itself on having built a reputation for a flexible and dynamic approach to meeting customer requirements.

Tradition

It is the MILMEGA tradition to go the extra mile to take the complexity out of amplifier ownership. We have a proven pedigree for quality and reliability. We combine this with first class technical specifications and a responsiveness that you would expect from a high calibre organisation.

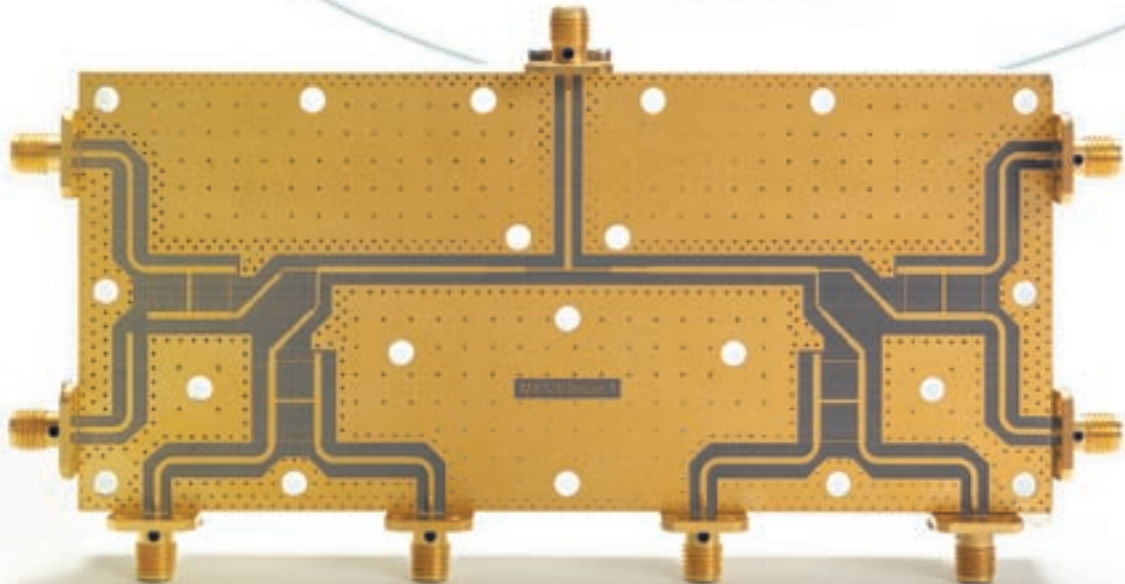
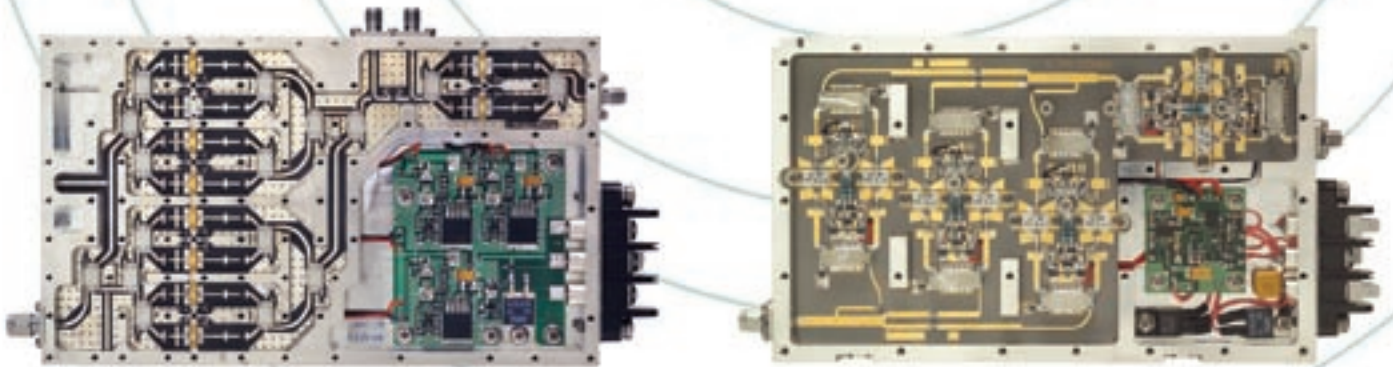
Our Promise

We believe that MILMEGA amplifiers are the best you can invest in. Our promise to our customers is simple.... We deliver the type of service you deserve, when you want it.

With **MILMEGA** as your partner, you can be sure of maximising your potential



Combining Technical Innovation
with Manufacturing Excellence





R & D

We deliver technical innovation with manufacturing quality. Our team of design engineers are considered to be the best in their field. An inherent capability and experience ensures that our customers enjoy the benefits of the latest technology as it becomes available.

Manufacture

To manufacture, assemble and test our amplifiers, we have a highly skilled team of people who are focused on delivering only the best quality product to our customers.

Factory loading, capacity planning and resource management are linked via our Material Requirement Planning system (MRP) to ensure timely delivery. Efficiencies are continually monitored to seek improvements both to products and services keeping MILMEGA 'Best in Class'.

Quality and Reliability

All MILMEGA products are sold with a proven pedigree for quality and reliability. Our amplifiers are the best you can buy, not just in terms of product, but in terms of after sales care and service.

Sales

Whether it's a standard, or a specially designed product you require, the experienced MILMEGA sales team is available to give you detailed product information, technical data and competitive pricing. A demonstration of our amplifiers can be arranged at your facility.

You may also like to evaluate one of our amplifiers before purchasing - this can also be arranged.

Continuous Improvement

There are a number of key interfaces and processes within MILMEGA which are continually monitored under a Continuous Improvement philosophy and reviewed periodically for opportunities to improve our designs. Each day we meet challenges and tasks with a Continuous Improvement approach, guaranteeing our customers high quality products.

Discover the benefits of owning a
MILMEGA amplifier, with the best
power density performance around



The MILMEGA Advantage



The Power Density Advantage

More Power for half the size and weight. Our range of broad band Class A solid state amplifiers deliver the required power in a package which is half the size and weight of our competitors. Superior P1dB gives a better \$/watt ratio and first class harmonic and spurious specifications are all powerful testimony to our ability as microwave amplifier designers.

The Dual Band Advantage

With dual band solution you pay for what you need.

At MILMEGA we have developed a dual band approach to maximise performance across multiple octave bands. We get more power across a target band, a minimum of 10 to 20dB improvement in harmonic levels, superior ACPR performance, improved phase performance with reduced power supply requirements and a superior MTBF.

The Warranty Advantage - 5 Year Warranty

You may never need it, but it's good to know it's there.

It is our belief that our amplifiers are the best you will buy, so if you are unfortunate enough to experience a problem within the first 5 years of ownership we will collect the amplifier at our expense and guarantee to have it repaired and available for return within 48 hours of its arrival at our factory. You will bear no hidden costs. Contact the factory for more details

The Interface Advantage

We have leveraged the latest interface technologies to bring you the first low cost, web based control of microwave power amplifiers. Combining Ethernet, USB and RS232 protocols means that you get 'plug and play' simplicity in amplifier interfacing.

The Upgrade Advantage

Upgrading your amplifier is easier than upgrading your PC.

We all know how fast technology can move. Before you know it your current amplifier is just not up to the job it was originally intended for. MILMEGA can offer an easy upgrade solution for both frequency and power. Our Corporate Structure Amplifier topology and unique modular design approach ensures that upgrading your amplifier is painless and cost effective.

Diverse Applications

Delivering Products for Worldwide Applications

Communications Testing

MILMEGA amplifiers are popular amongst communications companies where the benefits of high reliability, industry leading power density, and class leading performance are widely accepted. MILMEGA amplifiers are put to many uses in this sector and typical tests requiring MILMEGA amplifiers are:

- Passive intermodulation testing (PIM)
- Intermodulation testing (IM)
- Adjacent channel power testing
- Multi-tone testing
- Power handling
- EM immunity testing
- High signal level testing.

Electromagnetic Compatibility (EMC) testing

The EMC Industry is leading the improvement of product quality, product safety, service quality and safety in various fields, and as a result, continues to make a major contribution to the welfare of society.

EMC testing underpins legislative measures which ensure we maximise the effectiveness of constant technological developments. New demanding test requirements drive the development of high performance equipment. MILMEGA prides itself in being part of this initiative by supplying microwave amplifiers that meet the increasing demands throughout the globe.



Defence

MILMEGA are dedicated to delivering microwave products to our customers across a number of defence sectors, continuing to play our part in the development of power components for surveillance systems. We are proud to supply our customers with innovative solutions helping to protect those who protect us.

Medical

Earlier and improved diagnosis of medical conditions needs to be complemented by faster and less invasive surgical procedures. Substantial progress is being made in the use of microwave energy based, minimally invasive, life-enhancing solutions. This safe and effective alternative to major surgery is being investigated across the globe and MILMEGA works hard to ensure that the product we supply meets the market's exacting standards.

High Energy Physics Research

Linear accelerators, electron-positron colliders and synchrotron radiation sources are some of the tools employed by high energy research physicists as they work on our behalf to make sense of the world we live in.

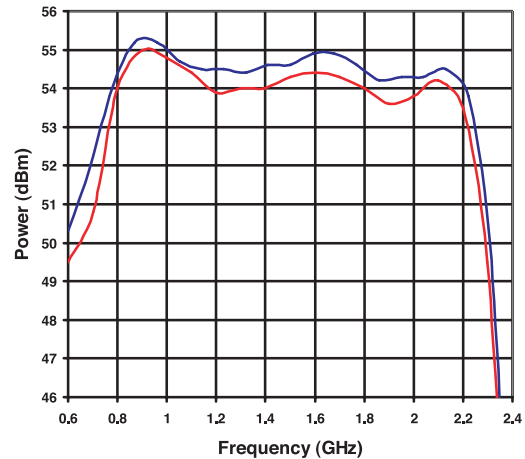
MILMEGA supply amplifiers into the low power RF systems and the longitudinal damping systems of the impressive machines which provide the capability to undertake unprecedented scientific and technological research into science, medicine, biology, chemistry, physics, and the environmental sciences. We are proud to contribute to the advancement of this cutting edge science.

Performance Testing

Because test methods employed across the industry vary, it is important to understand how each test is performed so that the results can be properly interpreted

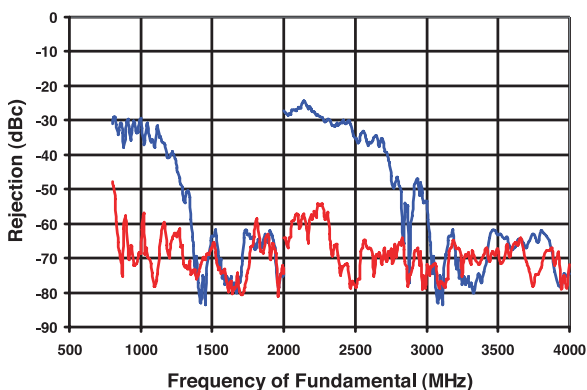
Saturated Output Power (Psat)

This is a measure of the maximum power of the amplifier. As the gain of the amplifier varies across the band, different frequencies will saturate at different input levels. MILMEGA production tests set the optimum input power level for the measurement. A plot is made at a fixed input power level across the band. Thus at specific frequencies the amplifier may be overdriven (reduced output power), or underdriven (the amplifier has not reached saturation). The result is therefore conservative and shows the minimum saturated power level.



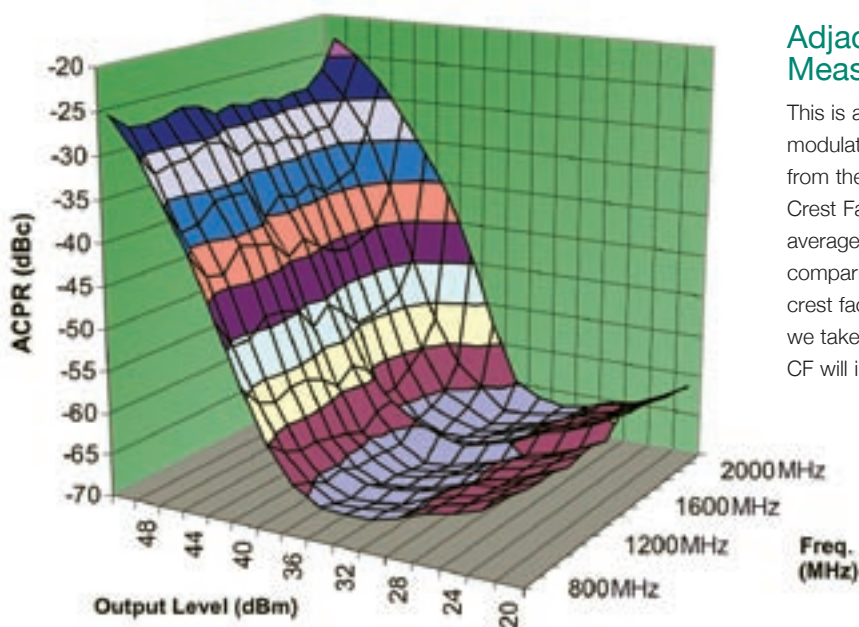
1dB Compressed Output Power (P1dB)

The 1dB compressed output power is that point at which the gain of the amplifier has fallen by 1dB from its signal value. MILMEGA amplifiers are tested to ensure that their P1dB compression point exceeds the specified minimum value.



Harmonics

The harmonic output level of an amplifier generally depends upon its fundamental output power level, or more specifically how far it is driven into its non-linear region. Harmonics are usually measured with respect to the fundamental level, at a given output power level. In MILMEGA's test lab the operating band is first swept at the rate (P1dB) output power and the harmonic output levels observed on a spectrum analyser. The worst case harmonic is noted and subsequent harmonic measurements are made. The result is recorded in dB relative to the fundamental level, i.e. dBc. When characterisation is required the amplifier is stepped across the operating band and, at each frequency the fundamental, 2nd and 3rd harmonic levels are measured. This is done at three different power levels corresponding to linear (10 dB below the specified 1dB compression point), 1dB compressed, and saturated operation. A graph is then produced showing the rejection of the harmonics at the different power levels.



Adjacent Channel Power Ratio (ACPR) Measurements

This is another measure of linearity, specifically aimed at digitally modulated systems. ACPR is the result of intermodulation from the complex signal in the pass band. A key factor is the Crest Factor (CF). This is the ratio of peak power level to the average power level of the pass band signal. It is important when comparing ACPR performance between amplifiers to check the crest factor of the test signal. In MILMEGA characterisation tests we take a worst case approach and use a CF of 11dB, a lower CF will improve the ACPR.

Application Guidelines

Pulsed vs CW Amplifiers

The standard MILMEGA 'AS' range of amplifiers are of a type known as class A. This means that the transistors inside are biased such that they draw current all the time, irrespective of the RF signal. This biasing technique generally results in the most linear amplifier, which is suitable for use with a large number of different modulation formats (such as AM, FM, QPSK, OFDM, etc) with minimal distortion. A drawback of this class of amplifier is that efficiency is low, leading to significant heat generation.

An alternative bias scheme is known as class C. In this case the transistors are biased 'off' and hence draw very little current when there is no RF present. The RF signal itself turns the transistors on and thus produces a very efficient amplifier. Another consequence of this is that significantly higher power transistors can be used when dealing with low duty cycle (<20%) signals. This makes a relatively cheaper amplifier possible in terms of \$/W as compared with a class A amplifier.

Noise Figure vs Noise Power Density Amplifiers

Amplifier manufacturers typically specify the noise performance of their amplifiers in one of two ways:

- Noise Figure (NF), measured in dBs
- Noise Power Density (NPD), measured in dBm/Hz.

Both parameters require some additional calculation by the user to estimate the effect on their particular system.

NF is a measure of the additional noise contributed by the amplifier, referred to the input. Thus to calculate the output noise level the gain of the amplifier must be included.

NPD is a measure of the output noise level referred to a 1Hz bandwidth (BW). This must be adjusted by the actual system bandwidth to determine the total output noise power level.

It is essential to consider bandwidth when reviewing output noise levels. For example, if measured using a very wideband device like a power meter, all the RF noise coming out of the amplifier will be detected. The noise produced by a 50 ohm termination (i.e. the electrons moving around randomly due to thermal noise) is the reference for noise and is -174dBm/Hz at 25°C. This is referred

to a 1Hz bandwidth. If the perfect amplifier was then added, which added no noise and had 74dB of gain and infinite bandwidth, then the noise level would be -100 dBm/Hz. Now imagine that this amplifier has a noise figure of 30dB (typical for a TWT) then the noise level at the output of the amplifier increases to -70 dBm/Hz.

- CW amplifiers can offer the fastest rise times.
- CW amplifiers can offer best amplitude and phase flatness.
- CW amplifiers provide signal power linearity.

However pulsed amplifiers can offer the lowest intra pulse noise as the amplifier is effectively off in the period between pulses, whilst a CW amplifier is still amplifying the input noise.

In reality the amplifier will have a limited bandwidth, so consider that this is 1 GHz and that a power meter is used to measure the noise power coming out of the amplifier. The power meter will have a bandwidth >> 1 GHz, however the noise is limited to this band by the amplifier. A 1 GHz bandwidth increases the power by 90 dB (10logBW). Thus we have a configuration which could be enough to saturate the power head:

background + NF + Gain + bandwidth = total output noise power
noise level at 25°C
-174 dBm/Hz + 30 dB + 74 dB + 90 dB = +20 dBm (100mW)

MILMEGA solid state amplifiers have noise figure considerably lower, typically <10 dB, which thus gives a typical 20 dB improvement in dynamic range over travelling wave tubes.

Solid State vs Travelling Wave Tubes

MILMEGA's use of a corporate structure amplifier (CSA) topology delivers key performance advantages over travelling wave tube technology, particularly with regard to harmonic levels, linearity, gain flatness, mismatch tolerance and cost of ownership.

Technology comparison

This table shows the performance characteristics of a typical continuous wave 1-2 GHz 1000 watt traveling wave tube amplifier (TWTA) compared to those of a 1-2 GHz 1000 watt solid-state GaAsFET amplifier.

Amplifier Characteristic	TWT	GaAsFET
Harmonic power level ¹	-3 dBc	-20 dBc
Approximate back - off for linearity ²	6 dB	0.5 dB
Small signal gain flatness	+/- 10 dB	+/- 1 dB
Mismatch tolerance ³	20 %	100%

Table notes:

1. Both measured at lower band edge
2. Required back-off from saturated power level to reach P1dB level
3. Percentage of full forward power capability

Harmonic noise

When a TWTA is operated at the lower band edge, the power level in the second harmonic can approach the power level of the fundamental. With most applications this can be a serious issue for the system designer (except with a jammer system where the intention is to create as much RF noise as possible). By comparison, GaAsFET amplifiers have a worst case harmonic level of minus 20 dBc when operating at an output of P1dB, so harmonic noise is usually a non-issue in the design of the system.

Linearity

A 1000 watt continuous wave TWTA has a 1dB gain compression point of about 250 W, while a similarly rated GaAsFET amplifier produces about 900 W of linear power. This difference is especially important if the application requires significant amounts of linear power.

Mismatch tolerance

The slow wave structure of a TWTA is prone to damage from excess reflected power and must be protected from levels greater than 20% of the full forward power capability. Therefore, if a system must cope with up to 100% reflected power, the designer must select a TWTA with a power overhead equating to 7dB greater than the forward power needed by the system. Conversely, internal power combining techniques used in GaAsFET power modules safely divert reflected power away from the output transistors. This feature allows the modules to absorb 100% reflected power even when the module is operating at full output power. If the test system is required to operate into high VSWR conditions, this can be a significant benefit to the system designer.

Inherent reliability

Modular simplicity combined with a tiered, common building block approach provide the following benefits:

- 44,000 hr MTBF
- Soft failure
- High-VSWR tolerance
- Fast repair turn-around
- Reduced spares holding
- The option of on-site repair by in-house technicians.

Custom Design

Although our amplifier product range represents the best of breed in the world today, we recognise that many requirements cannot be met through standard amplifier products.

When a specially-tailored solution is required, our design engineers will work with you to find the most appropriate way of meeting your criteria. We will discuss your amplifier performance objectives, then respond with a proposal that combines technical innovation with manufacturing quality. No matter how demanding your high-power amplifier specification, we will deliver a solution that fulfils your needs.

Prototype

The next step in our relationship with you is to produce a prototype of the amplifier for further discussion and testing. Here we are able to use extensive in-house resources to ensure that your project is completed in the shortest possible time scale.

Design

Our design engineers will ensure that our amplifier proposals always represent the most appropriate solution for your needs. When formulating proposals, we will consider the following important factors to ensure you get what you want, when you want:

- Function
- Reliability
- Quantity
- Cost effective technologies
- Time scale
- Component availability.

Production

With final agreement on design and performance of the prototype, MILMEGA will address production. We can undertake lower-volume amplifier production using our own advanced manufacturing facilities, or manage the sub-contracting of high-volume work.



Introducing the Series 2000 Concept

MILMEGA Series 2000 broadband Class A solid state amplifiers offer maximum power within units half the size and weight of competing tube and solid state solutions.

The MILMEGA Series 2000 amplifiers have an award winning innovative design which implements the latest GaAsFET and MMIC technologies. This provides an architecture which facilitates the unique features and benefits which differentiate Series 2000 from other solid state amplifiers, permitting an impressive array of input/output and sample port options and cost-effective power or bandwidth upgrades. The topology delivers practicality in terms of high power density and efficiency, coupled with ease of maintenance.

Class leading linearity and noise specifications

- Gain variation with temperature <0.06 dB/°C
- IP3 typically 10 dB> P1 dB
- Harmonics -20 dBc min
- Spurious (max) -70 dBc
- Spurious (typical) -80 dBc.

Max power

- Unbeatable power density
- Series 2000 will maintain full forward power into any load condition
- Combiner/coupler integration as standard allows samples of incident and reflected power to be measured with virtually no loss
- 100% tested into short and open circuit
- Up to 250 W in a single 3U unit
- Consistent over greater than octave bandwidths
- Broadband CW power output to 1kW.

High visibility status and power indicators

- Series 2000 incorporate colour led bar graph displays on the front panel giving an indication of incident and reflected power.

Built-in protection

- In the event of internal temperature exceeding 70°C, the amplifier blocks will automatically switch off to avoid damage
- Unit incorporates a rear panel mounted connector for interlock BR2-female.

Easily rack mounted

- Amplifiers are standard 3U high units and may be combined in rack mounted form to build higher power amplifiers.

Bench models

- 3U high units have bench case options.

5 Year Warranty

- 5 year warranty on all Series 2000 parts and components. Contact factory for details.

Other standard features

- 15 way rear mounted D-type allowing remote operation via TTL commands whilst providing access to an output signal sample
- All data is measured at 25°C driven from a 50 R source and driving into a 50 R load
- Input power (for rated output) 5 dBm
- Input power (no damage) 15 dBm
- Input VSWR (impedance 50 R nominal) 2:1 max
- Output VSWR (impedance 50 R nominal) 2:1 typical
- Load VSWR (any phase) is infinite
- Line input frequency 47-65 Hz
- Operating temperature (ambient air) 0 to 40°C
- Storage temperature -40 to 70°C.



Series 2000 Product Size Guide



3U unit

133mm high x 483mm wide x 544mm deep.



6U unit

266mm high x 483mm wide x 544mm deep.



12U Rack Case

604mm high x 553mm wide x 600mm deep

12U Rack Case With Wheels

846mm high x 553mm wide x 600mm deep

16U Rack Case

782mm high x 553mm wide x 780mm deep

16U Rack Case With Wheels

1024mm high x 553mm wide x 780mm deep

20U Rack Case

960mm high x 553mm wide x 780mm deep

20U Rack Case With Wheels

1202mm high x 553mm wide x 780mm deep

25U Rack Case

1182mm high x 553mm wide x 780mm deep

25U Rack Case With Wheels

1424mm high x 553mm wide x 780mm deep

34U Rack Case

1582mm high x 553mm wide x 780mm deep

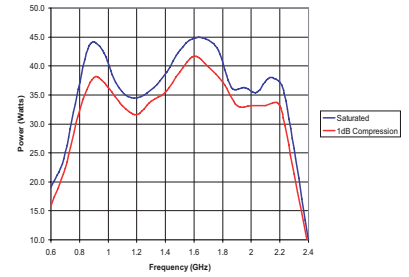
34U Rack Case With Wheels

1824mm high x 553mm wide x 780mm deep

AS0822 0.8GHz - 2.2GHz

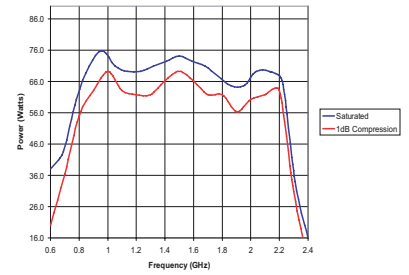
AS0822-27 27 WATT

Power		Power consumption:	350 W
Psat (min):	28.8 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	44.6 dBm		
P1 dB(min):	25.7 W	Connectors:	
P1 dB(min):	44.1 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	6.0 dB	Weight:	14 kg
Gain variation:	± 2.0 dB	Size:	3U
Harmonic distortion (min):	-20 dBc		



AS0822-55 55 WATT

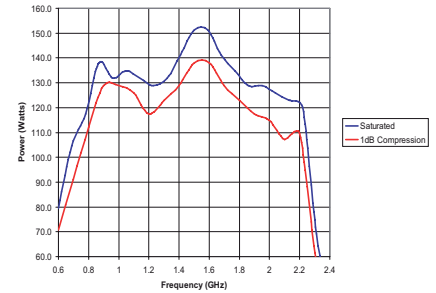
Power		Power consumption:	575 W
Psat (min):	56.0 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	47.5 dBm		
P1 dB(min):	50.0 W	Connectors:	
P1 dB(min):	47.0 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	6.0 dB	Weight:	15 kg
Gain variation:	± 2.0 dB	Size:	3U
Harmonic distortion (min):	-20 dBc		



AS0822-100 100 WATT

Power		Power consumption:	1000 W
Psat (min):	100 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	50.0 dBm		
P1 dB(min):	89 W	Connectors:	
P1 dB(min):	49.5 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	6.0 dB	Weight:	20 kg
Gain variation:	± 2.0 dB	Size:	3U
Harmonic distortion (min):	-20 dBc		

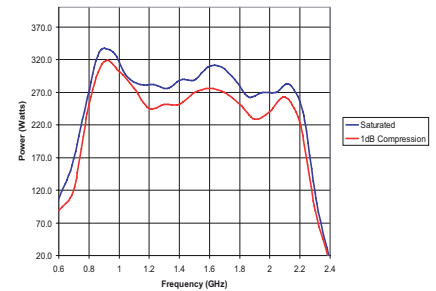
Note: The above standard model is available in high power variants, Please contact factory for details.



AS0822-200 200 WATT

Power		Power consumption:	2000 W
Psat (min):	200 W	Primary Power:	180-260 V or 110 V* (50/60 Hz)
Psat (min):	53.0 dBm		
P1 dB(min):	178 W	Connectors:	
P1 dB(min):	52.5 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	6.0 dB	Weight:	27 kg
Gain variation:	± 2.0 dB	Size:	3U
Harmonic distortion (min):	-20 dBc		

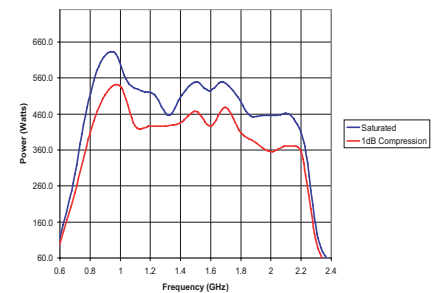
*Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0822-360 360 WATT

Power		Power consumption:	4000W
Psat (min):	363 W	Primary Power:	180-260 V or 110 V* (50/60 Hz)
Psat (min):	55.6 dBm		
P1 dB(min):	324 W	Connectors:	
P1 dB(min):	55.1 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	6.0 dB	Weight:	54 kg
Gain variation:	± 2.0 dB	Size:	6U
Harmonic distortion (min):	-20 dBc		

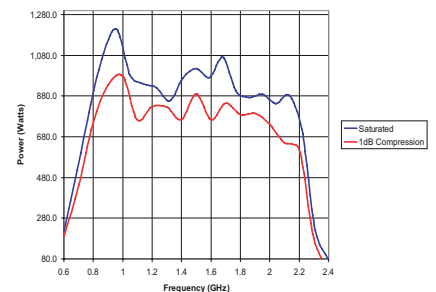
*Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0822-700 700 WATT

Power		Power consumption:	8300 W
Psat (min):	724 W	Primary Power:	180-260 V or 110 V* (50/60 Hz)
Psat (min):	58.6 dBm		
P1 dB(min):	646 W	Connectors:	
P1 dB(min):	58.1 dBm	RF Input:	Type N female
		RF Output:	Type 7/16th female
Noise figure (max):	6.0 dB	Weight:	94 kg
Gain variation:	± 2.0 dB	Size:	15U
Harmonic distortion (min):	-20 dBc		

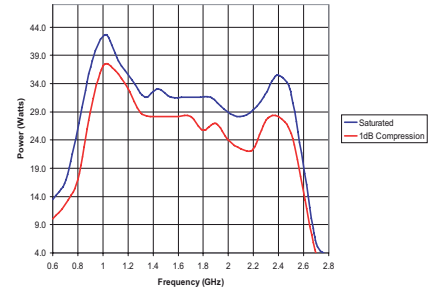
*Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0825 0.8GHz - 2.5GHz

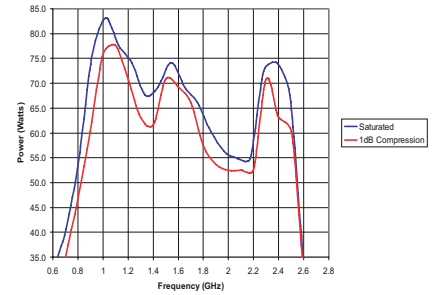
AS0825-18 18 WATT

Power		Power consumption:	350 W
Psat (min):	20.9 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	43.2 dBm		
P1 dB(min):	18.6 W		
P1 dB(min):	42.7 dBm		
Noise figure (max):		Connectors:	
6.0 dB		RF Input:	Type N female
Gain variation:		RF Output:	Type N female
± 2.0 dB			
Harmonic distortion (min):		Weight:	14 kg
-20 dBc		Size:	3U



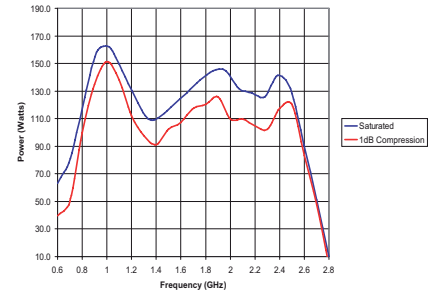
AS0825-40 40 WATT

Power		Power consumption:	575 W
Psat (min):	47.1 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	46.8 dBm		
P1 dB(min):	42.6 W		
P1 dB(min):	46.3 dBm		
Noise figure (max):		Connectors:	
6.0 dB		RF Input:	Type N female
Gain variation:		RF Output:	Type N female
± 2.0 dB			
Harmonic distortion (min):		Weight:	19 kg
-20 dBc		Size:	3U



AS0825-85 85 WATT

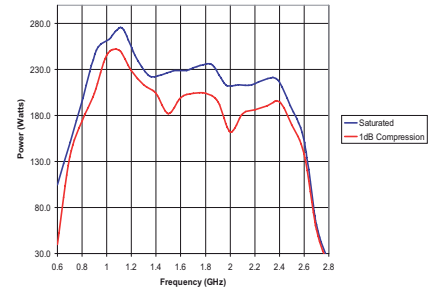
Power		Power consumption:	1000 W
Psat (min):	95.4 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	49.8 dBm		
P1 dB(min):	85.0 W		
P1 dB(min):	49.3 dBm		
Noise figure (max):		Connectors:	
6.0 dB		RF Input:	Type N female
Gain variation:		RF Output:	Type N female
± 2.0 dB			
Harmonic distortion (min):		Weight:	20 kg
-20 dBc		Size:	3U



AS0825-170 170 WATT

Power		Power consumption:	2000 W
Psat (min):	190 W	Primary Power:	180-260 V or 110 V * (50/60 Hz)
Psat (min):	52.8 dBm		
P1 dB(min):	170.0 W		
P1 dB(min):	52.4 dBm		
Noise figure (max):		Connectors:	
10.0 dB		RF Input:	Type N female
Gain variation:		RF Output:	Type N female
± 2.0 dB			
Harmonic distortion (min):		Weight:	25 kg
-20 dBc		Size:	3U

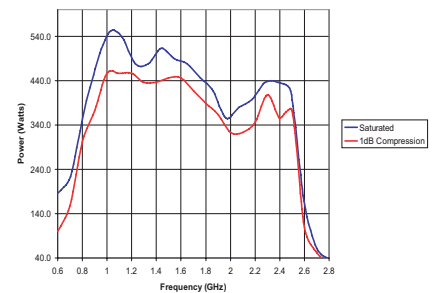
*Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0825-300 300 WATT

Power		Power consumption:	4000 W
Psat (min):	338.8 W	Primary Power:	180-260 V or 110 V * (50/60 Hz)
Psat (min):	55.3 dBm		
P1 dB(min):	300.0 W		
P1 dB(min):	54.7 dBm		
Noise figure (max):		Connectors:	
6.0 dB		RF Input:	Type N female
Gain variation:		RF Output:	Type N female
± 2.0 dB			
Harmonic distortion (min):		Weight:	54 kg
-20 dBc		Size:	6U

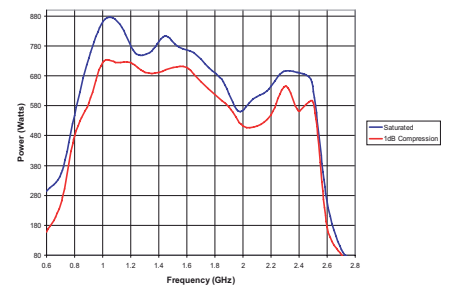
*Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0825-400 400 WATT

Power		Power consumption:	8300 W
Psat (min):	450.0 W	Primary Power:	180-260 V or 110 V * (50/60 Hz)
Psat (min):	56.5 dBm		
P1 dB(min):	400.0 W		
P1 dB(min):	56.0 dBm		
Noise figure (max):		Connectors:	
6.0 dB		RF Input:	Type N female
Gain variation:		RF Output:	Type 7/16th female
± 2.0 dB			
Harmonic distortion (min):		Weight:	94 kg
-20 dBc		Size:	16U

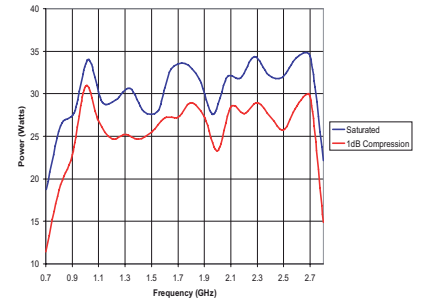
*Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0827 0.8GHz - 2.7GHz

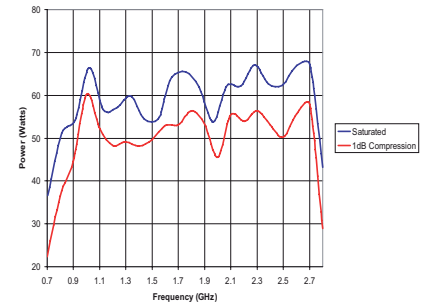
AS0827-15 15 WATT

Power		Power consumption:	350 W
Psat (min):	17.8 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	42.5 dBm		
P1 dB(min):	15.8 W	Connectors:	
P1 dB(min):	42.0 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	6.0 dB	Weight:	14 kg
Gain variation:	± 2.0 dB	Size:	3U
Harmonic distortion (min):	-18 dBc		



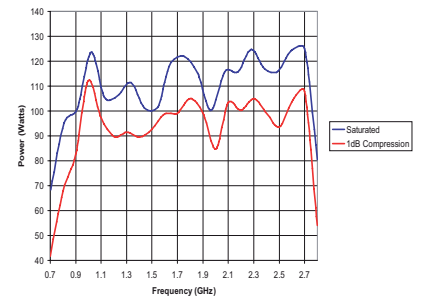
AS0827-30 30 WATT

Power		Power consumption:	575 W
Psat (min):	34.7 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	45.4 dBm		
P1 dB(min):	30.9 W	Connectors:	
P1 dB(min):	44.9 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	6.0 dB	Weight:	19 kg
Gain variation:	± 2.0 dB	Size:	3U
Harmonic distortion (min):	-18 dBc		



AS0827-55 55 WATT

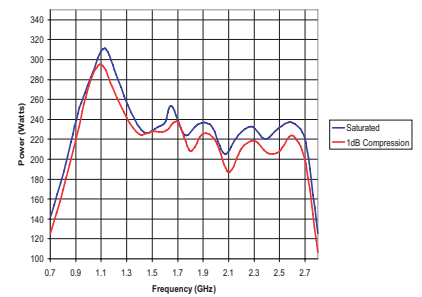
Power		Power consumption:	1000 W
Psat (min):	64.6 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	48.1 dBm		
P1 dB(min):	57.5 W	Connectors:	
P1 dB(min):	47.6 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	6.0 dB	Weight:	22 kg
Gain variation:	± 2.0 dB	Size:	3U
Harmonic distortion (min):	-18 dBc		



AS0827-110 110 WATT

Power		Power consumption:	2000 W
Psat (min):	125.8 W	Primary Power:	85-260 V (50/60 Hz) or 110 V*
Psat (min):	51.0 dBm		
P1 dB(min):	112.2 W	Connectors:	
P1 dB(min):	50.5 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	6.0 dB	Weight:	25 kg
Gain variation:	± 2.0 dB	Size:	3U
Harmonic distortion (min):	-18 dBc		

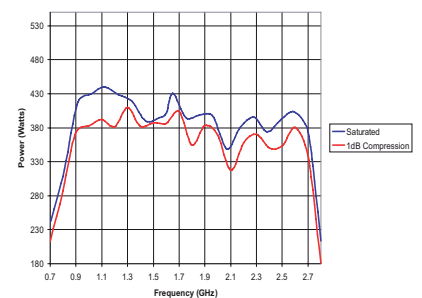
*Option 26 required for 100 V operation. Please refer to page 30 for details.



AS0827-230 230 WATT

Power		Power consumption:	4000 W
Psat (min):	251.0 W	Primary Power:	180-260 V (50/60 Hz) or 110 V*
Psat (min):	54.0 dBm		
P1 dB(min):	230.0 W	Connectors:	
P1 dB(min):	53.6 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	6.0 dB	Weight:	54 kg
Gain variation:	± 2.5 dB	Size:	6U
Harmonic distortion (min):	-18 dBc		

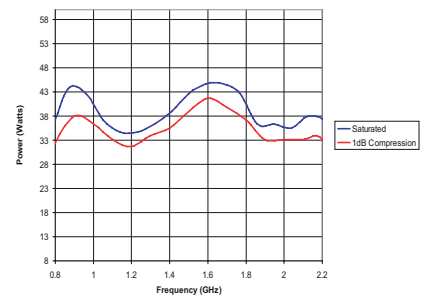
*Option 26 required for 100 V operation. Please refer to page 30 for details.



AS0102 1.0GHz - 2.0GHz

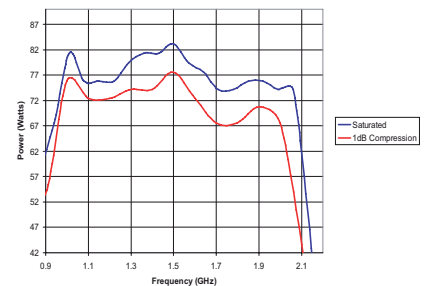
AS0102-30 30 WATT

Power		Power consumption: 350 W	
Psat (min):	33 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	45.2 dBm		
P1 dB(min):	30.0 W		
P1 dB(min):	44.7 dBm		
Noise figure (max): 6.0 dB		Connectors:	
Gain variation: ± 1.0 dB		RF Input:	Type N female
Harmonic distortion (min): -20 dBc		RF Output:	Type N female
		Weight: 14 kg	
		Size: 3U	



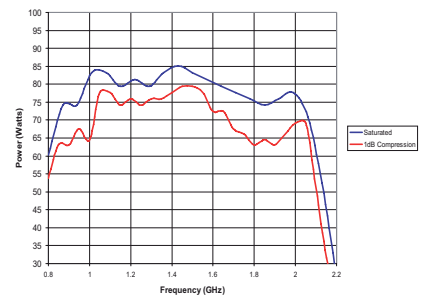
AS0102-55 55 WATT

Power		Power consumption: 575 W	
Psat (min):	60 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	47.8 dBm		
P1 dB(min):	54 W		
P1 dB(min):	47.3 dBm		
Noise figure (max): 6.0 dB		Connectors:	
Gain variation: ± 1.0 dB		RF Input:	Type N female
Harmonic distortion (min): -20 dBc		RF Output:	Type N female
		Weight: 15 kg	
		Size: 3U	



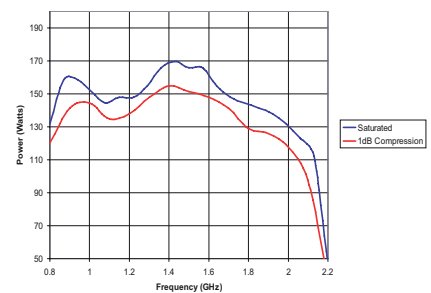
AS0102-65 65 WATT

Power		Power consumption: 575 W	
Psat (min):	66 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	48.2 dBm		
P1 dB(min):	59 W		
P1 dB(min):	47.7 dBm		
Noise figure (max): 6.0 dB		Connectors:	
Gain variation: ± 1.0 dB		RF Input:	Type N female
Harmonic distortion (min): -20 dBc		RF Output:	Type N female
		Weight: 15 kg	
		Size: 3U	



AS0102-100 100 WATT

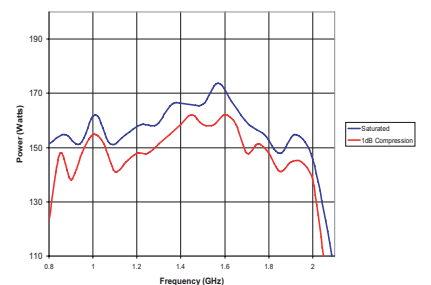
Power		Power consumption: 1000 W	
Psat (min):	115 W	Primary Power:	100-260 V (50/60 Hz)
Psat (min):	50.6 dBm		
P1 dB(min):	102 W		
P1 dB(min):	50.1 dBm		
Noise figure (max): 6.0 dB		Connectors:	
Gain variation: ± 1.0 dB		RF Input:	Type N female
Harmonic distortion (min): -20 dBc		RF Output:	Type N female
		Weight: 20 kg	
		Size: 3U	



Note: The above standard model is available in high power variants, Please contact factory for details.

AS0102-125 125 WATT

Power		Power consumption: 1000 W	
Psat (min):	126 W	Primary Power:	100-260 V (50/60 Hz)
Psat (min):	51.0 dBm		
P1 dB(min):	112 W		
P1 dB(min):	50.5 dBm		
Noise figure (max): 6.0 dB		Connectors:	
Gain variation: ± 1.0 dB		RF Input:	Type N female
Harmonic distortion (min): -20 dBc		RF Output:	Type N female
		Weight: 20 kg	
		Size: 3U	

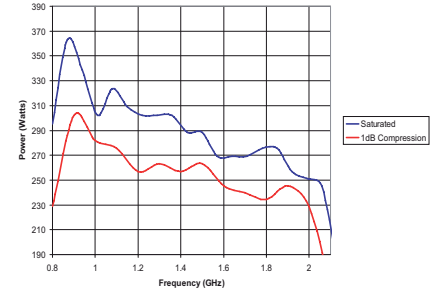


Note: The above standard model is available in high power variants. Please contact factory for details.

AS0102 1.0GHz - 2.0GHz

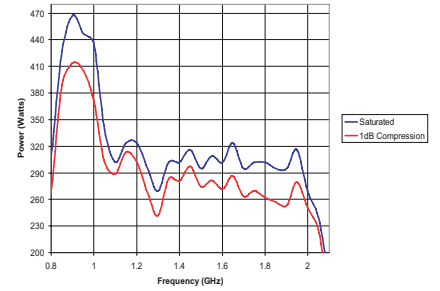
AS0102-200 200 WATT

Power		Power consumption: 2000 W	
Psat (min):	219 W	Primary Power:	180-260 V or 110 V*
Psat (min):	53.4 dBm		(50/60 Hz)
P1 dB(min):	195 W	Connectors:	
P1 dB(min):	52.9 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max): 6.0 dB		Weight:	25 kg
Gain variation: ± 2.0 dB		Size:	3U
Harmonic distortion (min): -20 dBc		*Option 26 required for 110 V operation. Please refer to page 29 for details.	



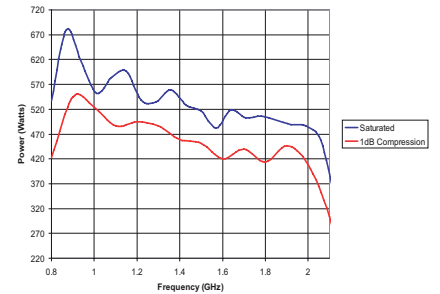
AS0102-250 250 WATT

Power		Power consumption: 2000 W	
Psat (min):	240 W	Primary Power:	180-260 V or 110 V*
Psat (min):	53.8 dBm		(50/60 Hz)
P1 dB(min):	214 W	Connectors:	
P1 dB(min):	53.3 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max): 6.0 dB		Weight:	25 kg
Gain variation: ± 2.0 dB		Size:	3U
Harmonic distortion (min): -20 dBc		*Option 26 required for 110 V operation. Please refer to page 29 for details.	



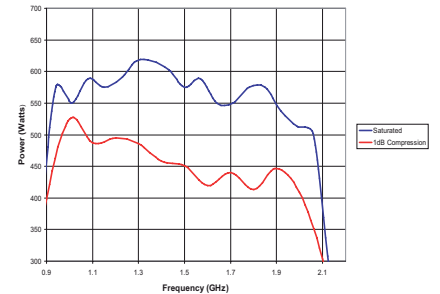
AS0102-400 400 WATT

Power		Power consumption: 4000 W	
Psat (min):	398 W	Primary Power:	180-260 V Or 110 V*
Psat (min):	56.0 dBm		(50/60 Hz)
P1 dB(min):	355 W	Connectors:	
P1 dB(min):	55.5 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max): 6.0 dB		Weight:	47 kg
Gain variation: ± 1.0 dB		Size:	6U
Harmonic distortion (min): -20 dBc		*Option 26 required for 110 V operation. Please refer to page 29 for details.	



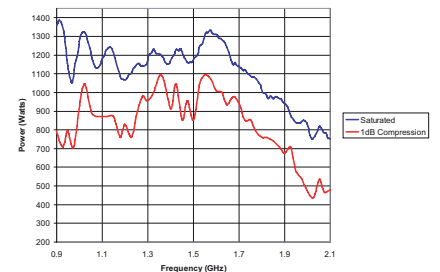
AS0102-500 500 WATT

Power		Power consumption: 4000 W	
Psat (min):	501 W	Primary Power:	180-260 V Or 110 V*
Psat (min):	57.0 dBm		(50/60 Hz)
P1 dB(min):	398 W	Connectors:	
P1 dB(min):	56.0 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max): 6.0 dB		Weight:	54 kg
Gain variation: ± 1.0 dB		Size:	6U
Harmonic distortion (min): -20 dBc		*Option 26 required for 110 V operation. Please refer to page 29 for details.	



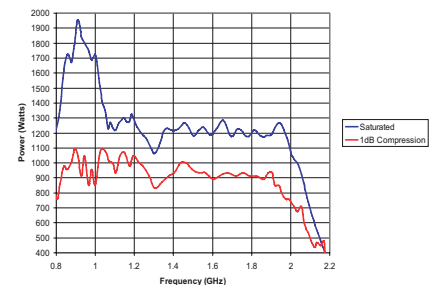
AS0102-800 800 WATT

Power		Power consumption: 8300W	
Psat (min):	794 W	Primary Power:	180-260 V Or 110 V*
Psat (min):	59.0 dBm		(50/60 Hz)
P1 dB(min):	631 W	Connectors:	
P1 dB(min):	58.0 dBm	RF Input:	Type N female
		RF Output:	Type 7/16" female
Noise figure (max): 6.0 dB		Weight:	94 kg
Gain variation: ± 1.0 dB		Size:	15U
Harmonic distortion (min): -20 dBc		*Option 26 required for 110 V operation. Please refer to page 29 for details. 3 phase supply option also available.	



AS0102-1000 1000 WATT

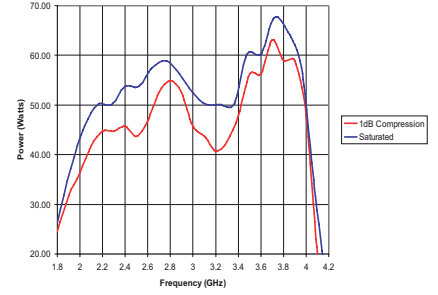
Power		Power consumption: 8300 W	
Psat (min):	1000 W	Primary Power:	180-260 V Or 110 V*
Psat (min):	60.0 dBm		(50/60 Hz)
P1 dB(min):	708 W	Connectors:	
P1 dB(min):	58.5 dBm	RF Input:	Type N female
		RF Output:	Type 7/16" female
Noise figure (max): 6.0 dB		Weight:	94 kg
Gain variation: ± 1.0 dB		Size:	15U
Harmonic distortion (min): -20 dBc		*Option 26 required for 110 V operation. Please refer to page 29 for details. 3 phase supply option also available.	



AS0204 2.0GHz - 4.0GHz

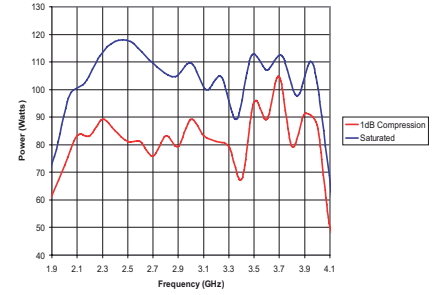
AS0204-30 30 WATT

Power		Power consumption:	550 W
Psat (min):	35.5 W	Power consumption:	85-260 V (50/60 Hz)
Psat (min):	45.5 dBm	Connectors:	
P1 dB(min):	31.6 W	RF Input:	Type N female
P1 dB(min):	45.0 dBm	RF Output:	Type N female
Noise figure (max):		Weight:	16 kg
Gain variation:		Size:	3U
Harmonic distortion (min):			
			-20 dBc



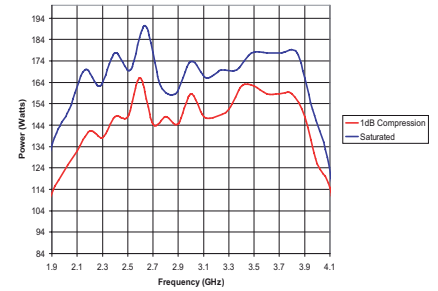
AS0204-60 60 WATT

Power		Power consumption:	1000 W
Psat (min):	67.6 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	48.3 dBm	Connectors:	
P1 dB(min):	60.3 W	RF Input:	Type N female
P1 dB(min):	47.8 dBm	RF Output:	Type N female
Noise figure (max):		Weight:	20 kg
Gain variation:		Size:	3U
Harmonic distortion (min):			
			-20 dBc



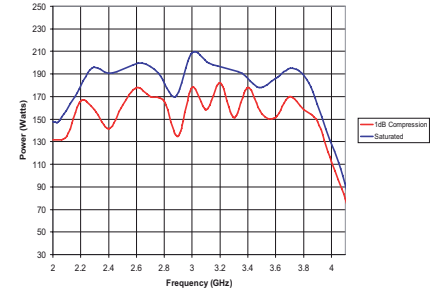
AS0204-100 100 WATT

Power		Power consumption:	2000 W
Psat (min):	125.9 W	Primary Power:	180-260 V or 110 V *
Psat (min):	51.0 dBm		(50/60 Hz)
P1 dB(min):	112.2 W	Connectors:	
P1 dB(min):	50.5 dBm	RF Input:	Type N female
Noise figure (max):		RF Output:	Type N female
Gain variation:		Weight:	27 kg
Harmonic distortion (min):		Size:	3U
		*Option 26 required for 110 V operation. Please refer to page 30 for details.	



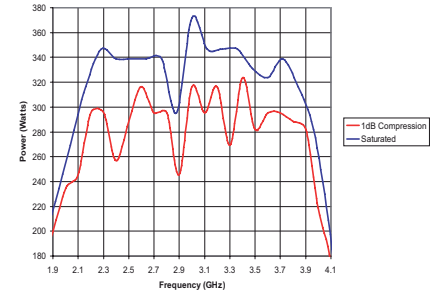
AS0204-125 125 WATT

Power		Power consumption:	2000 W
Psat (min):	141.3 W	Primary Power:	180-260 V or 110 V *
Psat (min):	51.5 dBm		(50/60 Hz)
P1 dB(min):	125.9 W	Connectors:	
P1 dB(min):	51.0 dBm	RF Input:	Type N female
Noise figure (max):		RF Output:	Type N female
Gain variation:		Weight:	27 kg
Harmonic distortion (min):		Size:	3U
		*Option 26 required for 110 V operation. Please refer to page 30 for details.	



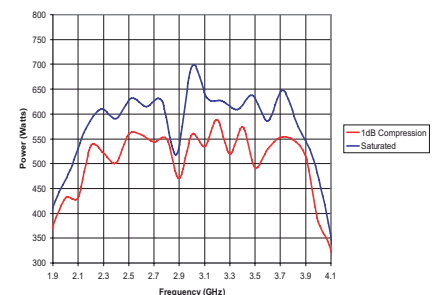
AS0204-200 200 WATT

Power		Power consumption:	4000 W
Psat (min):	223.9 W	Primary Power:	180-260 V Or 110 V *
Psat (min):	53.5 dBm		(50/60 Hz)
P1 dB(min):	200 W	Connectors:	
P1 dB(min):	53.0 dBm	RF Input:	Type N female
Noise figure (max):		RF Output:	Type N female
Gain variation:		Weight:	54 kg
Harmonic distortion (min):		Size:	6U
		*Option 26 required for 110 V operation. Please refer to page 30 for details.	



AS0204-400 400 WATT

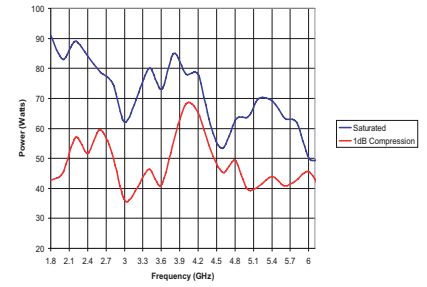
Power		Power consumption:	8300 W
Psat (min):	436.5 W	Primary Power:	180-260 V Or 110 V *
Psat (min):	56.4 dBm		(50/60 Hz)
P1 dB(min):	389 W	Connectors:	
P1 dB(min):	55.9 dBm	RF Input:	Type N female
Noise figure (max):		RF Output:	Type N female
Gain variation:		Weight:	94 kg
Harmonic distortion (min):		Size:	15U
		*Option 26 required for 110 V operation. Please refer to page 30 for details. 3 phase supply option also available	



AS1860 1.8GHz - 6.0GHz

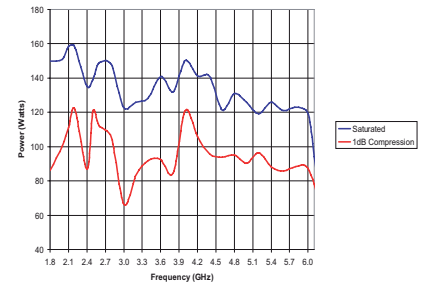
AS1860-30 30 WATT

Power		Power consumption:	400 W
Psat (min):	40.0 W	Power consumption:	100-240 V (47/63 Hz)
Psat (min):	46.0 dBm		
P1 dB(min):	30.0 W	Connectors:	
P1 dB(min):	44.8 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	8.0 dB	Weight:	20 kg
Gain variation:	± 3.0 dB	Size:	3U
Harmonic distortion (min):	-20 dBc		



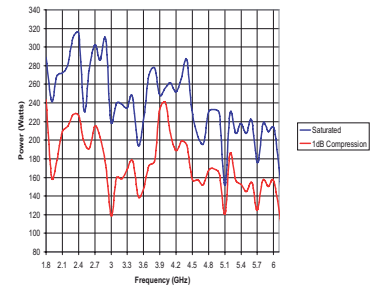
AS1860-50 50 WATT

Power		Power consumption:	800 W
Psat (min):	80.0 W	Primary Power:	100-240 V (47/63 Hz)
Psat (min):	49.0 dBm		
P1 dB(min):	50.0 W	Connectors:	
P1 dB(min):	46.9 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	8.0 dB	Weight:	25 kg
Gain variation:	± 3.0 dB	Size:	3U
Harmonic distortion (min):	-20 dBc		



AS1860-100 100 WATT

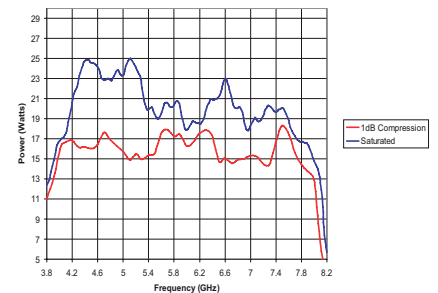
Power		Power consumption:	1500 W
Psat (min):	130.0 W	Primary Power:	100-240 V (47/63 Hz)
Psat (min):	51.1 dBm		
P1 dB(min):	100.0 W	Connectors:	
P1 dB(min):	50.0 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	8.0 dB	Weight:	47 kg
Gain variation:	± 3.0 dB	Size:	6U
Harmonic distortion (min):	-20 dBc		



AS0408 4.0GHz - 8.0GHz

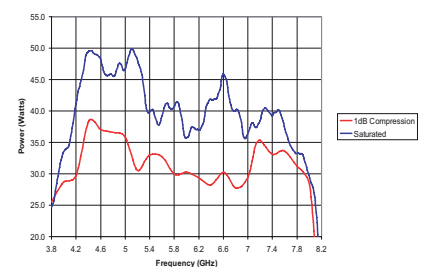
AS0408-15 15 WATT

Power		Power consumption:	300 W
Psat (min):	15.1 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	41.8 dBm		
P1 dB(min):	13.5 W	Connectors:	
P1 dB(min):	41.3 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	10.0 dB	Weight:	14 kg
Gain variation:	± 2.5 dB	Size:	3U
Harmonic distortion (min):	-20 dBc		



AS0408-30 30 WATT

Power		Power consumption:	450 W
Psat (min):	29.5 W	Primary Power:	85-260 V (50/60 Hz)
Psat (min):	44.7 dBm		
P1 dB(min):	26.3 W	Connectors:	
P1 dB(min):	44.2 dBm	RF Input:	Type N female
		RF Output:	Type N female
Noise figure (max):	10.0 dB	Weight:	20 kg
Gain variation:	± 2.5 dB	Size:	3U
Harmonic distortion (min):	-20 dBc		





The MILMEGA Dual Band Topology Advantage

The AS0840 series of solid state power amplifiers follows the MILMEGA tradition for compact, upgradeable microwave power amplifier solutions with field proven reliability. Developed to cover the frequency band 0.8 GHz to 4 GHz in two bands (0.8 GHz to 2 GHz and 2 GHz to 4 GHz), the topology has significant advantages over single band solutions.

- The power is configurable in both bands to match the needs of the customer. If, for example, you require 100 W from 0.8 to 2 GHz and 55 W from 2-4 GHz, then that is what you buy. If at a later stage you require more power in either band, then MILMEGA can add the appropriate modules at that point, protecting your investment by extending the life of your asset. Buy the power you need, when you need it.
- Higher powers are achievable in each band section than are possible with a single band solution. In addition power peaking can be achieved in both bands, for example in each of the common radar bands.
- Because the dual band solution is like having two tuned filters, the harmonic performance is vastly superior to that offered by a single band solution.
- Because with the dual band solution only one band is used at a time, the efficiency of the amplifier is greater. In addition a smaller power supply can be used, enhancing the reliability compared to a single band solution.



Why compromise your lab performance, just because someone compromised their amplifier design?

AS0840 800MHz - 4.0GHz

AS0840-30/17 30/17 WATT

Power 0.8-2.0 GHz

Psat (min): 30.0 W
 Psat (min): 44.8 dBm
 P1 dB(min): 27.0 W
 P1 dB(min): 44.3 dBm
Noise figure (max): 6.0 dB

Gain variation: ± 2.0 dB
Harmonic distortion (min): -20 dBc

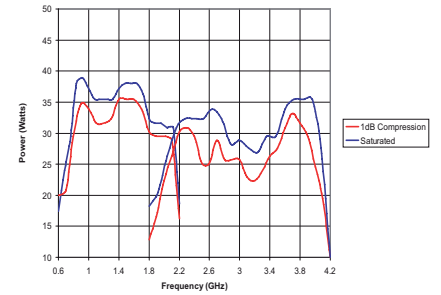
Power consumption: 600 W
Primary Power: 85-260 V (50/60 Hz)

Power 2.0-4.0 GHz

Psat (min): 17.0 W
 Psat (min): 42.3 dBm
 P1 dB(min): 15.0 W
 P1 dB(min): 41.8 dBm
Noise figure (max): 8.0 dB

Connectors:
 RF Input: Type N female
 RF Output: Type N female

Weight: 17 kg
Size: 3U



AS0840-30/30 30/30 WATT

Power 0.8-2.0 GHz

Psat (min): 30.0 W
 Psat (min): 44.8 dBm
 P1 dB(min): 27.0 W
 P1 dB(min): 44.3 dBm
Noise figure (max): 6.0 dB

Gain variation: ± 2.0 dB
Harmonic distortion (min): -20 dBc

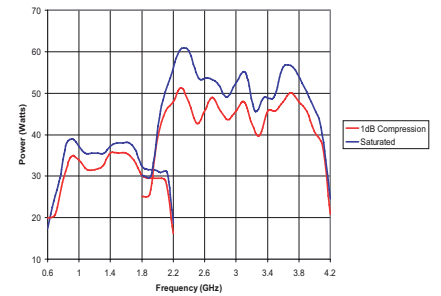
Power consumption: 600 W
Primary Power: 85-260 V (50/60 Hz)

Power 2.0-4.0 GHz

Psat (min): 30.0 W
 Psat (min): 44.8 dBm
 P1 dB(min): 27.0 W
 P1 dB(min): 44.3 dBm
Noise figure (max): 8.0 dB

Connectors:
 RF Input: Type N female
 RF Output: Type N female

Weight: 17 kg
Size: 3U



AS0840-55/30 55/30 WATT

Power 0.8-2.0 GHz

Psat (min): 56.0 W
 Psat (min): 47.5 dBm
 P1 dB(min): 50.0 W
 P1 dB(min): 47.0 dBm
Noise figure (max): 6.0 dB

Gain variation: ± 2.0 dB
Harmonic distortion (min): -20 dBc

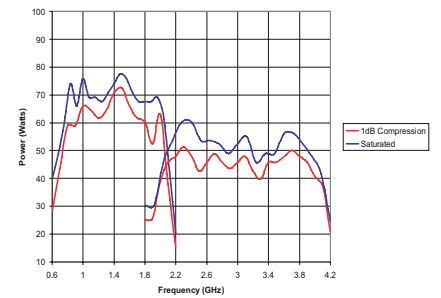
Power consumption: 1000 W
Primary Power: 85-260 V (50/60 Hz)

Power 2.0-4.0 GHz

Psat (min): 30.0 W
 Psat (min): 44.8 dBm
 P1 dB(min): 27.0 W
 P1 dB(min): 44.3 dBm
Noise figure (max): 8.0 dB

Connectors:
 RF Input: Type N female
 RF Output: Type N female

Weight: 24 kg
Size: 3U



AS0840-55/55 55/55 WATT

Power 0.8-2.0 GHz

Psat (min): 56.0 W
 Psat (min): 47.5 dBm
 P1 dB(min): 50.0 W
 P1 dB(min): 47.0 dBm
Noise figure (max): 6.0 dB

Gain variation: ± 2.0 dB
Harmonic distortion (min): -20 dBc

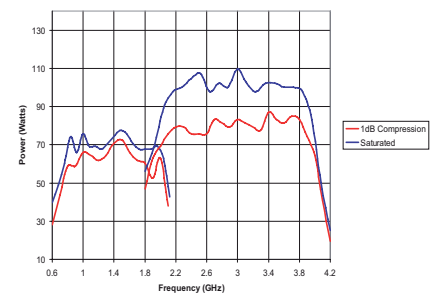
Power consumption: 1000 W
Primary Power: 85-260 V (50/60 Hz)

Power 2.0-4.0 GHz

Psat (min): 56.0 W
 Psat (min): 47.5 dBm
 P1 dB(min): 50.0 W
 P1 dB(min): 47.0 dBm
Noise figure (max): 8.0 dB

Connectors:
 RF Input: Type N female
 RF Output: Type N female

Weight: 24 kg
Size: 3U



AS0840-100/55 100/55 WATT

Power 0.8-2.0 GHz

Psat (min): 102.0 W
 Psat (min): 50.1 dBm
 P1 dB(min): 91.0 W
 P1 dB(min): 49.6 dBm
Noise figure (max): 6.0 dB

Gain variation: ± 2.0 dB
Harmonic distortion (min): -20 dBc

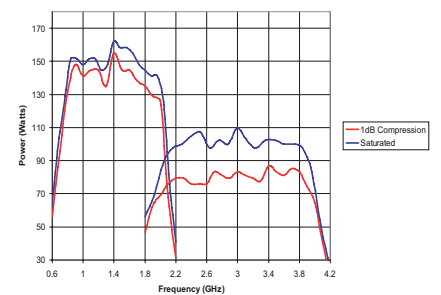
Power consumption: 2000 W
Primary Power: 85-260 V or 110V* (50/60 Hz)

Power 2.0-4.0 GHz

Psat (min): 56.0 W
 Psat (min): 47.5 dBm
 P1 dB(min): 50.0 W
 P1 dB(min): 47.0 dBm
Noise figure (max): 8.0 dB

Connectors:
 RF Input: Type N female
 RF Output: Type N female

Weight: 30 kg
Size: 3U



*Option 26 required for 110 V operation. Please refer to page 30 for details.

AS0840 800MHz - 4.0GHz

AS0840-100/100 100/100 WATT

Power 0.8-2.0 GHz

Psat (min):	102 W
Psat (min):	50.1 dBm
P1 dB(min):	91.0 W
P1 dB(min):	49.6 dBm
Noise figure (max):	6.0 dB

Power 2.0-4.0 GHz

Psat (min):	102.0 W
Psat (min):	50.01 dBm
P1 dB(min):	91.0 W
P1 dB(min):	49.6 dBm
Noise figure (max):	8.0 dB

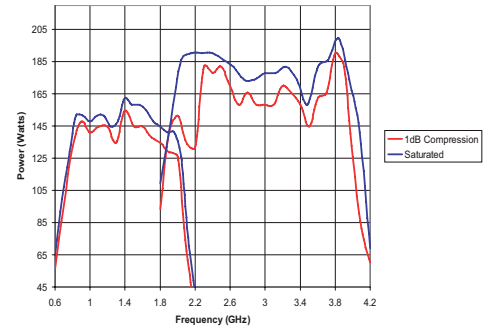
Gain variation:	± 2.0 dB
Harmonic distortion (min):	-20 dBc

Power consumption:	2000 W
Primary Power:	85-260 V or 110 V* (50/60 Hz)

Connectors:	
RF Input:	Type N female
RF Output:	Type N female

Weight:	45 kg
Size:	6U

*Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0840-200/100 200/100 WATT

Power 0.8-2.0 GHz

Psat (min):	214.0 W
Psat (min):	53.3 dBm
P1 dB(min):	190.0 W
P1 dB(min):	52.8 dBm
Noise figure (max):	6.0 dB

Power 2.0-4.0 GHz

Psat (min):	102.0 W
Psat (min):	50.1 dBm
P1 dB(min):	91.0 W
P1 dB(min):	49.6 dBm
Noise figure (max):	8.0 dB

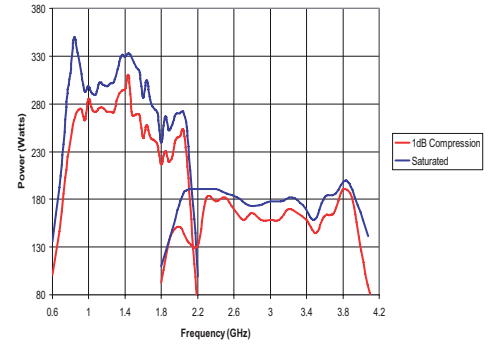
Gain variation:	± 2.0 dB
Harmonic distortion (min):	-20 dBc

Power consumption:	2000 W
Primary Power:	85-260 V or 110 V* (50/60 Hz)

Connectors:	
RF Input:	Type N female
RF Output:	Type N female

Weight:	47 kg
Size:	6U

*Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0840-200/200 200/200 WATT

Power 0.8-2.0 GHz

Psat (min):	214.0 W
Psat (min):	53.3 dBm
P1 dB(min):	191.0 W
P1 dB(min):	52.8 dBm
Noise figure (max):	6.0 dB

Power 2.0-4.0 GHz

Psat (min):	214.0 W
Psat (min):	53.3 dBm
P1 dB(min):	191.0 W
P1 dB(min):	52.8 dBm
Noise figure (max):	8.0 dB

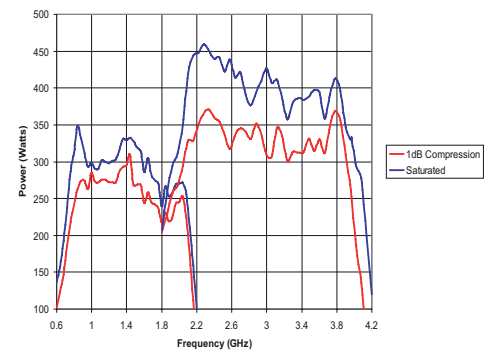
Gain variation:	± 2.0 dB
Harmonic distortion (min):	-20 dBc

Power consumption:	4000 W
Primary Power:	85-260 V or 110 V* (50/60 Hz)

Connectors:	
RF Input:	Type N female
RF Output:	Type N female

Weight:	130 kg
Size:	12U

*Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0840-400/200 400/200 WATT

Power 0.8-2.0 GHz

Psat (min):	398.0 W
Psat (min):	56.0 dBm
P1 dB(min):	355.0 W
P1 dB(min):	55.5 dBm
Noise figure (max):	6.0 dB

Power 2.0-4.0 GHz

Psat (min):	214.0 W
Psat (min):	53.3 dBm
P1 dB(min):	191.0 W
P1 dB(min):	52.8 dBm
Noise figure (max):	8.0 dB

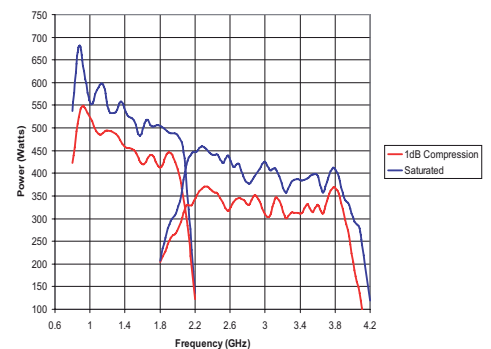
Gain variation:	± 2.0 dB
Harmonic distortion (min):	-20 dBc

Power consumption:	4500 W
Primary Power:	85-260 V or 110 V* (50/60 Hz)

Connectors:	
RF Input:	Type N female
RF Output:	Type N female

Weight:	170 kg
Size:	15U

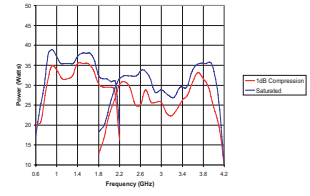
*Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0104 1.0GHz - 4.0GHz

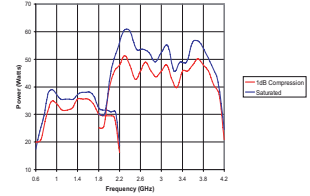
AS0104-30/17 30/17 WATT

Power 1.0-2.0 GHz	Psat (min): 30.0 W Psat (min): 44.8 dBm P1dB(min): 27.0 W P1dB(min): 44.3 dBm	Gain variation: ± 2.0 dB Harmonic distortion (max): -20 dBc
Noise figure (max):	6.0 dB	Power consumption: 600 W
Power 2.0-4.0 GHz	Psat (min): 17.0 W P1dB(min): 15.0 W Psat (min): 42.3 dBm P1dB(min): 41.8 dBm	Primary Power: 85-260 V or 110 V (50/60 Hz)
Noise figure (max):	8.0 dB	RF Input: Type N female RF Output: Type N female
		Weight: 17 kg
		Size: 3U



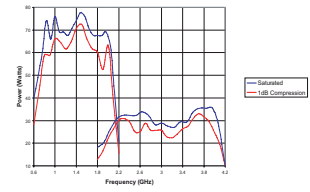
AS0104-30/30 30/30 WATT

Power 1.0-2.0 GHz	Psat (min): 30.0 W Psat (min): 44.8 dBm P1dB(min): 27.0 W P1dB(min): 44.3 dBm	Gain variation: ± 2.0 dB Harmonic distortion (max): -20 dBc
Noise figure (max):	6.0 dB	Power consumption: 600 W
Power 2.0-4.0 GHz	Psat (min): 30.0 W P1dB(min): 27.0 W Psat (min): 44.8 dBm P1dB(min): 44.3 dBm	Primary Power: 85-260 V or 110 V (50/60 Hz)
Noise figure (max):	8.0 dB	RF Input: Type N female RF Output: Type N female
		Weight: 17 kg
		Size: 3U



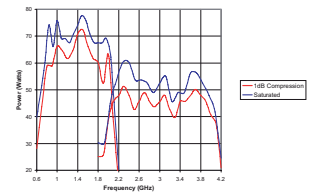
AS0104-55/17 55/17 WATT

Power 1.0-2.0 GHz	Psat (min): 56.0 W Psat (min): 47.5 dBm P1dB(min): 50.0 W P1dB(min): 47.0 dBm	Gain variation: ± 2.0 dB Harmonic distortion (max): -20 dBc
Noise figure (max):	6.0 dB	Power consumption: 1000 W
Power 2.0-4.0 GHz	Psat (min): 17.0 W P1dB(min): 15.0 W Psat (min): 42.3 dBm P1dB(min): 41.8 dBm	Primary Power: 85-260 V (50/60 Hz)
Noise figure (max):	8.0 dB	RF Input: Type N female RF Output: Type N female
		Weight: 24 kg
		Size: 3U



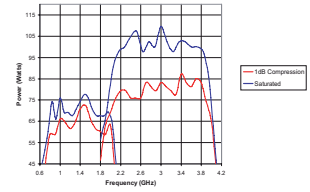
AS0104-55/30 55/30 WATT

Power 1.0-2.0 GHz	Psat (min): 56.0 W Psat (min): 47.5 dBm P1dB(min): 50.0 W P1dB(min): 47.0 dBm	Gain variation: ± 2.0 dB Harmonic distortion (max): -20 dBc
Noise figure (max):	6.0 dB	Power consumption: 1000 W
Power 2.0-4.0 GHz	Psat (min): 30.0 W P1dB(min): 27.0 W Psat (min): 44.8 dBm P1dB(min): 44.3 dBm	Primary Power: 85-260 V or 110 V (50/60 Hz)
Noise figure (max):	8.0 dB	RF Input: Type N female RF Output: Type N female
		Weight: 24 kg
		Size: 3U



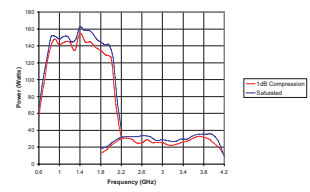
AS0104-55/55 55/55 WATT

Power 1.0-2.0 GHz	Psat (min): 56.0 W Psat (min): 47.5 dBm P1dB(min): 50.0 W P1dB(min): 47.0 dBm	Gain variation: ± 2.0 dB Harmonic distortion (max): -20 dBc
Noise figure (max):	6.0 dB	Power consumption: 1000 W
Power 2.0-4.0 GHz	Psat (min): 56.0 W P1dB(min): 50.0 W Psat (min): 47.5 dBm P1dB(min): 47.0 dBm	Primary Power: 85-260 V or 110 V (50/60 Hz)
Noise figure (max):	8.0 dB	RF Input: Type N female RF Output: Type N female
		Weight: 24 kg
		Size: 3U



AS0104-100/17 100/17 WATT

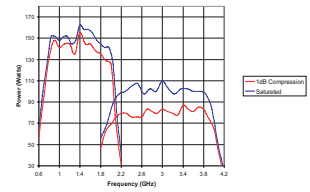
Power 1.0-2.0 GHz	Psat (min): 102.0 W Psat (min): 50.1 dBm P1dB(min): 91.0 W P1dB(min): 49.6 dBm	Gain variation: ± 2.0 dB Harmonic distortion (max): -20 dBc
Noise figure (max):	6.0 dB	Power consumption: 1000 W
Power 2.0-4.0 GHz	Psat (min): 17.0 W P1dB(min): 15.0 W Psat (min): 42.3 dBm P1dB(min): 41.8 dBm	Primary Power: 85-260 V or 110 V (50/60 Hz)
Noise figure (max):	8.0 dB	RF Input: Type N female RF Output: Type N female
		Weight: 26 kg
		Size: 3U



AS0104-100/55 100/55 WATT

Power 1.0-2.0 GHz	Psat (min): 102.0 W Psat (min): 50.1 dBm P1dB(min): 91.0 W P1dB(min): 49.6 dBm	Gain variation: ± 2.0 dB Harmonic distortion (max): -20 dBc
Noise figure (max):	6.0 dB	Power consumption: 2000 W
Power 2.0-4.0 GHz	Psat (min): 56.0 W P1dB(min): 50.0 W Psat (min): 47.5 dBm P1dB(min): 47.0 dBm	Primary Power: 85-260 V or 110 V* (50/60 Hz)
Noise figure (max):	8.0 dB	RF Input: Type N female RF Output: Type N female
		Weight: 30 kg
		Size: 3U

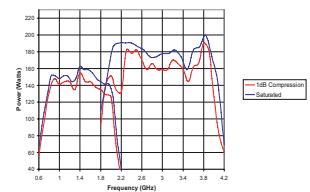
*Option 26 required for 100V operation



AS0104-100/100 100/100 WATT

Power 1.0-2.0 GHz	Psat (min): 102.0 W Psat (min): 50.1 dBm P1dB(min): 91.0 W P1dB(min): 49.6 dBm	Gain variation: ± 2.0 dB Harmonic distortion (max): -20 dBc
Noise figure (max):	6.0 dB	Power consumption: 2000 W
Power 2.0-4.0 GHz	Psat (min): 102.0 W P1dB(min): 91.0 W Psat (min): 50.1 dBm P1dB(min): 49.6 dBm	Primary Power: 85-260 V or 110 V* (50/60 Hz)
Noise figure (max):	8.0 dB	RF Input: Type N female RF Output: Type N female
		Weight: 45 kg
		Size: 6U

*Option 26 required for 100V operation

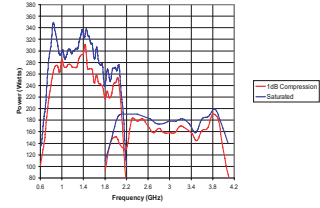


AS0104 1.0GHz - 4.0GHz

AS0104-200/100 200/100 WATT

Power 1.0-2.0 GHz	Psat (min): 214.0 W Psat (min): 53.3 dBm P1dB(min): 190.0 W P1dB(min): 52.8 dBm	Gain variation: ± 2.0 dB Harmonic distortion (max): -20 dBc Power consumption: 2000 W Primary Power: 85-260 V or 110 V* (50/60 Hz)
Noise figure (max):	6.0 dB	RF Input: Type N female RF Output: Type N female
Power 2.0-4.0 GHz	Psat (min): 102.0 W P1dB(min): 91.0 W Psat (min): 50.1 dBm P1dB(min): 49.6 dBm	Weight: 47 kg Size: 6U
Noise figure (max):	8.0 dB	

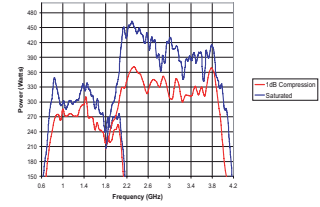
* Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0104-200/200 200/200 WATT

Power 1.0-2.0 GHz	Psat (min): 214.0 W Psat (min): 53.3 dBm P1dB(min): 190.0 W P1dB(min): 52.8 dBm	Gain variation: ± 2.0 dB Harmonic distortion (max): -20 dBc Power consumption: 4000 W Primary Power: 85-260 V or 110 V* (50/60 Hz)
Noise figure (max):	6.0 dB	RF Input: Type N female RF Output: Type N female
Power 2.0-4.0 GHz	Psat (min): 214.0 W P1dB(min): 190.0 W Psat (min): 53.3 dBm P1dB(min): 52.8 dBm	Weight: 130 kg Size: 15U
Noise figure (max):	8.0 dB	

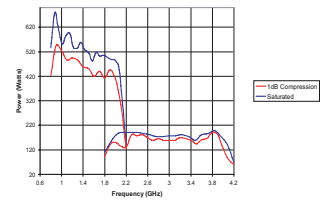
* Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0104-400/100 400/100 WATT

Power 1.0-2.0 GHz	Psat (min): 398.0 W Psat (min): 56.0 dBm P1dB(min): 355.0 W P1dB(min): 55.5 dBm	Gain variation: ± 2.0 dB Harmonic distortion (max): -20 dBc Power consumption: 4500 W Primary Power: 85-260 V or 110 V* (50/60 Hz)
Noise figure (max):	6.0 dB	RF Input: Type N female RF Output: Type N female
Power 2.0-4.0 GHz	Psat (min): 102.0 W P1dB(min): 91.0 W Psat (min): 50.1 dBm P1dB(min): 49.6 dBm	Weight: 96 kg Size: 13U
Noise figure (max):	8.0 dB	

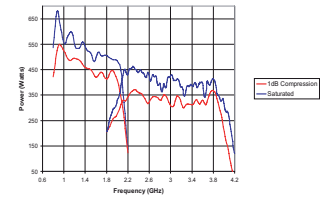
* Option 26 required for 110 V operation. Please refer to page 30 for details.



AS0104-400/200 400/200 WATT

Power 1.0-2.0 GHz	Psat (min): 398.0 W Psat (min): 56.0 dBm P1dB(min): 355.0 W P1dB(min): 55.5 dBm	Gain variation: ± 2.0 dB Harmonic distortion (max): -20 dBc Power consumption: 4500 W Primary Power: 85-260 V* (50/60 Hz)
Noise figure (max):	6.0 dB	RF Input: Type N female RF Output: Type N female
Power 2.0-4.0 GHz	Psat (min): 214.0 W P1dB(min): 190.0 W Psat (min): 53.3 dBm P1dB(min): 52.8 dBm	Weight: 170 kg Size: 3U
Noise figure (max):	8.0 dB	

* Option 26 required for 110 V operation. Please refer to page 30 for details.

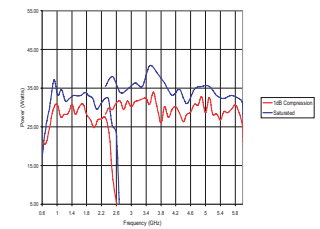


AS0860 0.8 GHz - 6.0 GHz

The AS0860 series dual band solution for EMC testing from 800MHz to 6.0GHz

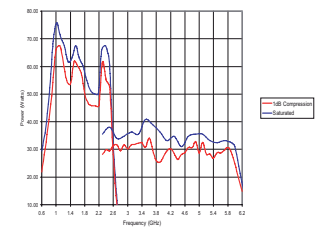
AS0860-15/25 15/25 WATT

Power 0.8-2.5 GHz	Psat (min): 20.0 W Psat (min): 43.0 dBm P1dB(min): 15.0 W P1dB(min): 41.76 dBm	Gain variation: ± 3.0 dB Harmonic distortion (max): -20 dBc Power consumption: 500 W Primary Power: 85-260 V (50/60 Hz)
Noise figure (max):	6.0 dB	RF Input: Type N female RF Output: Type N female
Gain variation:	± 2.0 dB	Weight: 26 kg Size: 3U
Power 2.5-6.0 GHz	Psat (min): 28.0 W P1dB(min): 25.0 W Psat (min): 44.4 dBm P1dB(min): 43.9 dBm	
Noise figure (max):	8.0 dB	



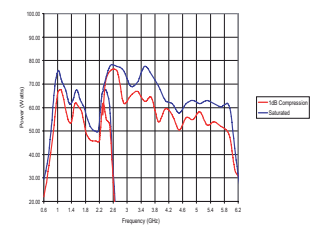
AS0860-40/25 40/25 WATT

Power 0.8-2.5 GHz	Psat (min): 44.7 W Psat (min): 46.5 dBm P1dB(min): 40.0 W P1dB(min): 46.0 dBm	Gain variation: ± 3.0 dB Harmonic distortion (max): -20 dBc Power consumption: 500 W Primary Power: 85-260 V (50/60 Hz)
Noise figure (max):	6.0 dB	RF Input: Type N female RF Output: Type N female
Gain variation:	± 2.5 dB	Weight: 26 kg Size: 3U
Power 2.5-6.0 GHz	Psat (min): 28.0 W P1dB(min): 25.0 W Psat (min): 44.4 dBm P1dB(min): 43.9 dBm	
Noise figure (max):	8.0 dB	



AS0860-40/45 40/45 WATT

Power 0.8-2.5 GHz	Psat (min): 44.7 W Psat (min): 46.5 dBm P1dB(min): 40.0 W P1dB(min): 46.0 dBm	Gain variation: ± 3.0 dB Harmonic distortion (max): -20 dBc Power consumption: 500 W Primary Power: 85-260 V (50/60 Hz)
Noise figure (max):	6.0 dB	RF Input: Type N female RF Output: Type N female
Gain variation:	± 2.5 dB	Weight: 46 kg Size: 6U
Power 2.5-6.0 GHz	Psat (min): 50.0 W P1dB(min): 45.0 W Psat (min): 46.9 dBm P1dB(min): 46.5 dBm	
Noise figure (max):	8.0 dB	



AS0860

0.8 GHz - 6.0 GHz

The AS0860 series dual band solution for EMC testing from 800MHz to 6.0GHz

AS0860-75/25 75/25 WATT

Power 0.8-2.5 GHz

Psat (min): 90.0 W
 Psat (min): 49.5 dBm
 P1 dB(min): 75.0 W
 P1 dB(min): 48.7 dBm
Noise figure (max): 6.0 dB
Gain variation: ± 2.5 dB

Power 2.5-6.0 GHz

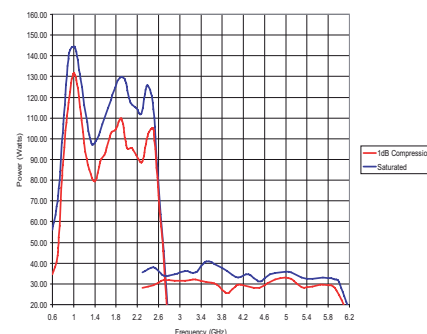
Psat (min): 28.0 W
 Psat (min): 44.4 dBm
 P1 dB(min): 25.0 W
 P1 dB(min): 43.9 dBm
Noise figure (max): 8.0 dB

Gain variation: ± 3.0 dB
Harmonic distortion (min): -20 dBc

Power consumption: 500 W
Primary Power: 85-260 V (50/60 Hz)

Connectors:
 RF Input: Type N female
 RF Output: Type N female

Weight: 30 kg
Size: 3U



AS0860-75/45 75/45 WATT

Power 0.8-2.5 GHz

Psat (min): 90.0 W
 Psat (min): 49.5 dBm
 P1 dB(min): 75.0 W
 P1 dB(min): 48.7 dBm
Noise figure (max): 6.0 dB
Gain variation: ± 2.5 dB

Power 2.5-6.0 GHz

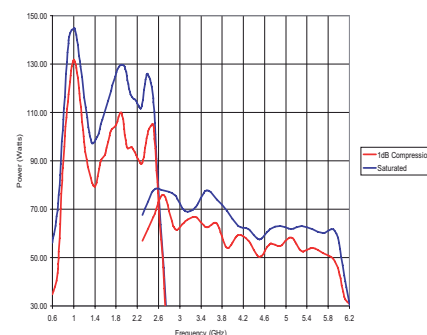
Psat (min): 50.0 W
 Psat (min): 46.9 dBm
 P1 dB(min): 45.0 W
 P1 dB(min): 46.5 dBm
Noise figure (max): 8.0 dB

Gain variation: ± 3.0 dB
Harmonic distortion (min): -20 dBc

Power consumption: 1000 W
Primary Power: 90-260 V (50/60 Hz)

Connectors:
 RF Input: Type N female
 RF Output: Type N female

Weight: 46 kg
Size: 6U



AS0860-150/45 150/45 WATT

Power 0.8-2.5 GHz

Psat (min): 175.0 W
 Psat (min): 52.4 dBm
 P1 dB(min): 150.0 W
 P1 dB(min): 51.8 dBm
Noise figure (max): 6.0 dB
Gain variation: ± 2.5 dB

Power 2.5-6.0 GHz

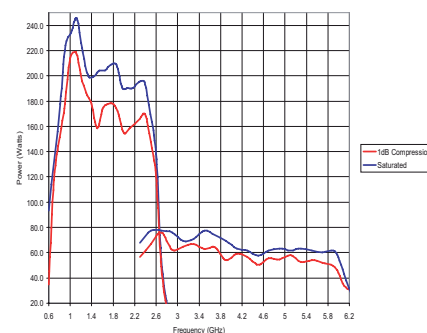
Psat (min): 50.0 W
 Psat (min): 46.9 dBm
 P1 dB(min): 45.0 W
 P1 dB(min): 46.5 dBm
Noise figure (max): 8.0 dB

Gain variation: ± 3.0 dB
Harmonic distortion (min): -20 dBc

Power consumption: 900 W
Primary Power: 85-260 V (50/60 Hz)

Connectors:
 RF Input: Type N female
 RF Output: Type N female

Weight: 55 kg
Size: 6U



AS0860-150/90 150/90 WATT

Power 0.8-2.5 GHz

Psat (min): 175.0 W
 Psat (min): 52.4 dBm
 P1 dB(min): 150.0 W
 P1 dB(min): 51.8 dBm
Noise figure (max): 6.0 dB
Gain variation: ± 2.5 dB

Power 2.5-6.0 GHz

Psat (min): 125.0 W
 Psat (min): 51.0 dBm
 P1 dB(min): 90.0 W
 P1 dB(min): 49.6 dBm
Noise figure (max): 8.0 dB

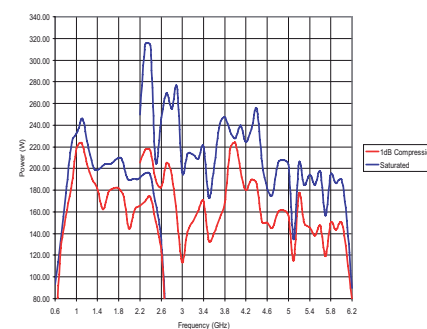
Gain variation: ± 3.0 dB
Harmonic distortion (min): -20 dBc

Power consumption: 2000 W
Primary Power: 185-265 V or 90-135 V* (50/60 Hz)

Connectors:
 RF Input: Type N female
 RF Output: Type N female

Weight: 130 kg
Size: 12U

*Option 26 required for 110 V operation. Please refer to page 30 for details.





The MILMEGA CSA Topology Advantage



Milmege's solid state technology offers a real alternative to meet the bandwidth and power requirements of high power L band applications, such as power testing radar components and for military/automotive RF immunity testing.

Using our CSA architecture, with its intrinsic reliability benefits, we deliver key advantages over travelling wave tube technology in the areas of harmonic levels, linearity, gain flatness, mismatch tolerance and ease of use.

From small acorns, mighty oaks grow

The unique MILMEGA 5 Year Warranty



Benefit Checklist

- ✓ 48 Hour Factory Turnaround
- ✓ No Shipment costs
- ✓ No Labour costs
- ✓ No Parts costs
- ✓ No Sweat

Setting a New Standard for Customer Service

No hidden costs, no additional service contracts to purchase, no pressure to buy a replacement - just 5 years peace of mind and a simple promise to deliver the type of service you deserve.

Add to this the benefits of our unrivalled upgradeable topology, class leading power density and an enviable reputation for going the extra mile for our customers and it becomes clear why MILMEGA is the preferred choice for solid state power amplifiers.

Find out more by contacting MILMEGA, or visit milmega.co.uk for more information.

Designers and Manufacturers of High
Power Microwave and RF Amplifiers



Options

MILMEGA have put together a list of options available within the Series 2000 solid state amplifier range. The options range has been designed to accommodate maximum flexibility when configuring an amplifier system.

Option 1	IEEE/RS232 control (1U high)	
Option 1a	ACOO2 Ethernet/USB/RS232 internally fitted control	
Option 2a	Front panel RF sample port SMA-f for a single band unit	(SMA-f)
Option 2b	Front panel RF sample port SMA-f for a dual band unit.	(SMA-f)
Option 3a	Front panel RF sample port N-type-f for a single band unit	(N-type-f)
Option 3b	Front panel RF sample port N-type-f for a dual band unit	(N-type-f)
Option 4a	Front panel detected sample port SMA-f for a single band unit	(SMA-f)
Option 4b	Front panel detected sample port SMA-f for a dual band unit	(SMA-f)
Option 5a	Rear panel RF sample port SMA-f for a single band unit	(SMA-f)
Option 5b	Rear panel RF sample port SMA-f for a dual band unit	(SMA-f)
Option 6a	Rear panel RF sample port N-type-f for a single band unit	(N-type-f)
Option 6b	Rear panel RF sample port N-type-f for a dual band unit	(N-type-f)
Option 7a	Rear panel detected sample port SMA-f for a single band unit	(SMA-f)
Option 7b	Rear panel detected sample port SMA-f for a dual band unit	(SMA-f)
Option 8	Rear panel RF i/p o/p ports N-type-f	(N-type-f)
Option 8a	Rear panel dual RF i/p (SMA-f) o/p ports N type-f	(N type-f)
Option 8b	Rear panel RF i/p, front panel RF o/p ports N type-f	
Option 8d	Front panel RF i/p, rear panel RF o/pports N type-f	
Option 9	Preamplifier 10dB	
Option 10	Preamplifier 20dB	
Option 14	Rack sliders (adds 1U)	
Option 15	Dual i/p o/p ports - for dual band amplifiers	
Option 16	Dual i/p ports only - for dual band amplifiers	
Option 17	Dual o/p ports only - for dual band amplifiers	
Option 18	Fault slaving	
Option 19	Invert logic IEEE	
Option 20	Dual amps both on	
Option 21	Single Phase Mains distribution box (1U high)	
Option 21a	3 Phase 'STAR' Mains Distribution box, (5 wire, 3U high)	
Option 21b	3 Phase 'DELTA' Mains Distribution box, (4 wire, 3U high)	
Option 22a	Bench case	Height 3U
Option 22b	Bench Case	Height 4U
Option 22c	Bench Case	Height 6U
Option 22d	Rack Casing with Wheels	Height 12U
Option 22e	Rack Casing with Wheels	Height 16U
Option 22f	Rack Casing with Wheels	Height 20U
Option 22g	Rack Casing with Wheels	Height 25U
Option 23a	Special In band Tuning	
Option 26	110V Power supply for high power models	
Option 27	Gain control	
Option 28a	Muting via TNC connector mounted on rear panel (No other rear panel options available if this is selected)	
Option 28b	Muting via D Type connector on rear panel	
Option 29	Pre-amp switching	

Additional variants may also be possible, at additional cost and delivery time. Please contact the MILMEGA factory for more information.



MILMEGA Support Material

MILMEGA RFCalc

MILMEGA RFCalc is a software calculator specifically designed for RF engineers. RFCalc incorporates all the functions one would expect to find in a Microsoft Window® type calculator with a multitude of features and functions which RF engineers utilise every day. Please call MILMEGA for a free copy.

Application notes

We have a number of application notes covering issues related to the microwave amplifier industry written by our 'experts in the field'. The notes can either be sent to you electronically or by hard copy. Please call for details.

Datasheets

Datasheets covering all technical data and feature information are available to download from our website.

MILMEGA on the World Wide Web

Visit our website at www.milmega.co.uk.

Worldwide Agents

MILMEGA offers worldwide support through an extensive network of approved distributors, ensuring we can deliver the advice and technical back up you need to address all your amplifier needs.

Please contact MILMEGA for details of your local representative.



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