

**型号: BT00500-AlphaA**  
**频率: 0.01MHz-3MHz**  
**功率: 500W**

## • 科学和工业应用



BT-AlphaA 系列是涵盖 10kHz 至 3MHz 频率范围的 AB 类射频功率放大器系列。

- 坚固的固态设计 - 高可靠性
- 极高的相位和幅度稳定性
- 非常快的脉冲上升/下降时间
- 高线性度
- 非常低的脉冲间噪声
- 具有竞争力的价格

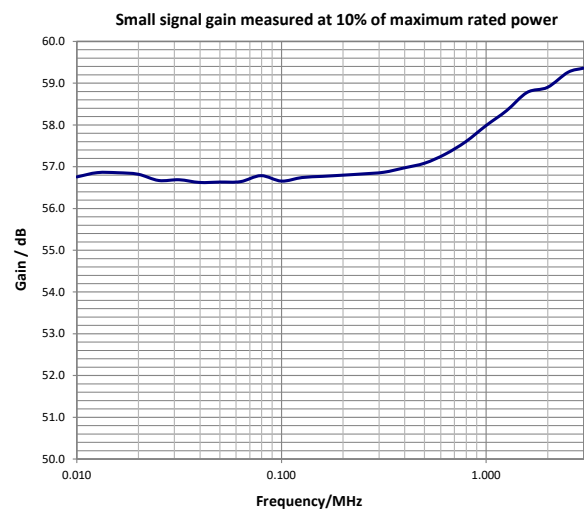
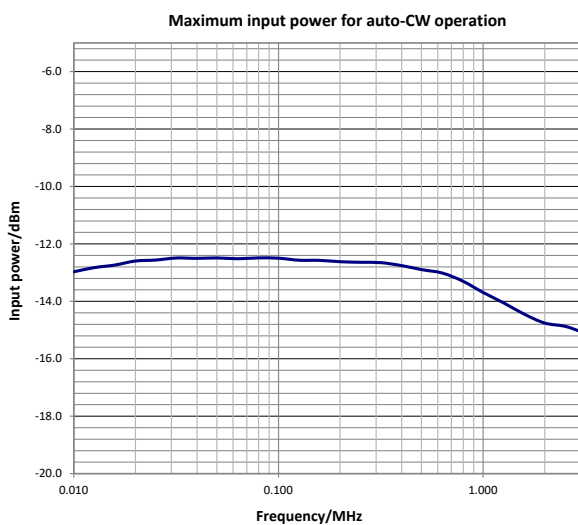
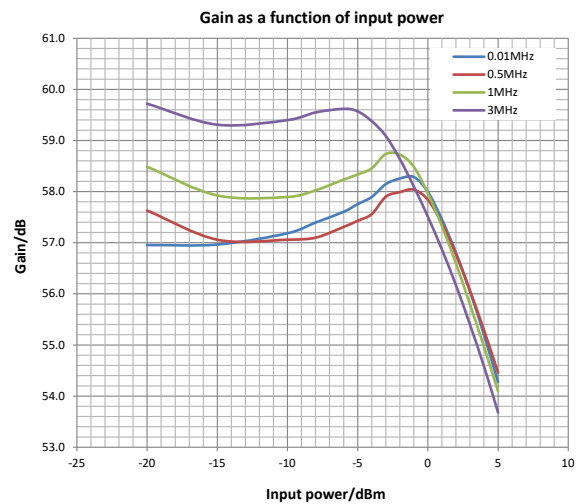
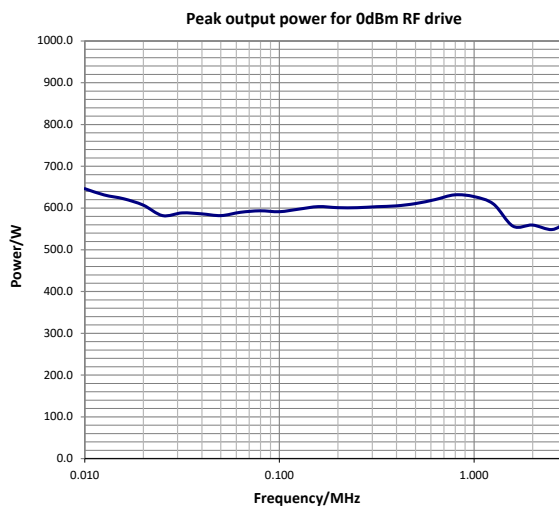
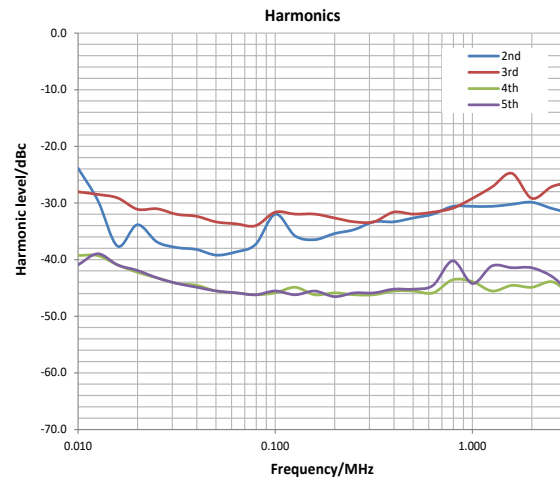
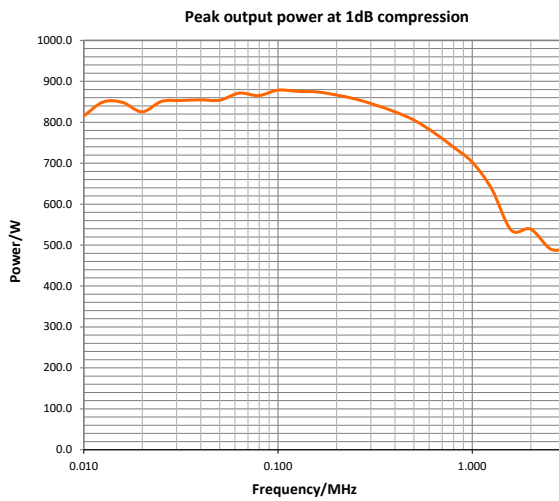
### RF Specifications

|            |                                                                                                                                                                                                                            |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 类型         | Class AB MOSFET                                                                                                                                                                                                            |
| 额定功率       | 500W minimum<br>PEP for input power of 0dBm                                                                                                                                                                                |
| P1dB       | 400W minimum<br>Minimum output power at P1dB compression                                                                                                                                                                   |
| 增益         | 57dB minimum                                                                                                                                                                                                               |
| 频率         | 0.01MHz-3MHz                                                                                                                                                                                                               |
| 增益平稳度      | ±1.5dB maximum (measured at 1/10th rated output power)                                                                                                                                                                     |
| 最大占空比      | 20%<br>Maximum GATE duty cycle                                                                                                                                                                                             |
| 最大脉冲宽度     | 100ms<br>Maximum GATE pulse width                                                                                                                                                                                          |
| CW模式下的额定功率 | 25W<br>CW operation is automatically available at output power level less than approx. 10% of full rated power                                                                                                             |
| 脉冲下降       | 0.5dB maximum<br>Measured at max. pulse width at P1dB level                                                                                                                                                                |
| 脉冲上升和下降时间  | Risetime: 200ns typical<br>Falltime: 100ns typical<br>using a pre-gated RF input signal                                                                                                                                    |
| 门上升和下降时间   | Risetime: 300ns typical<br>Falltime: 150ns typical                                                                                                                                                                         |
| 门延迟        | Rising edge: 1µs typical<br>Falling edge: 500ns typical<br>Rising edge measured from rising edge of GATE pulse to 90% RF output voltage.<br>Falling edge measured from falling edge of GATE pulse to 10% RF output voltage |
| 谐波         | Odd: -20dBc typical, -10dBc max.<br>Even: -30dBc typical, -20dBc max.<br>Measured at 1dB below rated output power                                                                                                          |
| 杂散         | <-70dBc maximum                                                                                                                                                                                                            |
| 输出噪声（消隐）   | <10dB above thermal (100kHz bandwidth)                                                                                                                                                                                     |
| 相变/功率      | <10° from -40dB to full power                                                                                                                                                                                              |
| 相位稳定性      | <1° across 100ms pulse                                                                                                                                                                                                     |
| 输出样本       | -50dB into 50 Ω (forward voltage sample)                                                                                                                                                                                   |
| 输入/输出阻抗    | 50 Ω nominal                                                                                                                                                                                                               |
| 负载驻波比      | Tolerates at least 3:1 @ full rated power without shut down                                                                                                                                                                |
| 增益控制范围     | 10dB minimum for 0-5V control voltage<br>Control via parallel interface                                                                                                                                                    |
| 射频输入       | 0dBm nominal, 10dBm for no damage                                                                                                                                                                                          |
| 门（消隐）      | Logic low = Blank, logic high = unblank. CMOS and TTL compatible                                                                                                                                                           |

### 电气规格

|      |                                           |
|------|-------------------------------------------|
| 电源电压 | 110-240V, 50-60Hz, single phase           |
| 额定功率 | 2kVA maximum                              |
| 电源入口 | 1 x IEC inlet (mains power cord supplied) |

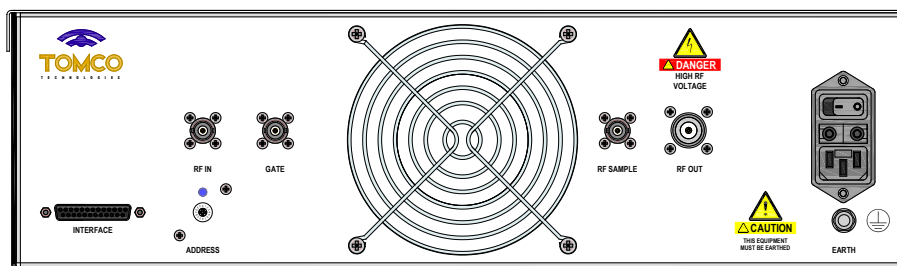
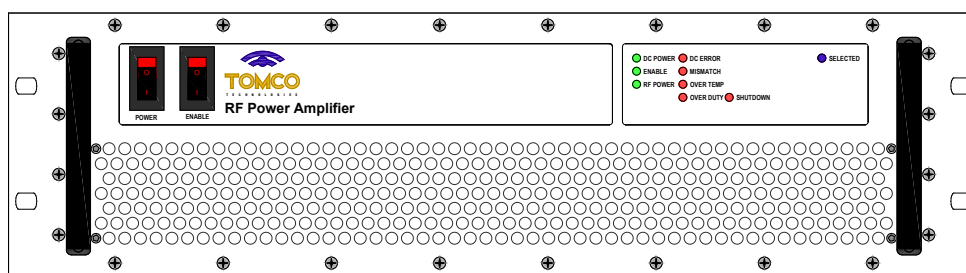
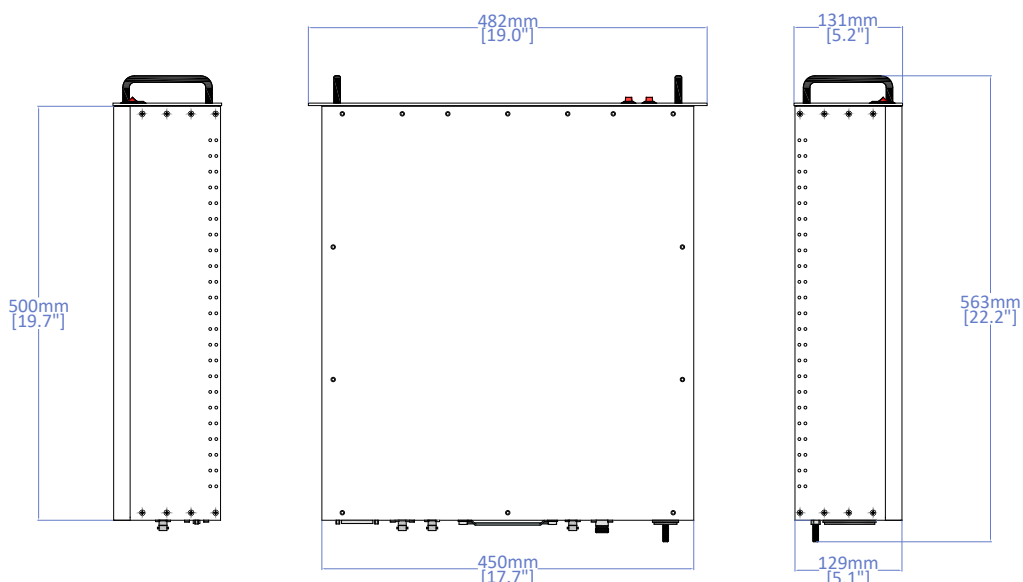
## Typical Performance Plots



# RF Amplifier Data Sheet

## Mechanical Specifications

|      |                                                                                                                                                                      |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 连接器  | RF IN: BNC female<br>GATE: BNC female<br>RF SAMPLE: BNC female<br>RF OUT: N type female<br>INTERFACE: DB25 female<br><br>Other connectors types available on request |
| 尺寸   | Chassis size: 450mmW (17.7"W) x 500mmD (19.7"D) x 129mmH (5.1"H)<br>Total size: 482mmW (19"W) x 563mm (22.2"D) x 131mm (5.2"H)<br>Rack compatibility: 19" 3RU        |
| 重量   | approx. 17kg (38lbs)                                                                                                                                                 |
| 防护等级 | IP20                                                                                                                                                                 |



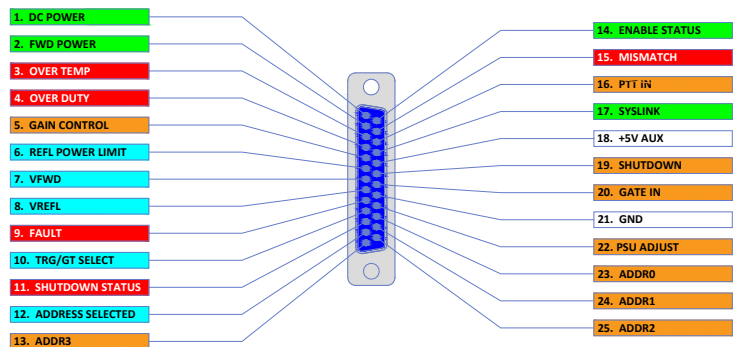
## 保护

|       |                                                                                                                                                                                                                                                                                       |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 负载驻波比 | Tolerates up to VSWR 3:1 at full rated power without shutdown<br>Self-resetting shutdown protection activates if VSWR limits are exceeded                                                                                                                                             |
| 过温    | Self-resetting shutdown protection activates if thermal limits are exceeded                                                                                                                                                                                                           |
| 占空比   | Duty cycle limit is determined from the GATE signal duty cycle. Self-resetting shutdown protection activates if duty cycle limit is exceeded<br>If output power is less than approx. 10% of maximum rated power, duty cycle protection is disabled and auto-CW operation is available |
| 脉冲宽度  | Pulse width limit is determined from the GATE signal pulse width. Self-resetting shutdown protection activates if pulse width limit is exceeded                                                                                                                                       |

## Monitoring and Control

|                      |                                                                                                                                                                                                            |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Front panel switches | Power (turns on DC power)<br>Enable (enables RF)                                                                                                                                                           |
| Front panel LEDs     | <ul style="list-style-type: none"> <li>DC POWER</li> <li>ENABLE</li> <li>RF POWER</li> <li>DC ERROR</li> <li>MISMATCH</li> <li>OVER TEMP</li> <li>OVER DUTY</li> <li>SELECTED</li> <li>SHUTDOWN</li> </ul> |
| Parallel interface   | 25-pin D-connector (pinout available at <a href="http://www.tomcof.com/pdf/interface.pdf">www.tomcof.com/pdf/interface.pdf</a> )*                                                                          |

|                                                                                    |                                           |
|------------------------------------------------------------------------------------|-------------------------------------------|
|  | Output signal indicating normal operation |
|  | Output signal indicating fault condition  |
|  | Output signal for information only        |
|  | Input signal                              |



## Environmental

\*Some functions may be unavailable on select amplifier models

|                                 |                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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°C to +40°C                                                                                                                                                                                                                                                                                                                                                          |
| Storage temperature             | -20°C to +60°C                                                                                                                                                                                                                                                                                                                                                         |
| Humidity                        | 80% for temperature up to 31°C, decreasing linearly to 50% relative humidity at 40°C                                                                                                                                                                                                                                                                                   |
| Operating altitude              | Up to 2000m                                                                                                                                                                                                                                                                                                                                                            |
| Pollution degree                | 2                                                                                                                                                                                                                                                                                                                                                                      |
| Transient voltage compatibility | Category II, in line with IEC 60364-4-44:2007                                                                                                                                                                                                                                                                                                                          |
| Electromagnetic compatibility   | In line with IEC61326-1:2012<br>ISM equipment, Group 1, Class A<br>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                                                                                                                                                                                                                                                                                                              |

Change record

| Document/Issue number | Originator | Date       | Change   |
|-----------------------|------------|------------|----------|
| DS006662A             | JR         | 10/07/2018 | Original |
| DS006662B             | JR         | 24/07/2019 | p.4:EM   |
| DS006662C             | LS         | 08/04/2020 | p.4:E    |
| DS006662D             | DW         | 10/09/2020 | p.1:RFS  |
| DS006662E             | LS         | 12/01/2021 | p.1:H    |
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