

1 T858/859 General Information

This section provides a brief description of the T858 & T859 power amplifiers, along with detailed specifications and a list of types available.

The following topics are covered in this section.

Section	Title	Page
1.1	Introduction	1.3
1.2	Specifications	1.4
1.2.1	Introduction	1.4
1.2.2	General	1.4
1.3	Product Codes	1.6

1.1 Introduction

The T858 and T859 are FM base station power amplifiers designed for single or multichannel operation within the frequency range 400 to 520MHz. The output power capabilities are as follows:

T858 -	10 to 60W
T859 -	20 to 110W

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 are 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. Extensive use is made of surface mount technology.

Forced air cooling for the heatsink is provided on the T859 by a fan, which is activated whenever the transmitter is keyed. Thermal sensors will also activate the fan automatically if the internal temperature reaches an unacceptable level.

The T858 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. The T859 has a width of 120mm and occupies a double module.

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:

T858	- Rated Power	..	50W
	- Range Of Adjustment	..	10 to 60W (typical)
T859	- Rated Power	..	100W
	- Range Of Adjustment	..	20 to 105W (typical)

Duty Cycle Rating

T858	..	50W continuous to +60°C
	..	60W continuous to +40°C
T859	..	100W continuous to +60°C

Intermodulation (PA with output isolator)	..	-70dBc or -40dBi ¹ with 25dB isolation & interfering signal of -30dBc
--	----	---

Mismatch Capability:

Ruggedness ..	..	infinite VSWR
Stability ..	..	5:1 VSWR (all phase angles)

Supply Voltage:

Operating Voltage ..	..	10.8 to 16V DC
Standard Test Voltage ..	..	13.8V DC
Polarity ..	..	negative earth only
Polarity Protection..	..	diode

Maximum Supply Current (T858 @ 50W, T859 @ 100W):

Standby ..	..	50mA
Transmit - T858	..	11A
- T859	..	22A

1. dBi denotes the level of intermodulation product relative to the interfering signal.

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 - T858	.. 60mm
- T859	.. 120mm
Length	.. 340mm

Weight:

T858	..	3.1kg
T859	..	3.5kg

1.3 Product Codes

Output Power (W)	50			100		
Frequency Range (MHz)	400-440	440-480	480-520	400-440	440-480	480-520
PA Type: T858-	10	20	30			
PA Type: T859-				10	20	30