

## 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

### Electrical Characteristics:

| Parameter                             | Symbol      | Min                                     | Typ                                          | Max        | Units |
|---------------------------------------|-------------|-----------------------------------------|----------------------------------------------|------------|-------|
| Frequency range                       | BW          | 13.5-14.5                               |                                              |            | GHz   |
| Linear Gain flatness                  | $\Delta GL$ |                                         | $\pm 0.3@40\text{MHz}$<br>$\pm 2@full\ band$ |            | dB    |
| Power Gain                            | Gp          | 60                                      |                                              |            | dB    |
| Gain adjust Range                     | $\Delta GR$ | 20                                      |                                              |            | dB    |
| Gain adjust Step                      | $\Delta GS$ |                                         | 0.5                                          |            | dB    |
| Output Psat                           | Psat        | 60                                      |                                              |            | dBm   |
| Spurious@Pout=60dBm                   | Spur        |                                         |                                              | -60        | dBc   |
| Harmonics@Pout=60dBm                  | HAM         |                                         |                                              | -30        | dBc   |
| Gain stability@24h                    | Gstb        |                                         |                                              | $\pm 0.25$ | dB    |
| Two-tone intermodulation (5MHz space) | IMD         | -25 dBc max at total output power 56dBm |                                              |            | dBc   |
| Input VSWR                            | VSWRin      |                                         |                                              | 1.5        | :1    |
| Output VSWR                           | VSWRout     |                                         | 1.5                                          | 2          | :1    |
| AC Voltage @3-phase (50-60Hz)         | Vac         |                                         | 380                                          | 420        | V AC  |
| Power Consumption@Pout=60dBm          | Pdiss       |                                         |                                              | 8          | kW    |
| Power Consumption@Psat                | Pdiss       |                                         |                                              | 9          | kW    |
| Impedance                             | I/O-IMP     | 50                                      |                                              |            | Ohms  |

## Mechanical Specifications:

| Parameter                      | Value                        | Units |
|--------------------------------|------------------------------|-------|
| Input /Output Connector        | N Female/WR62                |       |
| Forward/Reverse Coupling       | N Female/N Female            |       |
| Communication Connector        | Serial:RS422;Ethernet: RJ-45 |       |
| Front Panel LCD Screen Display | 7 inch LCD Screen Display    |       |
| AC Power Connector             | Y50DX-3205                   |       |
| Size                           | 20U                          |       |
| Weight                         | ≤350                         | Kg    |

## Absolute Maximum Ratings:

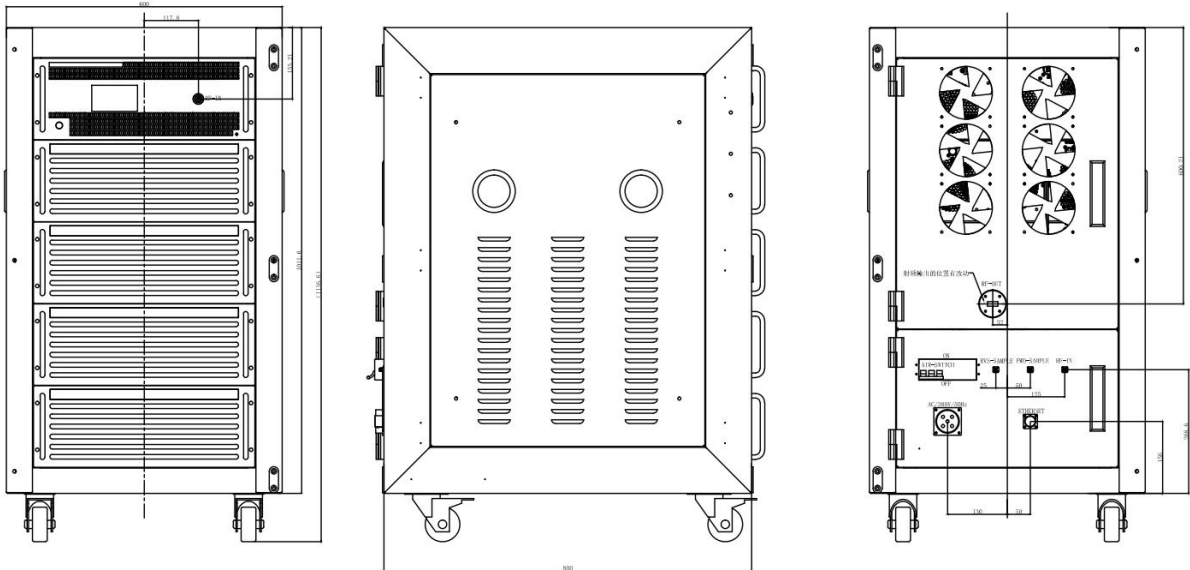
| Parameter             | Value                |
|-----------------------|----------------------|
| RF Input Power        | +5 dBm               |
| ESD sensitivity (HBm) | Class 0, passed 150V |

## Key Features:

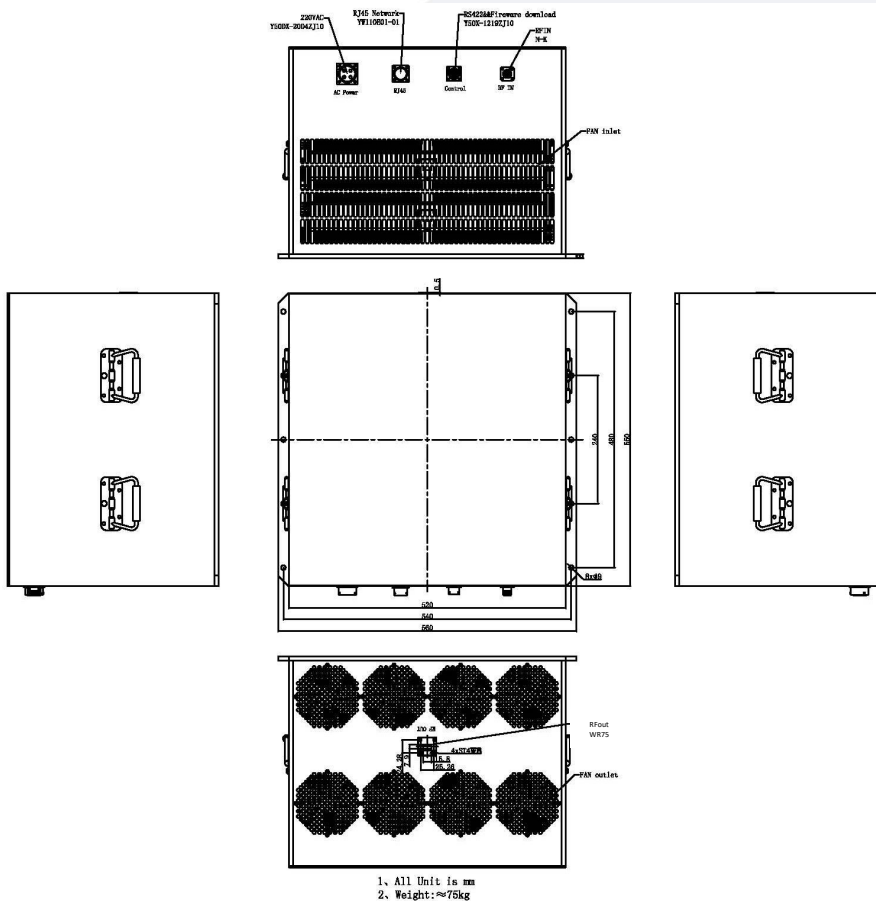
| Parameter            | Advantages                                                                                                                                                                                                                                                         |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control functions    | 1, Power setting On/Off                                                                                                                                                                                                                                            |
| Protection functions | 1,Over TEM:≥+55℃ shutdown<br>2,Over DC voltage:≥29V shutdown<br>3,Under DC voltage:≤20V shutdown<br>4,Input overdrive:≥10dBm 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 |
| Monitoring function  | 1,Input voltage<br>2,nput 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                                                                                                                |
| Remote control       | RS422/LAN                                                                                                                                                                                                                                                          |
| Cooling system       | Built in Cooling system,forced air cooling                                                                                                                                                                                                                         |

## Outline Drawing:

Unit:mm



## Vesion 1



Vesion 2(designing, current outline is not correct)

## Environmental Conditions:

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

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

## Ordering Information:

| Base Number             | Description                                                                                              | 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  |