- Crescend Technologies -

Mobile Power Amplifiers DSDTUL50 and DSDTUH50.

User Manual.

1. Unit Description.

The power amplifier (PA) is nonlinear AB to C class unit that is intended for frequency (phase) modulated (manipulated) signals amplification.

PA has the by-pass chain. If RF power, applied to the connector "XCVR" (Pin), is less than 50 mW, PA stays in bypass (RX) mode. When Pin exceeds 0.15 W, PA switches to TX (amplification) mode. Unit returns to RX mode in the case of overheat (when the heatsink temperature becomes +85ºC or greater).

PA has the automatic power control loop, which keeps the output power at the rated level. It reduces this level, when the load VSWR is above 2.

The general parameters of unit are listed below. The term *nominal* means the nominal power supply voltage and the heatsink temperature close to room temperature.

Frequency ranges of operation (F), MHz . . . . . 406.1-470 (UL), 450-512 (UH);
Input power (Pin), W . . . . . 1 - 5;
Output power at the normal operation (Pout-n), W, ... 50;
Relative harmonic level, dB, less than . . . . . -70;
DC power supply voltage (Sup), V:
- nominal 13.8;
- continuous, allowed . . . . . 10.5 – 17.0;
- pulse, not longer than 30 ms and on/off ratio less than 0.1 . . . . . 40;

Reversed polarity DC voltage acting, ms, not longer than 250;
DC current, A, not greater than:
- in RX mode 0.001;
- in TX mode 12;

Load VSWR, not greater than 2.5;
Input VSWR, less than 1.8;
Switching time between RX and TX mode, ms, not greater than 0.6;
Insertion loss in RX mode, dB, less than 1.0;
Continuous transmit time, min, not greater than 3;
Duty cycle, %, not greater than 30;
Operating temperature range, ºC . . . . . -30 to +60;
RF connectors . . . . . 50 Ohm UHF (F);
DC connectors . . . . . # 6-32 AWG screws.

The unit is assembled in the chassis with heatsink, intended for conventional cooling (see Fig 2).

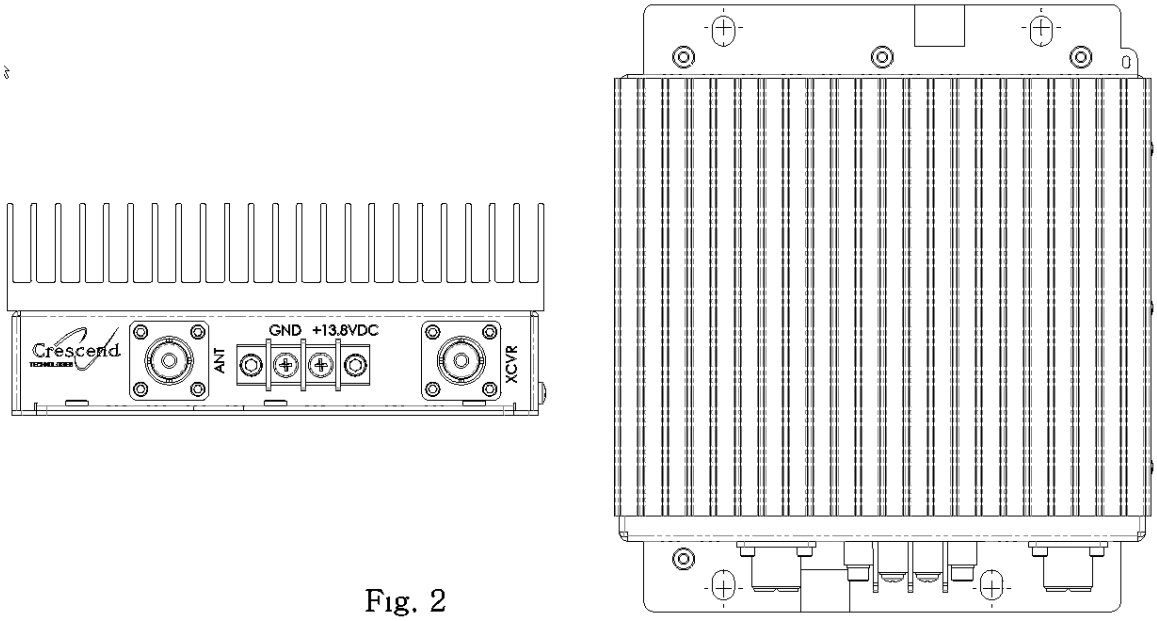

Fig. 2

Unit dimensions are 2.7" x 6.75" x 7.65".

2. Installation Guide.

Install the unit in one of two positions, showed in Fig. 2: horizontal (fins up) or vertical. The proper air access to the unit shall be provided: no obstacle for air is allowed closer than 3" from heatsink. The place of installation shall provide the ambient temperature between -30ºC and +60ºC.
Screws from # 10 to # 1/4-20 are recommended for unit fastening. See the fastening holes' positions in Fig. 3.

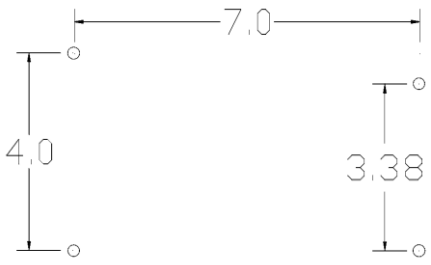

Fig. 3

Use copper wire # 10 or #12 AWG shall for connection to the car battery. Wires shall be crimped for making ring terminals.

Connect the clamp "+ 13.8V" to the pole "+" of car battery. Use 30 A fuse for protection.

Connect the clamp "GND" to the pole "-" of car battery.

Use 50 Ohm coax cables with UHF (M) connectors for connecting to "XCVR" and "ANT" .

Connect the port "XCVR" to RF output of radio.

Connect the port "ANT" to antenna.

3. Operation Guide

- Do not apply RF signal out of rated frequency range 406.1…470 MHz for DSDTUL50 and 450…512 MHz for DSDTUH50;
- For transmitting the input RF power should be in the range 1…5 W.
- The continuous transmit time should not exceed 3 min, and the duty cycle should not be greater than 30% for avoiding the overheat;
- In the case of overheat (the heatsink temperature reaches +85ºC) the unit switches to RX mode;
- If the load VSWR exceeds 2-3, the output power reduces;
- Do not destroy the sealing labels.

This radio complies with 47 CFR Part 90.203(e) in that the operator cannot program and transmit on frequencies, other than those stated by the manufacturer, service or maintenance personnel, using the equipment's external operation controls. It is noted that the FCC rules would be violated if this radio is used to operate on frequencies outside of FCC (Part 90 and Part 22) Frequency Bands for users other than the Federal Government.

The output power of this device is limited to 50 watts. When you choose an antenna to use, please reduce the maximum output power of this device so that the ERP does not exceed the 50 watt limit. To comply with the rule Part 90.219: the antenna must have a maximum -5 dBi gain and the antenna must be installed less than 300m in height per FCC Part 90.729 (a) the “ERP vs Antenna Height table.

FCC RF Exposure:
This transmitter must be restricted to work related operations in a controlled RF exposure environment. All qualified end-users of this device must have the knowledge to control their exposure conditions and/or duration, and the exposure conditions and/or duration of their passengers, to comply with the General Population/Uncontrolled MPE limit and requirements. All users should maintain a safe distance of 115cm.

Part 90 Signal Booster This is a 90.219 Class AB Device

WARNING: This is NOT a CONSUMER device. It is resigned for installation by FCC LICENSEES and QUALIFIED INSTALLERS. You MUST have an FCCLICENSE or express consent of an FCC Lincesee to operate this device. You MUST register Part 90 Class AB signal boosters (as defined in 47 CFR 90.219) online at www.fcc.gov/signal-boosters/registration. Unauthorized use may result in significant forfeiture penalties, including in excess of $100,000 for each continuing violation