RF Amplifier Data Sheet

TOMCO

BT-AlphaA Series
10kHz-3MHz
250W, 500W

- NMR, MRI, EPR
- Radar
- Ultrasonics
- Test & Measurement



The BT-AlphaA series is a range of class AB RF power amplifiers covering the 10kHz to 3MHz 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

Suitable for NMR, MRI, NQR, EPR, pulsed radar, ultrasonics and other scientific applications.

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BT-AlphaA Series

Model numbers	BT00250-AlphaA / BT00500-AlphaA
Rated power	250W / 500W minimum[1]
P1dB	200W / 400W minimum[2]
Gain	54dB / **57dB** minimum
Type	Class AB MOSFET
Frequency	10kHz-3MHz[3]
Gain flatness	±1.5dB maximum (measured at 1/10th rated output power)
Max. duty cycle	20%[4]
Max. pulse width	100ms[5]
Rated power in CW mode	25W / 50W[6]
Pulse droop	0.5dB maximum across 100ms pulse[7]
Pulse rise and fall times	100ns typical using a pre-gate RF input signal
Gate delay	Rising edge: 2µs typical Falling edge: 1µs typical[8]
Harmonics	Odd: -20dBc typical, -12dBc maximum Even:-30dBc typical, -20dBc maximum
Spurious	<-70dBc maximum
Output noise (blanked)	<10dB above thermal (100kHz bandwidth)
Phase change/power	<5˚ 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[8]
Load VSWR	Tolerates at least 3:1 @ full rated power without shut down[9]
Remote interface	Parallel status monitoring via 25 pin D connector[10]
Connectors	RF output: N type RF input, gate, sample:BNC[11]
Cooling	Forced air
Indicators	DC Power, RF Power, Enable, Selected, Mismatch, Over-temp, Over-duty, Shutdown
Protection	Load VSWR, duty-cycle, pulse width, over-temperature
Gain control range	10dB minimum for 0-5V control voltage
RF drive RF gate (blanking)	0dBm nominal, 10dBm for no damage 0-5V CMOS
Physical	19” Wx 500mmD x 180mmH (3RU x 19” rack mounting), 13kg / 17kg
Mains power	110-240V, 50-60Hz, single phase, 1kVA / 2kVA max.[12]
Compliance	CE

1. PEP for input power of 1mW
2. Minimum output power at 1dB gain compression
3. The amp provides useful power outside this range, but performance is not guaranteed
4. Duty cycle is internally limited in pulsed mode
5. Maximum gate pulse width in pulsed mode (internally limited)
6. CW mode automatically enabled at output power level less than approx.10% of full rated power
7. Measured at max. pulse width at nominal P1dB level
8. 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
9. Self resetting protection shuts the amplifier off if the load SWR is excessive
10. Pin out at www.tomcorf.com/pdf/interface.pdf
11. Other connector types available on request
12. 3-pin IEC. mains supply must include an earth