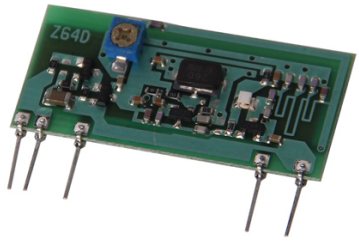
AUREL RF TX HF

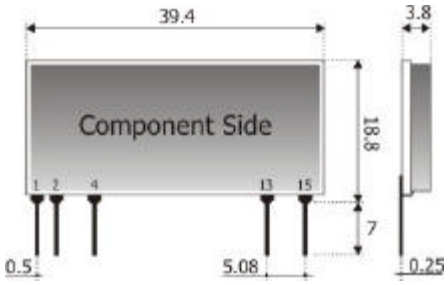
Model : TX-8LAVSA01IA

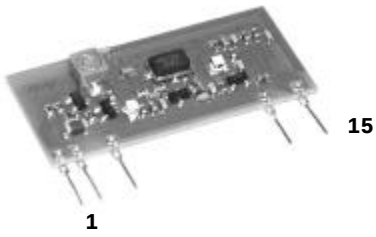


TX-8LAVSA01IA Transmitter

SAW Transmitter module with integrated antenna for utilisations with ON-OFF modulation, with digital data of an RF carrier centred on 868.3 MHz. The power supply voltage ranges from 2.7 to 5V, typical 3V.

Pin-out





Connections

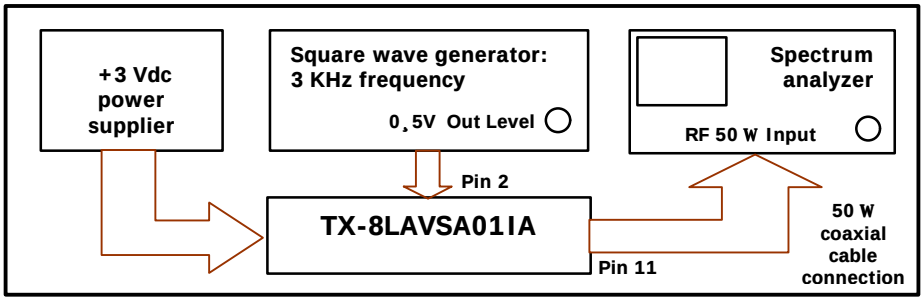
Pin 1-4-13	**Ground**	Connected to external ground plane [see Fig. 2]
Pin 2	**Input Mod.**	Data Input [0 to Vs]
Pin 15	**+V**	Connected to power supply [+2.7 to 5V]

Technical features [ETS 300 220]

Description	Min	Typical	Max	Unity
Working frequency centre		868.3		MHz
Voltage supply (Vs)	2.7	3	5	V
Absorbed Current	18	25	45	mA
RF output power (E.R.P.)		+0		dBm
Modulation Frequency			3	KHz
Input logic level	4.5	5	5.5	V
Operating temperature	-20		+80	°C
Working temperature [ETS 300 220]	-20		+55	°C
Dimensions	38.1 x 13.7 x 3 mm			

The technical features have been obtained by applying the following testing system:

Fig.1



Device usage

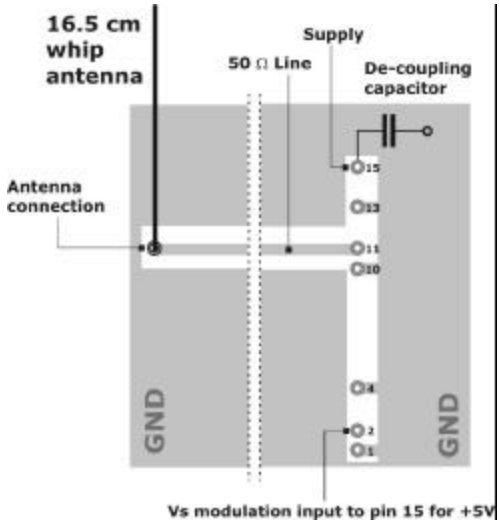
In order to obtain the performances described in the technical specifications and to comply with the operating conditions which characterize the Certification, the transmitter has to be mounted on a printed circuit, and keep into consideration what follows:

3V dc supply

1. The transmitter must be supplied by a very low voltage source, safetly protected against short circuits.
2. Maximum voltage variations allowed: ± 0,25 V.
3. De-coupling, next to the transmitter, by means of a minimum 100.000 pF ceramic capacitor.

Ground

1. It must surround at the best the welded area of the transmitter. The circuit must be double layer, with throughout vias to the ground planes, approximately each 15 mm.
2. It must be properly dimensioned, especially in the antenna connection area, in case a radiating whip antenna is fitted in it (an area of approximately 50 mm radius is suggested).



50 Ohm line

1. It must be the shortest 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. It must be kept 2 mm away from the ground circuit on the same side.
3. On the opposite side a ground circuit area must be present.

Antenna connection

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

Antenna

1. A **whip** antenna, 16,5 mm long and approximately 1 mm dia, brass or copper wire made, must be connected to the RF output of the transmitter (pin 11), (see fig. 2).
2. The antenna body must be keep straight as much as possible and it must be free from other circuits or metal parts (5 cm minimum suggested distance.)
3. It can be utilized either vertically or horizontally, provided that a good ground plane surrounds the connection point between antenna and transmitter output.

N.B: As an alternative to the a.m. antenna it is possible to utilize the whip model manufactured by **AUR°EL** (see related Data Sheet and Application Notes).
By fitting whips too different from the described ones, the EC Certification is not assured.

Other components

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

Reference Rules

The **TX-8LAVSA01IA** transmitter complies with the EU Rules **ETS 300-220,** with a 5V max. supply. The equipment has been tested according to rule **EN 60950** and it can be utilized inside a special insulated housing that assures its compliance with the above mentioned rule. The transmitter must be supplied by a very low voltage source, safely protected against short circuits.

The use of the transmitter module is foreseen inside housings that assure the overcoming of the rules **EN 61000** not directly applicable to the module itself. In particular, it is left at the User's care, the insulation of the external antenna connection, and of the antenna itself, since the RF output of the transmitter is not built to directly bear the electrostatic charges foreseen by the **EN 61000-4-2** rules.

CEPT 70-03 Recommendation

In order to comply with such rule, the device must be used only for a 10% of an hourly duty-cycle, (that means 6 minutes of utilisation over 60). The device utilisation inside the italian territory is governed by the *Codice Postale* and *Telecomunicazioni* rules in force (art. no. 334 and subsequents).

Made in Japan