BT00250-AlphaS-CW
100kHz-30MHz
250W

- Scientific and Industrial Applications

The BT-AlphaS-CW series is a range of class AB RF power amplifiers covering the 100kHz to 30MHz frequency range.

- Rugged, solid-state design - high reliability
- Extremely high phase and amplitude stability
- Very fast pulse rise/fall times
- High linearity
- Very low interpulse noise
- Competitively priced

RF Specifications

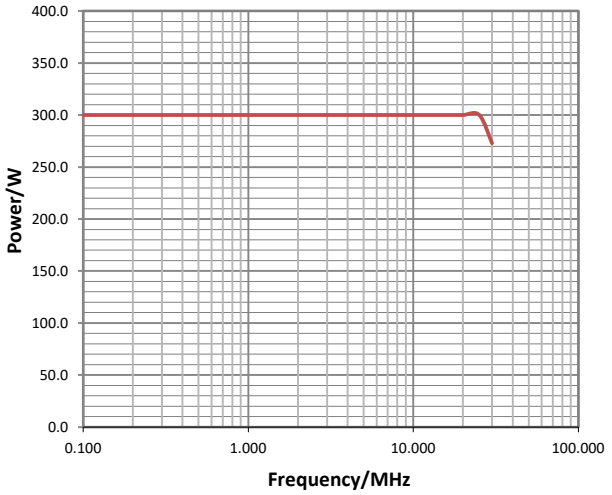
Type	Class AB MOSFET
Rated Power	250W minimum PEP for input power of 0dBm Output power is limited to approx. 300W
P1dB	200W minimum Minimum output power at P1dB compression
Gain	54dB minimum
Frequency	100kHz-30MHz
Gain flatness	±1.5dB maximum (measured at 1/10th rated output power)
Pulse droop (in pulsed operation)	0.5dB maximum Measured at max. pulse width at P1dB level
Pulse rise and fall times (in pulsed operation)	Risetime: 200ns typical Falltime: 100ns typical using a pre-gated RF input signal
Gate rise and fall times (in pulsed operation)	Risetime: 300ns typical Falltime: 150ns typical
Gate delay (in pulsed operation)	Rising edge: 1µs typical Falling edge: 500ns typical Rising edge measured from rising edge of GATE pulse to 90% RF output voltage. Falling edge measured from falling edge of GATE pulse to 10% RF output voltage
Harmonics	Odd: -20dBc typical, -10dBc max. Even: -30dBc typical, -20dBc max.
Spurious	<-70dBc maximum
Output noise (blanked)	<10dB above thermal (100kHz bandwidth)
Phase change/power	<10˚ from -40dB to full power
Phase stability	<1˚ across 100ms pulse
Output sample	-50dB into 50 Ω (forward voltage sample)
Input/output impedance	50 Ω nominal
Load VSWR	Tolerates at least 2:1 @ full rated power without foldback
Gain control range	10dB minimum for 0-5V control voltage Control via parallel interface
RF Input	0dBm nominal, 10dBm for no damage
GATE (blanking)	Logic low = Blank, logic high = unblank. CMOS and TTL compatible

Electrical Specifications

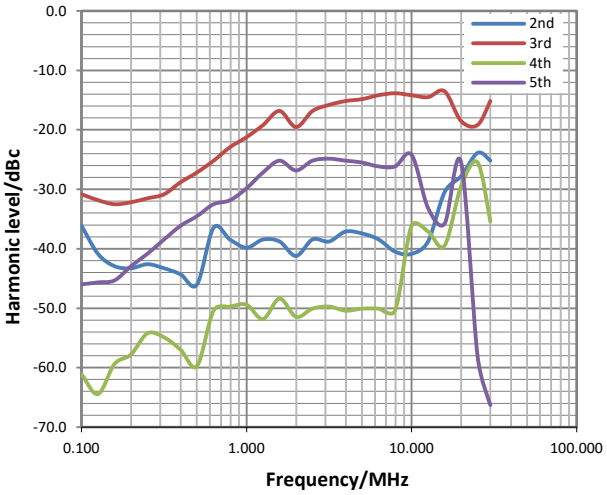
Mains supply voltage	110-240V, 50-60Hz, single phase
Rated Power	1kVA maximum
Mains inlet	1 x IEC inlet (mains power cord supplied)

Typical Performance Plots

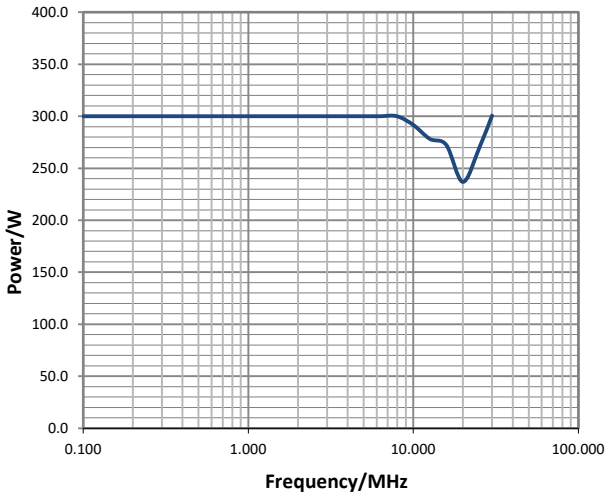
Peak output power for 0dBm RF drive



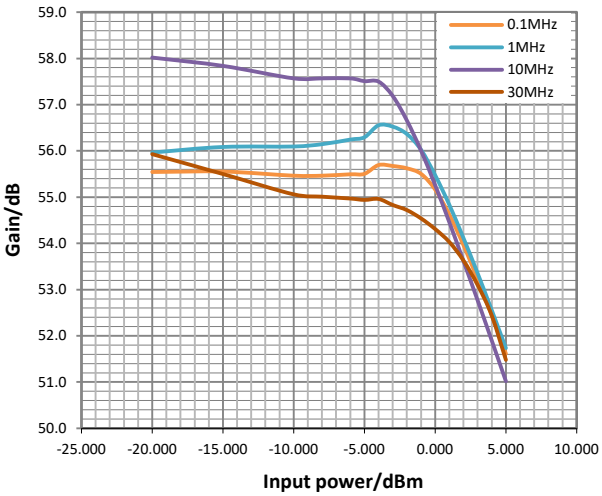
Harmonics



Peak output power at 1dB compression



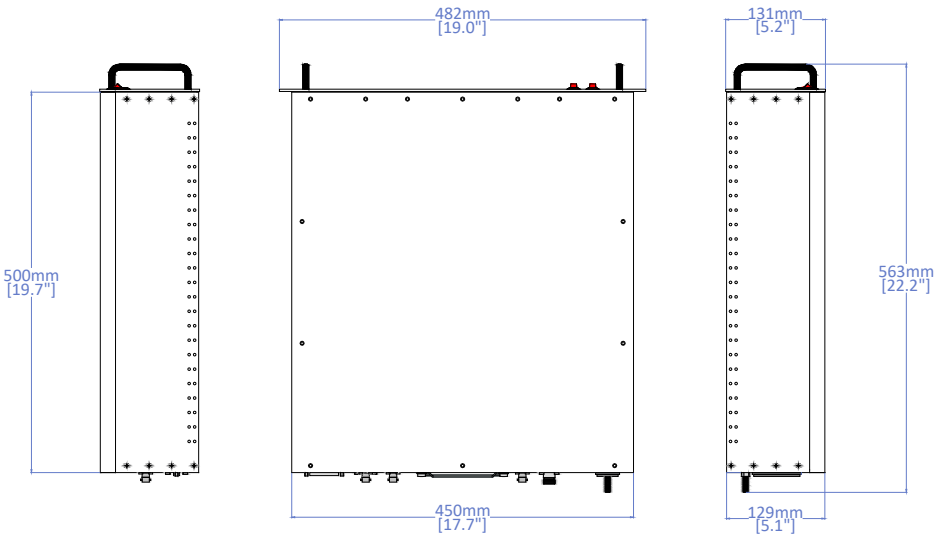
Gain as a function of input power

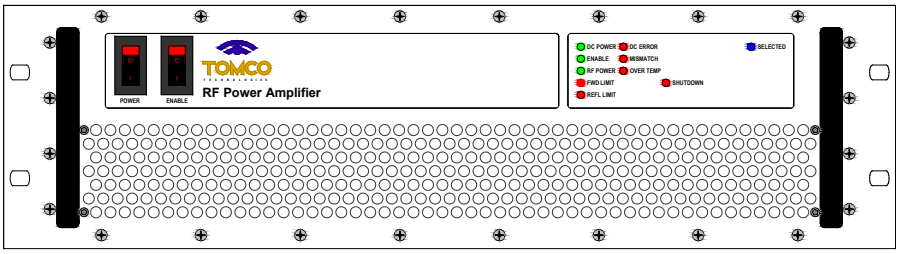


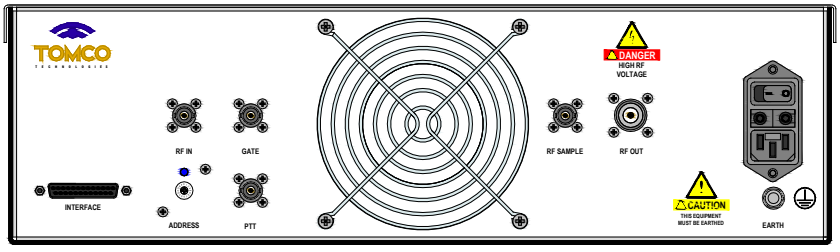
RF Amplifier Data Sheet

Mechanical Specifications

Connectors	RF IN: BNC female GATE: BNC female PTT: BNC female RF SAMPLE: BNC female RF OUT: N type female INTERFACE: DB25 female Other connectors types available on request
Dimensions	Chassis size: 450mmW (17.7”W) x 500mmD (19.7”D) x 129mmH (5.1”H) Total size: 482mmW (19”W) x 563mm (22.2”D) x 131mm (5.2”H) Rack compatibility: 19” 3RU
Weight	approx. 17kg (38lbs)
Enclosure classification	IP20







Protection

Load VSWR	Tolerates up to VSWR 2:1 at full rated power without foldback Self-resetting foldback protection which automatically reduces amplifier gain activates if VSWR limits are exceeded Under these conditions the REFL LIMIT LED activates An additional circuit provides self-resetting shutdown protection against fast transient reflected power Under these conditions the MISMATCH LED activates
Over temperature	Self-resetting shutdown protection activates if thermal limits are exceeded
Forward power limiting	Limits forward output power to a maximum level

Monitoring and Control

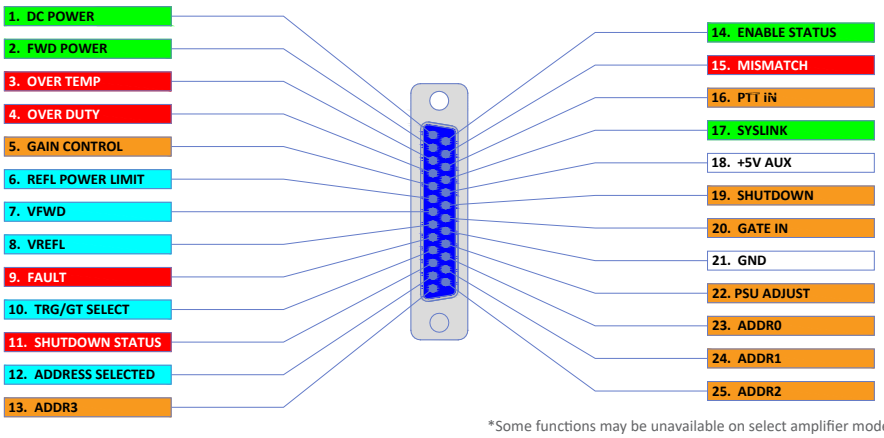
Front panel switches	Power (turns on DC power) Enable (enables RF)
Front panel LEDs	• DC POWER • ENABLE • RF POWER • FWD LIMIT • REFL LIMIT • DC ERROR • MISMATCH • OVER TEMP • SELECTED • SHUTDOWN
Parallel interface	25-pin D-connector (pinout available at www.tomcorf.com/pdf/interface.pdf)*

Output signal indicating normal operation

Output signal indicating fault condition

Output signal for information only

Input signal



*Some functions may be unavailable on select amplifier models

Environmental

General	Intended for use only in controlled, indoor environment. Non-consumer product for industrial and scientific use. This product is not authorised for stand-alone on-air use. Additional systems, hardware and considerations are required to meet local spectral management regulations. Compliance of the final complete system is the responsibility of the end user.
Cooling	Forced air, front to rear
Operating temperature	+5^{0}C to +40^{0}C
Storage temperature	-20^{0}C to +60^{0}C
Humidity	80% for temperature up to 31^{0}C, decreasing linearly to 50% relative humidity at 40^{0}C
Operating altitude	Up to 2000m
Pollution degree	2
Transient voltage compatibilty	Category II, in line with IEC 60364-4-44:2007
Electromagnetic compatibility	In line with IEC61326-1:2012 ISM equipment, Group 1, Class A For use only in shielded areas. ENC55011 (CISPR 11) limits exceeded by up to 40dB
Safety	In line with IEC61010-1:2010
Electromagnetic field strength	In line with ICNIRP Guidelines: 1998, occupational limits

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Change record

Document/Issue number	Originator	Date	Change
DS006698A	JR	19/07/18	Original
DS006698B	LS	6/5/20	Pg 4 e