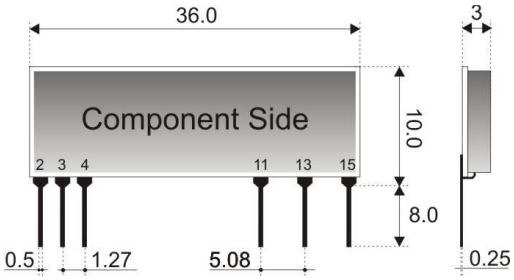
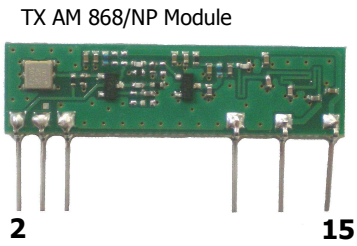
TX AM 868/NP

SAW transmitter module with external antenna for applications with OOK modulation and with a 868.35 MHz carrier .

Pin-out





Pin out description

Pin 2	**DATA IN**	Input data. +5V
Pin 3	**NC**	Not connected.
Pin 4-11	**GND**	Connected to GND. Internally connected to a single ground.
Pin 13	**Uscita RF**	50 ohm antenna connection.
Pin 15	**+V**	Voltage supply (+5.0 V)

TX AM 868/NP technical features

DESCRIPTION	MIN.	TIPICO	MAX.	U.M.
Reception Frequency	868,25	868,35	868,45	**MHz**
Voltage supply range	4,50	5,00	5,50	**Volts**
Current consumption – Tx mode (CW)	21	24		**mA**
Stand by current consumption		0		**mA**
E.R.P. Harmonic < 1GHz		-54	-36	**dBm**
E.R.P. Harmonic >1GHz			-30	**dBm**
I.F bandwidth			5	**KHz**
Effective Power measured directly on 50 ohms antenna pin		10	12	**dBm**
Data_In, low logic level voltage		0	0,1	**V**
Data_In, high logic level voltage		4,2		**V**
Working temperature	-20		+85	**°C**
Dimensions	36 x 9.5 x 3 mm			

Device usage

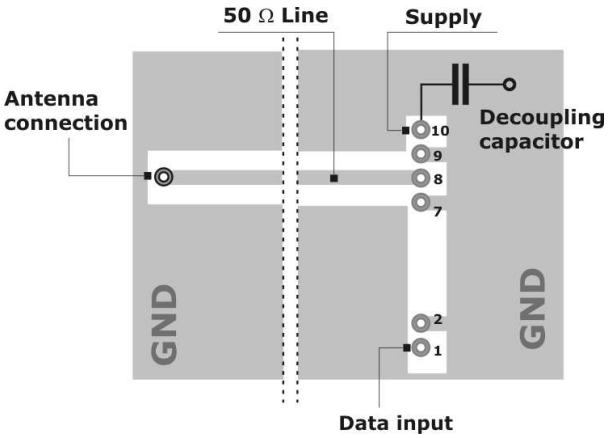
In order to take advantage of the performances described in the technical features and to comply with the operating conditions which characterize the certification, the receiver has to be fitted up on a printed circuit, considering what follows:

Voltage supply:

1. The transmitter must be supplied by very low voltage security source protected against short circuits.
2. Maximum voltage variation admitted: ± 0.5 V.
3. De-coupling, next to the transmitter, by means of a ceramic capacitor of minimum 100.000 pF value.

Ground:

It must surround in the better way the welding area of the receiver. The circuit must be achieved in double layer, with throughout vias to the ground planes, approximately each 15 mm. It must be properly dimensioned in the antenna connection area, in case a radiant whip antenna is fitted in(and area of approximately 50 mm is suggested).



Picture 2: Lay-out advised for a correct working of the receiver

50 Ohm Line:

1. It must be as shorter as possible.
2. 1,8 mm wide for 1 mm thick FR4 printed circuits and 2,9 mm wide for 1,6 mm thick FR4 printed circuits. On the same side it must be kept 2mm away from the ground.
3. On the opposite side a ground circuit area must be present.

Antenna connections:

It may be utilized as the direct connection point for the radiating whip antenna.
It can bear the connection of the central wire of a 50 ohm coaxial cable. Be sure that the braid is welded to the ground in a close point.

1. A whip antenna, 80 mm long and approximately 1 mm dia, brass or copper wire made, must be connected to the RF input of the receiver.
2. The antenna body must be kept straight as much as possible and must be free from other circuits or metal parts (5cm minimum suggested distance).
3. It can be utilized both vertically or horizontally (the previous is highly suggested), providing that connection point between antenna and receiver input is surrounded by a good ground plane.

N.B: As an alternative to the above mentioned antenna it is possible to use the whip model manufactured by Aurel (see related Datasheet and Application Notes).
By fitting whips too different from the described ones, the EEC Certification is not assured.

Technical Suggestions

1. Keep the transmitter separates from all other components of the circuit (more than 5mm).
2. Keep particularly far away and shielded all microprocessors and their clock circuits.
3. Do not fit components around the 50 Ohm line. At least keep them at 5 mm distance.
4. If the antenna connection is directly used for a radiating whip connection, keep at least a 5 cm radius free area. In case of coaxial cable connection, 5 mm radius will suffice.

REFERENCE NORMATIVE

The **TX AM 868/NP transmitter** is approved by CE and in particular satisfies the European **normative EN 300-220 and EN 301-489** with 5,0V voltage supply. The product was tested in according with EN 60950 normative and it's usable fitted in an isolated housing to ensure the above normative. The transmitter must be supplied by very low voltage security source against the short circuits. Usage of transmitter module is foreseen fitted in the housing which ensure the agreement of EN 61000 normative is not directly applicable to the module itself. In particular, it's at the user's care the isolating of the extern antenna connection and antenna too, in fact the RF output of the transmitter is not able to directly bear electrostatic charges foreseen in the above normative.

CEPT 70-03 Recommendation

In order to comply with such normative, the device must be used on the time scale with maximum duty cycle time of 1% on an hourly basis.