



Teseq CBA Series **BROADBAND POWER AMPLIFIERS**

10 kHz - 6 GHz Solid State Amplifiers



















More choice, means optimum performance, whatever the application.



TESEQ | MILMEGA | IFI

the power is the range



AMETEK CTS brands have been designing and manufacturing RF amplifiers for over 30 years. Under the product names of Teseq, IFI and Milmega, we have produced RF amplifiers suitable for the widest range of applications, including products for EMC Testing, Communications, Aerospace & Defense and the Component Test industries.

Our solid state CBA range of amplifiers compliments the new Teseq TWT series providing 10KHz to 40GHz of amplifier solutions.

From our design and manufacturing facilities in the UK, Switzerland and Germany, our customers can be confident they will always get an RF amplifier solution that is correctly matched to their requirement.

Our know-how and experience will ensure you get a solution that is optimized to meet your application requirements at the right cost.





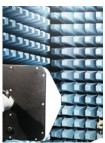


Teseq's CBA series is a complete range of solid-state linear class-A & AB power amplifiers designed with frequency and power ratings specifically for EMC immunity test applications. These robust and dependable power amplifiers ensure complete reliability at low operating costs. They are available as a standalone bench mount device or seamlessly integrated as part of a Teseq radiated Immunity test system.

The modular plug-and-play design allows for a power upgrade path for some models (6G), and in the unlikely event of a service issue, it enables excellent support response times from one of our local in-country service centers, minimizing down-time and disruption to testing.

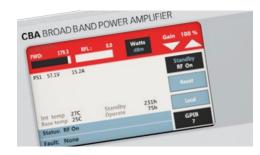








TESEQ CBA SERIES **Broadband power amplifiers**



- Class A & AB Operation (model dependent)

- ⇒ 3 Year warranty



STANDARD FEATURES **Exceptional performance**

USER INTERFACE AND REMOTE MONITORING AND CONTROL

The display interface indicates the amplifier mode of operation (Standby or Operate) and reports all critical voltage, current and pulse parameters. The default remote interface types are USB, Ethernet, GPIB and RS232

POWER UPGRADE PATH (6G)

The 6G series offers a power upgrade path in that from a 30W chassis additional RF modules can be added to the existing modules to provide up to 100 watts output from the 4U chassis. An additional 3U chassis can be added for 200 watts output with an additional 200-watt chassis for 400W giving the 6G series unrivalled cost of future ownership options.

RELIABILITY AND THERMAL MANAGEMENT

A state-of-the-art design manufactured to the highest quality with optimally biased transistors and fitted with temperature-controlled fans to control peak temperatures and significantly improve MTBF.

ENVIRONMENTAL

- 0°C to +40°C operational temperature -10°C to +50°C storage temperature.
- Mechanical 19" Front Panels from 3U to Rack mount height, 440 to 1000 mm long.

SAFETY & EMC

CE marked and certified to comply with EN 61010-1:20190.



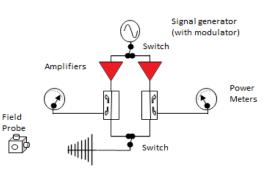


TESEQ CBA SERIES Applications

CBA BROAD BAND POWER AMPUPIER

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Flexible combinations from 10 kHz - 6 GHz and power levels up-to 3KW makes the Teseq CBA series the perfect choice for a wide range of EMC and RF amplifier applications.

Conducted RF Immunity

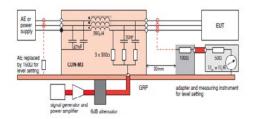
At frequencies up to the point which an EUT dimensions approach a quarter wavelength the major coupling route into the EUT is via interface injected in common mode on the connected cables. Cable testing is therefore an important method of checking RF susceptibility, and IEC61000-4-6 specifies test methods. The most straightforward method of coupling is by a capacitive connection to the cable under test. The disturbance is split via a coupling network to each of the conductors in the cable, so that the disturbance appears in the common mode on all conductors together.

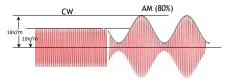
RF Immunity

The purpose of RF immunity testing is to subject a product to a controlled RF stress that represents the likely level of stress that might be seen in its operating environment. Therefore these tests are performed over a frequency range which is mostly dictated by practical aspects of real-world problems. The actual response of the equipment is monitored during this test. The choice of these parameters is a compromise between what is possible and realistic to design and test for against the degree of certainty of performance that is needed for a probable working environment. The levels and frequencies given in the European and international standards represent such a compromise in that they do not ensure certain immunity in all environments but give a reasonable probability of adequate immunity in most.

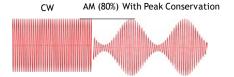
In order to test equipment for its immunity against RF signals, a defined signal needs to be generated and coupled into the EUT. Due to the nature of the signals and their means of transmission, various transducers are defined by the relevant standards for various testing methods. The base signal for all RF immunity tests is a sine wave signal, which is then modulated in different ways and applied to the EUT. A signal generator must therefore be able to generate signals over that frequency range.

Since the power output of generators is usually limited and the outgoing signal is not high enough to cover the requirements of the testing standards, additional linear amplifiers are used. The amplifiers must also cover the whole frequency range which in some instance mean multiple amplifiers are required. For an example of covering 80MHz to 6GHz this can be done with a combination of the CBA 1G and 6G series.





Testing with 80% AM, the output power from the amplifier shall not exceed the P1dB limit. AM requires approximately 3.3 times the CW power.



Peak conservation for Automotive requirements.



TURN-KEY DESIGN & BUILD **RF immunity test solutions**

At AMETEK CTS we can design and build a turn-key EMC system to precisely fit your test requirements, budget and time frame.

Our RF engineering team are able to provide customers with a complete design and system implementation to the meet the requirements of RF immunity standards.

PEACE OF MIND

A fully compliant system from AMETEK CTS includes an engineered design that is guaranteed to meet field strength requirements for the tests.

Contact our design team to discuss your requirements and get a custom proposal.

STANDARD SYSTEMS

- GTEM systems for immunity and emissions
- IEC/EN 61000-4-6 for conducted RF-immunity
- IEC/FN 61000-4-3 for radiated RF-immunit
- ISO 11452-2 and 4 for radiated RF-immunity on vehicle components
- BCI for Automotive, Airborne & Military
- Strip Lines for Automotive immunity

CUSTOMIZED SOLUTIONS

- Immunity Systems for IEC products,
- Automotive ISO 11452-2, 3, 4, 5 & 9
- Airborne and Military applications
- MIL-STD-461 & RTCA DO-160
- Emission Systems for disturbance current, voltage, power & field strengths
- Reverb Chamber Solutions

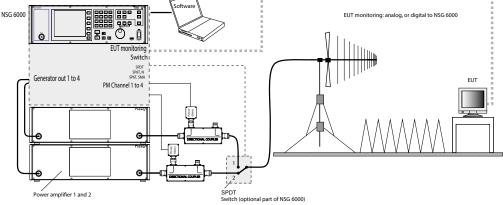






Custom system design with guaranteed performance





TECHNICAL SPECIFICATION

- Standalone rack integrated systems complete with signal source and RF switch network and power meters
- Includes AM & PM pulse modulators
- Frequency ranges between, 4 kHz to 40 GHz
- Power levels up to 6 KW
- Flexible combination of solid state and TWT amplifiers
- VSWR protected amplifiers at any phase angle
- Integrated software and control

FEATURES

- Fully automated operation
- Integrated 3 freely configurable pulse modulators for radar pulse profile
- Optional TWT Amplifier harmonic filtering
- IEEE 488, RS232 & ethernet remote control

BENEFITS

- Support from our experts in determining, detailing & delivering system requirements.
- Guaranteed system performance
- Full onsite training & system integration by professionals
- Full service and support





MILITARY

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PRODUCT SELECTOR **Application**

COMMERCIAL

MEDICAL

Use the product selector table below to quickly find the optimum device for your application. Detailed performance data and graphs are available for each product on pages 8-12

AUTOMOTIVE

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				EMC	:					
Type Number	IEC 61000-4-3	IEC 6100-4-6	IEC 60601-1-2	ISO 11452-2	ISO 11452-3	ISO 11452-4	ISO 11452-5	Radar Pulse	Mil-Std 461	DO160
CBA 100M-110		•			•		•		•	
CBA 100M-400		•			•		•		•	
CBA 230M-035		•	•		•		•			
CBA 230M-080		•	•		•		•			
CBA 250M-2500				•					•	
CBA 400M-110					•	•	•		•	•
CBA 400M-260					•	•	•		•	•
CBA 1G-030D	•		•			•	•		•	•
CBA 1G-100D	•		•			•	•		•	•
CBA 1G-150D	•		•						•	•
CBA 1G-300D	•		•	•					•	•
CBA 1G-600D	•		•	•					•	•
CBA 1G-1200D	•		•	•					•	•
CBA 3G-025B	•		•						•	•
CBA 3G-050B	•		•						•	•
CBA 3G-100B	•		•	•					•	•
CBA 3G-300B	•		•						•	•
CBA 3G-500B	•		•	•					•	•
CBA6G-030D	•		•	•					•	•
CBA6G-050D	•		•	•					•	•
CBA6G-100D	•		•						•	•
CBA6G-200D	•		•	•					•	•
CBA6G-400D	•		•	•					•	•
CBA 4G-900/600R				•				•	TWT Required up	TWT Required up to 8/18G
CBA 6G-900/600R				•				•	to 40G	Pulse units 400M-18G





PRODUCT SELECTOR Frequency and Power

Use the product selector table below to quickly find the optimum device for your application. Detailed performance data and graphs are available for each product on pages 8-12

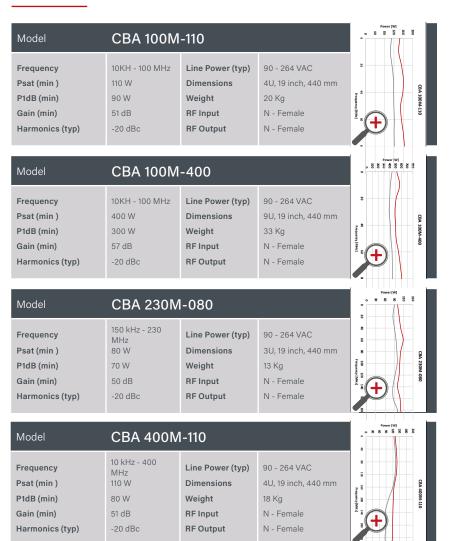
Гуре Number	Frequency Range GHz	Output Power (W Min)	P1dB (W)	Height	Length (mm)	Weight (I
CBA 100M-110	10 kHz - 100 MHz	110	90	4U	440	20
CBA 100M-400	10 kHz - 100 MHz	400	300	gU	440	33
CBA 230M-035	150 kHz - 230 MHz	35	25	3U	440	12
CBA 230M-080	150 kHz - 230 MHz	80	70	3U	440	13
CBA 250M-2500	10 kHz - 250 MHz	3000	2100	34U	800	291
CBA 400M-110	10 kHz - 400 MHz	110	80	4U	440	18
CBA 400M-260	10 kHz - 400 MHz	260	210	4U	440	20
CBA 1G-030D	1 MHz - 1 GHz	30	25	3U	615	14
CBA 1G-100D	1 MHz - 1 GHz	100	80	3U	615	16
CBA 1G-150D	80 MHz - 1 GHz	150	125	4U	615	19
CBA 1G-300D	80 MHz - 1 GHz	300	250	4U	615	35
CBA 1G-600D	80 MHz - 1 GHz	600	500	6U	615	58
CBA 1G-1200D	80 MHz - 1 GHz	1200	900	10U	686	95
CBA 3G-025B	0.8 GHz - 3.1 GHz	30	25	3U	615	15
CBA 3G-050B	0.8 GHz - 3.1 GHz	50	40	3U	615	18
CBA 3G-100B	0.8 GHz - 3.1 GHz	100	90	4U	615	20
CBA 3G-300B	0.8 GHz - 3.1 GHz	300	200	6U	615	36
CBA 3G-500B	0.8 GHz - 3.1 GHz	500	450	10U	615	95
CBA6G-030D	1 GHz - 6 GHz	35	30	4U	615	15
CBA6G-050D	1 GHz - 6 GHz	60	50	4U	615	20
CBA6G-100D	1 GHz - 6 GHz	125	100	4U	615	28
CBA6G-200D	1 GHz - 6 GHz	250	200	7U	615	50
CBA6G-400D	1 GHz - 6 GHz	500	400	20U	800	160
CBA 4G-900/600R	0.8 GHz - 4 GHz	500	400/300	20U	800	160
	1.2 GHz - 1.4 GHz CW	900				
	2.7 GHz - 3.1 GHz CW	600				
CBA 6G-900/600R	0.8 GHz - 6 GHz	500	400/300	20U	800	160
	1.2 GHz - 1.4 GHz CW	900				
	1.2 GHz - 1.4 GHz CW	600				





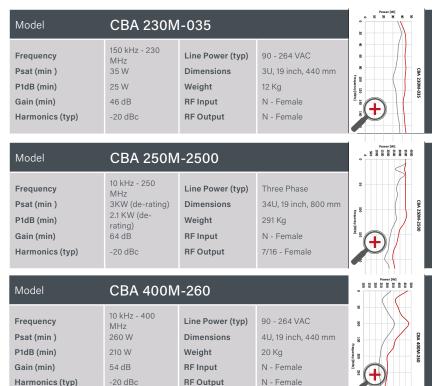
CBA SOLID STATE | 10KHz - 400 MHz

Please contact us if you require any product selection or application advice





Click on the magnify icon to view the product power / frequency performance graph







CBA SOLID STATE | 1 MHz - 1 GHz

Performance data

Model	CBA 1G-0	30D		Power[W]
Frequency Psat (min) P1dB (min) Gain (min) Harmonics (typ)	1 MHz - 1 GHz 30 W 25 W 40 dB -18 dBc	Line Power (typ) Dimensions Weight RF Input RF Output	90 - 264 VAC 3U, 19 inch, 615 mm 14 Kg N - Female N - Female	00 00 00 00 00 00 00 00 00 00 00 00 00
Model	CBA 1G-15	50D		Power [W]
Frequency	80 MHz - 1 GHz	Line Power (typ)	90 - 264 VAC	8
Psat (min)	150 W	Dimensions	4U, 19 inch, 615 mm	8 //
P1dB (min)	125 W	Weight		Freque 8
Gain (min)	47 dB	RF Input	N - Female	
Harmonics (typ)	-18 dBc	RF Output	N - Female	
Model	CBA 1G-6	00D		Power[W]
Frequency	80 MHz - 1 GHz	Line Power (typ)	Three Phase	80
Psat (min)	600 W	Dimensions	6U, 19 inch, 615 mm	8
P1dB (min)	500 W	Weight	58 Kg	Freque
Gain (min)	53 dB	RF Input	N - Female	
				~ (E -

Model	CBA 1G-10	00D	8 8	Power [W] B 8 8 8 8
Frequency Psat (min)	1 MHz - 1 GHz 100 W	Line Power (typ)	90 - 264 VAC 3U, 19 inch, 615 mm	
P1dB (min)	80 W	Weight		-
Gain (min)	45 dB	RF Input	16 Kg N - Female	
Harmonics (typ)	-18 dBc	RF Output	N - Female	
			V 2	Power [W]
Model	CBA 1G-30	00D	90 80	* * *
Frequency	80 MHz - 1 GHz	Line Power (typ)	90 - 264 VAC	
Psat (min)	300 W	Dimensions	4U, 19 inch, 615 mm	
P1dB (min)	250 W	Weight	35 Kg	_(
Gain (min)	50 dB	RF Input	35 Kg N - Female	
Harmonics (typ)	-18 dBc	RF Output	N - Female	
			V.	Power [W]
Model	CBA 1G-12	.00D	8	8 8 8 8
Frequency	80 MHz - 1 GHz	Line Power (typ)	Three Phase)>
Psat (min)	1200 W	Dimensions	10U, 19 inch, 686 mm	()
P1dB (min)	900 W	Weight	95 Kg	+ $(-$
Gain (min)	55.5 dB	RF Input	95 Kg N - Female	





CBA SOLID STATE | 0.8 GHz - 3.1 GHz

Performance data

Model	CBA 3G-	025B	2 2	Power [W]
Frequency	0.8 - 3.1 GHz	Line Power (typ)	90 - 264 VAC	
Psat (min)	30 W	Dimensions	3U, 19 inch, 615 mm	
P1dB (min)	25 W	Weight		
Gain (min)	44 dB	RF Input	15 Kg N - Female	4
Harmonics (typ)	-20 dBc	RF Output	N - Female) \\
				Power[W]
Model	CBA 3G-1	100B	99	200000
Frequency	0.8 - 3.1 GHz	Line Power (typ)	90 - 264 VAC	
Psat (min)	100 W	Dimensions	4U. 19 inch. 615 mm))
P1dB (min)	90 W	Weight	20 Kg	(
Gain (min)	50 dB	RF Input	20 Kg N - Female	~
Harmonics (typ)	-20 dBc	RF Output	N - Female	
_	_			Power [W]
Model	CBA 3G-	500B	24	* 8 8 8
Frequency	0.8 - 3.1 GHz	Line Power (typ)	Three Phase	
Psat (min)	500 W	Dimensions	10U, 19 inch, 615 mm)/
P1dB (min)	450 W	Weight	95 Program	
Gain (min)	57 dB	RF Input	95 N - Female	
Gain (min)				

Model	CBA 3G-0	50B	
Frequency Psat (min) P1dB (min) Gain (min) Harmonics (typ)	0.8 - 3.1 GHz 50 W 40 W 46 dB -20 dBc	Line Power (typ) Dimensions Weight RF Input RF Output	90 - 264 VAC 3U, 19 inch, 615 mm 18 Kg N - Female N - Female
1odel	CBA 3G-30	00B	
Frequency Psat (min) P1dB (min) Gain (min) Harmonics (typ)	0.8 - 3.1 GHz 300 W 20 W 53 dB -20 dBc	Line Power (typ) Dimensions Weight RF Input RF Output	90 - 264 VAC 6U, 19 inch, 615 mm 36 Kg N - Female N - Female





CBA SOLID STATE | 1 GHz - 6 GHz

Performance data

Model	CBA 6G-	030D		Power [W]
Frequency	1 - 6 GHz	Line Power (typ)	90 - 264 VAC	
Psat (min)	35 W	Dimensions	4U, 19 inch, 615 mm	2
P1dB (min)	30 W	Weight	15 Kg	Frequ
Gain (min)	45 dB	RF Input	N - Female	3.5 Frequency (GHz)
Harmonics (typ)	-18 dBc	RF Output	N - Female	
				Power [W]
Model	CBA 6G-	100D		50 00 00 00 00 00 00 00 00 00 00 00 00 0
Frequency	1 - 6 GHz	Line Power (typ)	90 - 264 VAC	
Psat (min)	125 W	Dimensions	4U, 19 inch, 615 mm	ı ı
P1dB (min)	100 W	Weight	28 Kg	3 3.5 Fequency (
Gain (min)	50 dB	RF Input	N - Female	100
Harmonics (typ)	-18 dBc	RF Output	N - Female	
		_		Power [W]
Model	CBA 6G-	400D		000000000000000000000000000000000000000
Frequency	1 to 6.0 GHz	Line Power (typ)	Three Phase	£
Psat (min)	500 W	Dimensions	20U, 19 inch, 800 mm	E C
P1dB (min)	400 W	Weight	160 Kg	3.0 Freque
Gain (min)	57 dB	RF Input	N - Female	D 15 Frequency(GHz)
Harmonics (typ)	-18 dBc	RF Output	7/16 - Female	·(+)

Model	CBA 6G-0	50D		Power[W] 0 8 8 8 8 6 6 6 8 8
Frequency Psat (min) P1dB (min) Gain (min) Harmonics (typ)	1 - 6 GHz 60 W 50 W 47 dB -18 dBc	Line Power (typ) Dimensions Weight RF Input RF Output	90 - 264 VAC 4U, 19 inch, 615 mm 20 Kg N - Female N - Female	Cth 60-000
Model	CBA 6G-20	00D		Power (W) 8 5 8 5 5 5 5 5 5 5 5
Frequency Psat (min) P1dB (min)	1 - 6 GHz 250 W 200 W	Line Power (typ) Dimensions Weight	90 - 264 VAC 7U, 19 inch, 615 mm 50 Kg	CBA 65-2000





CBA SOLID STATE | Automotive

Performance data

Model	CBA 4G-9	00/600R		å	0 00	Pow 80	er [w]) 	
Frequency Psat (min) Band 1 Pulsed Band 2 Pulsed	0.8 to 4.0 GHz 500 W 1.2-1.4GHz 900W 2.7-3.1GHz 600W	Line Power (typ) Dimensions Weight RF Input	Three Phase 20U, 19 inch, 800 mm 160 Kg N - Female	1.2 1.6 2 2.4 Frequency[GHz]) \	<i>)</i>		CBA 4G-900/600R
P1dB (min) Gain (min) Harmonics (typ)	400 W 57 dB -18 dBc	RF Output	7/16 - Female		Œ	Ð	\ \{	\rangle		

Model	CBA 6G-9	CBA 6G-900/600R				
Frequency	0.8 to 6.0 GHz	Line Power (typ)	Three Phase	5		
Psat (min)	500 W	Dimensions	20U, 19 inch, 800 mm	2		CBA
Band 1 CW	1.2-1.4GHz 900W	Weight	160 Kg	Frequen		6G-900/600R
Band 2 CW	2.7-3.1GHz 600W	RF Input	N - Female	mcy (GHz))/600R
P1dB (min)	400/300 W	RF Output	7/16 - Female	1	\$}	
Gain (min)	57 dB					
Harmonics (typ)	-18 dBc			: 	7	





SERVICE AND SUPPORT Quality | Accuracy | Speed

GLOBAL SUPPORT NETWORK

When you choose an AMETEK CTS instrument, you benefit from our promise to provide consistent, reliable performance for the lifetime of the product.

Our promise begins with robust innovative product designs and precise control of the manufacturing process at our factories in Switzerland, Germany, the United States and the UK. The ongoing performance of our products is supported by a network of internationally recognised laboratories and service centres providing a range of services.



Product know-how, robust processes and expert people - these are some of the reasons why our customers trust us to provide a professional support service that matches the quality of our instruments.











TESEQ | MILMEGA | IFI
the power is the range

KNOW-HOW **Learning hub and resources**

KNOW-HOW is our online Learning Hub and Resource Centre. Here you will find EMC and RF Amplifier education content and best practice information.

Included is on the site is our series of 30 minute webinars. You can stream the full presentation content and download the accompanying technical papers.

Best Practice Webinars



Technical Library



Video Content







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