



# RF Amplifier Data Sheet

## BT-AlphaS series

### 1MHz-30MHz

### 8kW

- NMR, MRI, EPR
- Radar
- Ultrasound
- Plasma/accelerators

The BT-AlphaS series is a range of all solid-state, class AB RF power amplifiers. The model presented covers 1-30MHz.

- 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 pulsed radar, NMR, MRI, NQR, EPR, ultrasound systems, plasma systems and other scientific applications.

BT-AlphaS series	
Model numbers	BT08000-AlphaS
Rated power	8kW minimum <sup>1</sup>
P1dB	6.4kW minimum <sup>2</sup>
Type	Class AB MOSFET
Frequency	1MHz-30MHz <sup>3</sup>
Gain flatness	±2dB maximum (measured at 1/10th rated output power)
Max. duty cycle	3% <sup>4</sup>
Max. pulse width	3s <sup>5</sup>
Pulse droop	1.0dB maximum <sup>7</sup>
Pulse rise and fall times	100ns typical using a pre-gate RF input signal
Gate delay	Rising edge: 800ns typical    Falling edge: 100ns typical <sup>8</sup>
Harmonics	Odd: -20dBc typical, -10dBc maximum Even:-30dBc typical, -20dBc maximum
Spurious	<-70dBc maximum
Output noise (blanked)	<10dB above thermal (1MHz bandwidth)
Phase change/power	<5° from -40dB to full power
Phase stability	<51° across 3s pulse
Output sample	-50dB into 50Ω (forward voltage sample)
Input/output impedance	50 Ω nominal
Load SWR	Tolerates at least 3:1 @ full rated power without shut down <sup>9</sup>
Remote interface	Parallel status monitoring via 25 pin D connector <sup>10</sup>
Connectors	RF output: N type                      RF input, gate, sample:BNC <sup>11</sup>
Cooling	Forced air
Indicators	DC Power, Output Enable, RF Power, Over-temp, Over-duty, Load mismatch
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	Supplied in a 19 inch rack of dimensions:- 19" Wx 600mmD x 945mmH (20RU),110kg
Mains power	110-240V, 50-60Hz, single phase, 24kVA max. <sup>12</sup>
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. N/A  
 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. Can handle 100% mismatch for up to 20 microseconds. Self resetting protection shuts off amplifier.  
 10. Pin out at [www.tomcorf.com/pdf/interface.pdf](http://www.tomcorf.com/pdf/interface.pdf)  
 11. Other connector types available on request  
 12. 24 x 3-pin IEC. Mains supply must include an earth. Mains junction box can be supplied