



RF Amplifier Data Sheet

BT-AlphaSA series

500kHz-150MHz

250W, 500W

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



The BT-AlphaSA series is a range of class AB RF power amplifiers covering the 500kHz to 150MHz frequency range

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

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

BT-AlphaSA series

| | |
|--------------------------------|--|
| Model numbers | BT00250-AlphaSA/BT00500-AlphaSA |
| Rated power | 250/500W minimum ¹ |
| P1dB | 200/400W minimum ² |
| Type | Class AB MOSFET |
| Frequency | 500kHz-150MHz ³ |
| Gain flatness | ±2dB 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 ⁷ |
| Pulse rise and fall times | 200ns risetime, 100ns falltime typical using a pre-gated RF input signal |
| Gate delay | Rising edge: 1200ns typical Falling edge: 200ns typical ⁸ |
| Harmonics | Odd: -10dBc maximum, Even:-20dBc maximum |
| Spurious | <-70dBc maximum |
| Output noise (blanked) | <10dB above thermal (1MHz 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 |
| Load SWR | 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 |
| Gain control range | 10dB typical for 0-5V control voltage |
| RF drive RF gate (blanking) | 0dBm nominal, 10dBm for no damage 0-5V CMOS |
| Physical | 19" Wx 500mmD x 128mmH (3RU x 19" rack mounting),15/18kg |
| 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. Duty cycle limit increases to approx.30% for short pulses
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



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