

## Solid State High Power Amplifier Systems

**13.5-14.5GHz/60dB Gain/60dBm Psat/380V AC****Model: TLPA13.5G14.5G-60-60-BC**

TLPA13.5G14.5G-60-60-BC is a solid state high power amplifier systems provides high output power and high gain across the 13.5 to 14.5 GHz frequency range. The amplifier features a built-in 380V power supply, making it easy to use in most lab environments. This model features thermal self protection, preventing damage to the amplifier and providing added reliability.

### Features:

- Frequency range:13.5-14.5 GHz
- Gain: 60 dB Min
- Psat Output Power: 60 dBm Min
- Protection:Over TEM,input overdrive,over voltage, under voltage ,load VSWR protection
- 50 Ohm Matched Input / Output

### 电气特性 Electrical Characteristics:

| 参数 Parameter                                     | 代码 Symbol   | Min                                         | Typ | Max        | 单位 Units |
|--------------------------------------------------|-------------|---------------------------------------------|-----|------------|----------|
| 频率范围 Frequency range                             | BW          | 13.5-14.5                                   |     |            | GHz      |
| 线性增益平坦度<br>Linear Gain flatness                  | $\Delta$ GL | $\pm 0.3@40\text{MHz}$ ; $\pm 2@full\ band$ |     |            | dB       |
| 功率增益 Power Gain                                  | Gp          | 60                                          |     |            | dB       |
| 增益调节范围 Gain adjust Range                         | $\Delta$ GR | 20                                          |     |            | dB       |
| 增益调节步进 Gain adjust Step                          | $\Delta$ GS |                                             | 0.5 |            | dB       |
| 饱和输出功率 Output Psat                               | Psat        | 60                                          |     |            | dBm      |
| 杂散 Spurious@Pout=60dBm                           | Spur        |                                             |     | -60        | dBc      |
| 谐波 Harmonics@Pout=60dBm                          | HAM         |                                             |     | -30        | dBc      |
| 增益稳定度 Gain stability@24h                         | Gstb        |                                             |     | $\pm 0.25$ | dB       |
| 双音互调<br>Two-tone intermodulation<br>(5MHz space) | IMD         | -25 dBc max at total output power 56dBm     |     |            | dBc      |
| 输入驻波 Input VSWR                                  | VSWRin      |                                             |     | 1.5        | :1       |
| 输出驻波 Output VSWR                                 | VSWRout     |                                             | 1.5 | 2          | :1       |
| 交流电压 AC Voltage<br>@3-phase (50-60Hz)            | Vac         |                                             | 380 | 420        | V AC     |
| 功耗 Power<br>Consumption@Pout=60dBm               | Pdiss       |                                             |     | 8          | kW       |
| 功耗 Power Consumption@Psat                        | Pdiss       |                                             |     | 9          | kW       |
| 阻抗 Impedance                                     | I/O-IMP     | 50                                          |     |            | Ohms     |

## 机械特性 Mechanical Specifications:

| 参数 Parameter                         | 指标 Value                     | 单位 Units |
|--------------------------------------|------------------------------|----------|
| 输入/输出接口 Input /Output Connector      | N Female WR62                |          |
| 正向/反向耦合 Forward/Reverse Coupling     | N Female/N Female            |          |
| 通信接口 Communication Connector         | Serial:RS422;Ethernet: RJ-45 |          |
| 液晶显示屏 Front Panel LCD Screen Display | 7 inch LCD Screen Display    |          |
| 交流供电接口 AC Power Connector            | Y50DX-3205                   |          |
| 尺寸 Size                              | 20U                          |          |
| 重量 Weight                            | ≤350                         | Kg       |

## 绝对最大值 Absolute Maximum Ratings:

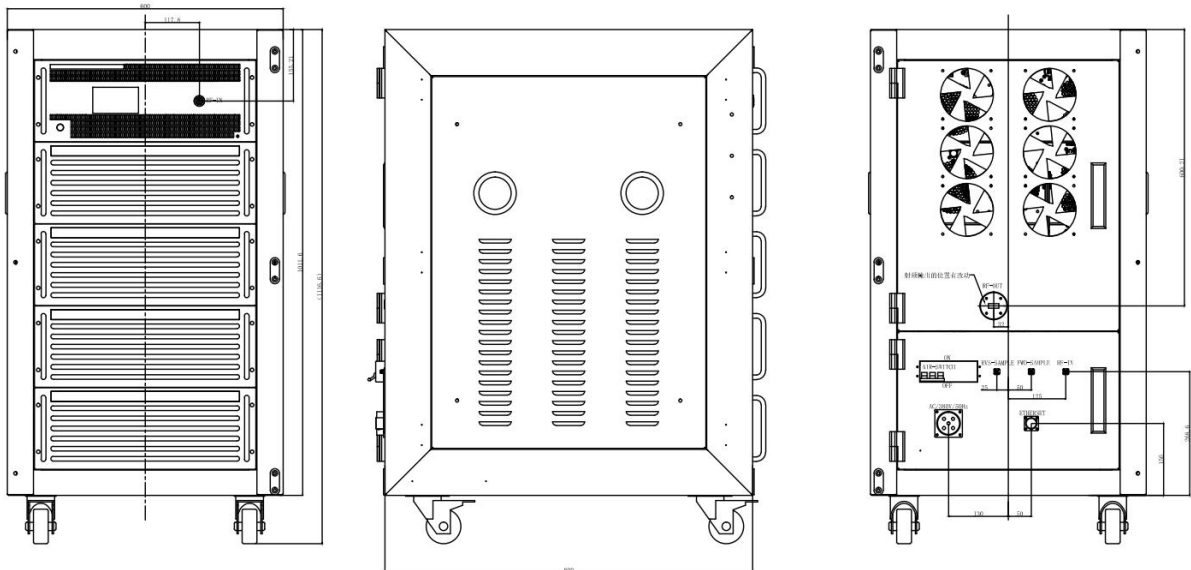
| 参数 Parameter                 | 指标 Value             |
|------------------------------|----------------------|
| 输入功率 RF Input Power          | +5 dBm               |
| ESD灵敏度 ESD sensitivity (HBm) | Class 0, passed 150V |

## 主要功能 Key Features:

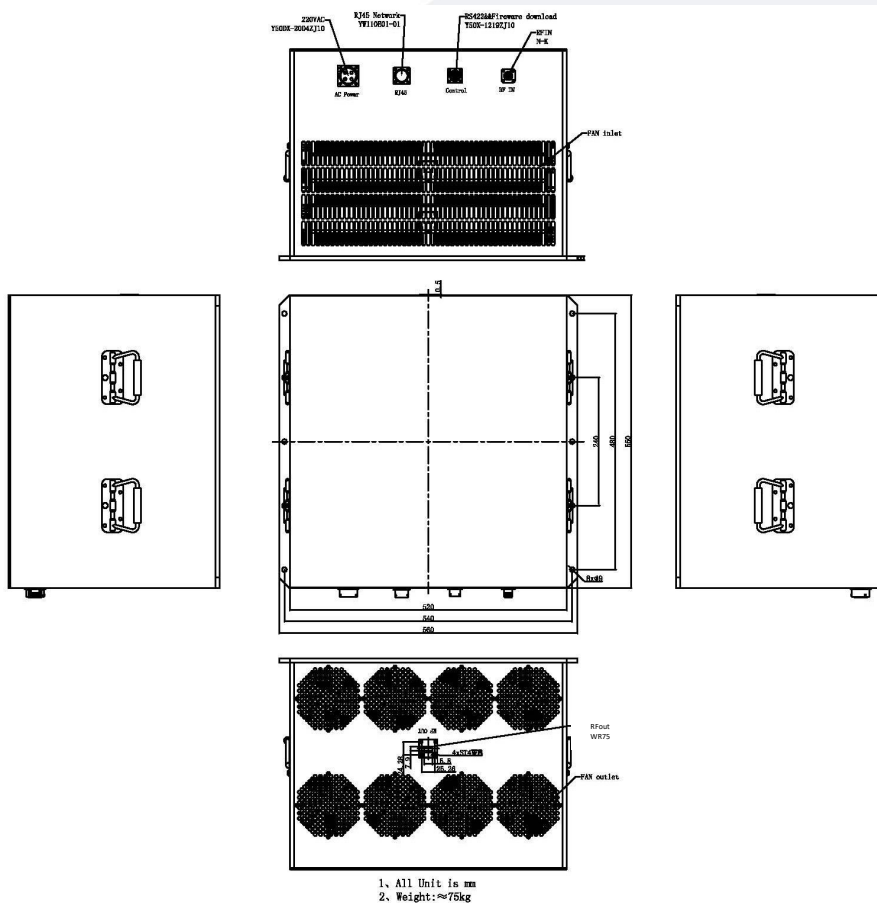
| 参数 Parameter                | 特点 Advantages                                                                                                                                                                                                                                                                                                                            |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 控制功能 Control functions      | 1, Power setting On/Off                                                                                                                                                                                                                                                                                                                  |
| 内置保护功能 Protection functions | 1, Over TEM: $\geq +55^{\circ}\text{C}$ shutdown<br>2, Over DC voltage: $\geq 29\text{V}$ shutdown<br>3, Under DC voltage: $\leq 20\text{V}$ shutdown<br>4, Input overdrive: $\geq 10\text{dBm}$ shutdown<br>5, Load VSWR protection: The unit disables RF when reverse power exceeds the safe level of 3:1 VSWR or reduces power by 6dB |
| 监控功能 Monitoring function    | 1, Input voltage<br>2, Input current<br>3, Input power(rf)<br>4, output VSWR<br>5, output power<br>6, reverse power<br>7, status of gate voltages<br>8, temp                                                                                                                                                                             |
| 监控和控制 Remote control        | RS422/LAN                                                                                                                                                                                                                                                                                                                                |
| 冷却系统 Cooling system         | Built in Cooling system, forced air cooling                                                                                                                                                                                                                                                                                              |

## 外形图 Outline Drawing:

Unit:mm



### Vesion 1



### Vesion 2(designing, current outline is not correct)

## 温度环境 Environmental Conditions:

| 参数 Parameter                       | Min                                                 | Typ | Max | 单位 Units |
|------------------------------------|-----------------------------------------------------|-----|-----|----------|
| 操作温度 Operating Temperature*        | -20                                                 |     | +50 | °C       |
| 存储温度 Non-operating Temperature*    | -40                                                 |     | +70 | °C       |
| 相对湿度 Relative humidity             |                                                     | 95  |     | %        |
| 海拔 Altitude                        | 10,000                                              |     |     | feet     |
| 震动 Shock / Vibration(MIL-STD-810F) | 25g rms (15 degree 2KHz) endurance, 1 hour per axis |     |     |          |
| 冲击 Shock(non operating)            | 20G for 11msc half sin wave,3 axis both directions  |     |     |          |

\*Note: For a wider temperature range, please consult the manufacturer.

## 订货信息 Ordering Information:

| 标准型号 Base Number        | 描述 Description                                                                                           | 版本号 Revision |
|-------------------------|----------------------------------------------------------------------------------------------------------|--------------|
| TLPA13.5G14.5G-60-60-BC | Solid State High Power Amplifier Systems 13.5-14.5GHz,Gain:60dB,Psat:60 dBm,380V AC,Built in Fan Cooling | Rev.1.2      |