

1 T838 General Information

This section provides a brief description of the T838 power amplifier, along with detailed specifications and a list of variants available.

The following topics are covered in this section.

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1.1 Introduction

The T838 is an FM base station power amplifier designed for single or multichannel operation within the frequency range 136 to 174MHz. The output power capability is 10 to 60W.

The PA comprises a broad band, three stage drive amplifier whose output is split to drive two separate output stages. The outputs from these final stages are then recombined and filtered before being fed to the output socket. This type of balanced output stage offers two advantages over single ended types:

- improved intermodulation performance in the presence of high signal levels from adjacent transmitters;
- enhanced reliability: if one of the two output stages fails, the transmitter can still produce one quarter of its rated power.

VSWR and thermal protection is incorporated into the basic design, while monitoring and alarm signals are available for both forward and reverse power. The output power is adjustable from the front panel.

The circuitry is built on a single PCB which is mounted directly on a die-cast chassis/heatsink.

The T838 has a width of 60mm, occupying a single module in a Tait rack shelf (T99-770) which will accommodate up to seven standard modules to give an attractive and convenient installation.

1.2 Specifications

1.2.1 Introduction

The performance figures given are minimum figures, unless otherwise indicated, for equipment tuned with the maximum switching band and operating at standard room temperature (+22°C to +28°C).

Where applicable, the test methods used to obtain the following performance figures are those described in the EIA specification. However, there are several parameters for which performance according to the CEPT specification is given.

Details of test methods and the conditions which apply for Type Approval testing in all countries can be obtained from Tait Electronics Ltd.

1.2.2 General

Power Output:

| | |
|---------------------|------------------------|
| Rated Power | .. 50W |
| Maximum Power | .. 60W |
| Range Of Adjustment | .. 10 to 60W (typical) |

Note: Actual power used will depend on regulatory requirements.

| | |
|-------------------|---|
| Duty Cycle Rating | .. 50W continuous to +60°C without fan ¹ |
|-------------------|---|

Intermodulation (3rd order):

| | |
|-------------------------|-----------|
| 25dB External Isolation | .. -70dBc |
| 40dB External Isolation | .. -85dBc |

Mismatch Capability:

| | |
|------------|---|
| Ruggedness | .. infinity:1 VSWR at temperature and voltage extreme |
| Stability | .. 5:1 VSWR plus duplexer |

Supply Voltage:

| | |
|-----------------------|------------------------|
| Operating Voltage | .. 10.8 to 16V DC |
| Standard Test Voltage | .. 13.8V DC |
| Polarity | .. negative earth only |

Supply Current:

| | |
|------------------|---------------------------|
| Standby | .. <50mA |
| Transmit (@ 50W) | .. 10.5A max., 9A typical |

1. The use of a fan is to be preferred at high temperatures. Adequate ventilation must always be provided through base station equipment cabinets.

Spurious Emissions:

| | | |
|-----------|------------|-------------------|
| Conducted | - Transmit | .. -36dBm to 1GHz |
| | | -30dBm to 4GHz |
| | - Standby | .. -57dBm to 1GHz |
| | | -47dBm to 4GHz |
| Radiated | - Transmit | .. -36dBm to 1GHz |
| | | -30dBm to 4GHz |
| | - Standby | .. -57dBm to 1GHz |
| | | -47dBm to 4GHz |

Operating Temperature Range .. -30°C to +60°C

Dimensions:

| | |
|--------|----------|
| Height | .. 191mm |
| Width | .. 60mm |
| Length | .. 340mm |

Weight .. 3.4kg

1.3 Versions

| Description | Version | | |
|-------------|---------|--|--|
| | 10 | | |
| 136-174MHz | • | | |
| | | | |
| | | | |