



Solid State RF Amplifier

70 – 80 MHz, 1000 Watt

Highlights

- **Maximum RF Output Power : 1000 Watt CW**
- Frequency of operation: 70-80 MHz
- Typical Gain > 40 dB
- Gain Flatness : ± 1 dB
- Mode of operation : Class AB
- **Efficiency : 60% at Full Power**
- Protection against Over temperature
- Ruggedness: Handles extremely high VSWR
- Water-cooled , Over temperature protection

70 MHz to 80 MHz 1000 Watt solid state amplifier has been at VECC, Kolkata. Several amplifiers based on high power MOSFET are built. The necessary input and output impedance matching networks, splitter/combiner units and directional coupler have been designed. These amplifiers are general purpose and hence can be used for applications like communication, RF heating, Wireless charging, Plasma, particle accelerators etc. Similar amplifier units are installed in our institute and running satisfactorily for last one year. Indigenous design, low cost, low voltage, integrated safety feature and ease of operation are some of the notable features of this development.

Major Key Components used:

- High Frequency Ferrite Torroids: Fair-rite 61
- Low impedance co-axial transmission lines : 25 ohm, 16 ohm
- High Voltage Low Loss Mica/ Porcelain capacitors
- High Current (Ferrite) Inductors for RFC: Isat>30 Amps

- High Conductivity thermal grease: 10W/m²·K
- Specialized water cooled heat sink



Figure1. Solid State HF Amplifier

Specifications

- Frequency range: 70 – 80 MHz
- Typical Gain: 40 dB
- Gain Flatness: ± 1.5 dB
- Rated Output Power: 1000 W
- Input Power: 0-19 dBm (upto 5.6 Vpp) at 50 ohm
- Input RF connector: BNC
- Output RF connector: N type
- Input / Output Impedance: 50 ohm
- Power Read out: Digital (LCD)
- Interlocks: Temp internal NO/NC user configurable
- Power requirement: 4 kVA, 230 VAC 50 Hz
- Form Factor/ Dimensions: 19 inch rack mountable industrial cabinet 6U for main unit , 4U for control unit