General Description

'UHF Narrow Band FM Transmitter '

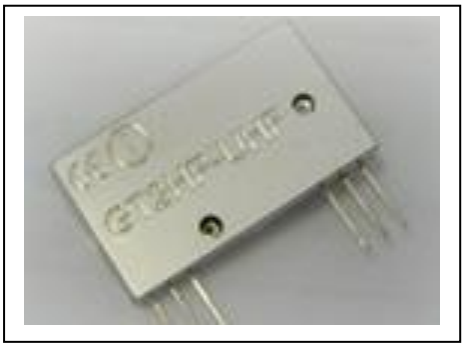
The GT2HP-UHF module is the smallest narrow band high power module available on the market today for use in the UK on 458 MHz.

Measuring just 31 x 19 x 4mm the module generates 250mW and conforms to EN 300 220-3 for narrow band operation.

The common Genesis footprint of the GT2HP means that the module can be used to provide more range and more reliability in existing applications as well as new developments.

In conjunction with the GR2 receiver, a wireless link operating over many kilometres can be reliably established.

Although initially available on 458 MHz for the UK, other frequencies can also be supplied.



Compatible Receiver Modules

- GENESIS GR2

Applications

- Wireless security
- Long range remote switching
- Long range telemetry
- Social alarms
- Remote Control

Features

- MINIATURE SIL PACKAGE
- Up to 250mW RF OUTPUT POWER
- DATA RATES UP TO 9600 BITS/S
- NARROW BAND CRYSTAL TECHNOLOGY
- COMMON GENESIS FORM FACTOR
- CAN BE SUPPLIED ON OTHER FREQUENCIES
- 25KHz CHANNEL SPACING
- SINGLE 5/5.5 VOLT SUPPLY
- EN 300-220-3 COMPLIANT

GT2HP-250mW Transmitter

Absolute Maximum Ratings: Transmitter

Operating temperature:	-10°C to +55°C
Storage temperature:	-40°C to +100°C
Supply Voltage (pin 3)	6.0V
Data input (pin 5)	5.5V

Electrical Characteristics (458.85 MHz version): Parameters measured at 25^0C

	pin	min.	Typ.	max.	units	notes
DC LEVELS						
Supply voltage	3	4.5		5.5	Volts	
Current & RF POWER						
Supply current @ V_{CC}=5V	3		220		mA	
RF output power @Vcc=5v	2	150		175	mW	1
Supply current @Vcc=5.5v	3		260		mA	
RF output power @ Vcc=5.5v	2	230		260	mW	1
RF & Data						
2^{nd} harmonic			-40		dBm	2
Harmonics @ > 1GHz			-50		dBm	2
Initial frequency accuracy			±25		Hz	
Frequency accuracy over full temp range				±1.8	KHz	
FM deviation of RF carrier			±2.5		KHz	
Power up time to full RF				3	ms	3
Data rate				9.6	kbits/s	4
Data pulse width		100			µs	

Note 1: Measured into a 50Ω impedance over production spread and Vcc = 5volts.

2: The limit for the European spec EN 300 220 is –36dBm.

3: Data input to the module must be connected to zero volts.

4: All modules are 25KHz channel spacing in which case the data rate can be up to 9.6 kbps.

Connection Details

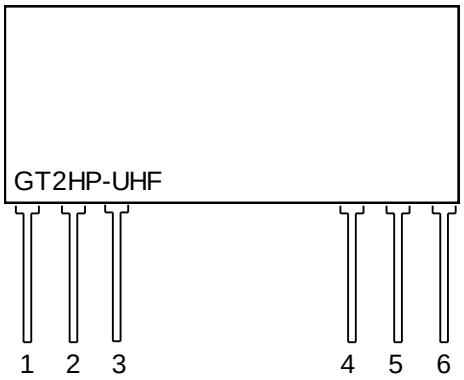


Figure 1: Genesis Transmitter
(Pins outs for both GT2 & GT2HP are the same)

Pin Description:

RF GND *(pin 1 & PIN 3)*
RF ground pin, internally connected to pin 4 (0V). This pin should ideally be connected to the nearest ground plane (e.g. coax braid, main PCB ground plane etc.)

RF OUT *(pin2)*
50Ω RF antenna output. To achieve best results the antenna impedance must match that of the module.

V_{CC} *(pin 4)*
+Ve supply pin. The module will generate RF when V_{CC} is present and a 100nF decoupling capacitor as close as possible to this pin is recommended.

GND *(pin 5)*
Supply and data ground connection, connected to pin 1.

Data IN *(pin 6)*
This input has an impedance of 47KΩ and should ideally be driven by a CMOS logic drive or compatible.

Application Information

Antenna Design

The design and positioning of the antenna is as crucial as the module performance itself in achieving a good wireless system range. The following will assist the designer in maximising system performance.

The antenna should be kept as far away from sources of electrical interference as physically possible. If necessary, additional power line decoupling capacitors should be placed close to the module.

The antenna 'hot end' should be kept clear of any objects, especially any metal as this can severely restrict the efficiency of the antenna to receive power. Any earth planes restricting the radiation path to the antenna will also have the same effect.

Best range is achieved with either a straight piece of wire, rod or PCB track @ ¼ wavelength (16cm @ 458 MHz). Further range may be achieved if the ¼ wave antenna is placed perpendicular in the middle of a solid earth plane measuring at least 35cm radius. In this case, the antenna should be connected to the module via some 50 ohm characteristic impedance coax

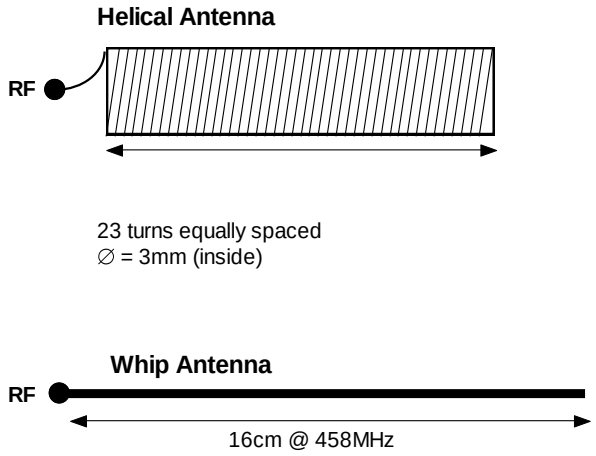


Figure 2: Antenna Configurations To Be Used With The Genesis Transmitter Modules

Application Circuit

The application circuit shows how the Genesis transmitter can easily be integrated into a system to form a wireless link

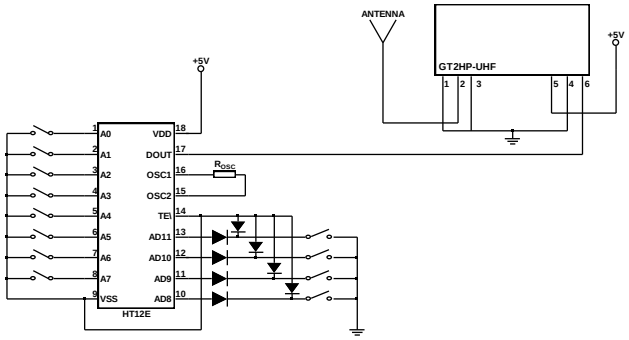


Figure 3: MK Transmitter Application Circuit

Evaluation Kit

An evaluation kit is available to rapidly asses the full capabilities of these modules – see data sheet EVK1.

Mechanical Dimensions

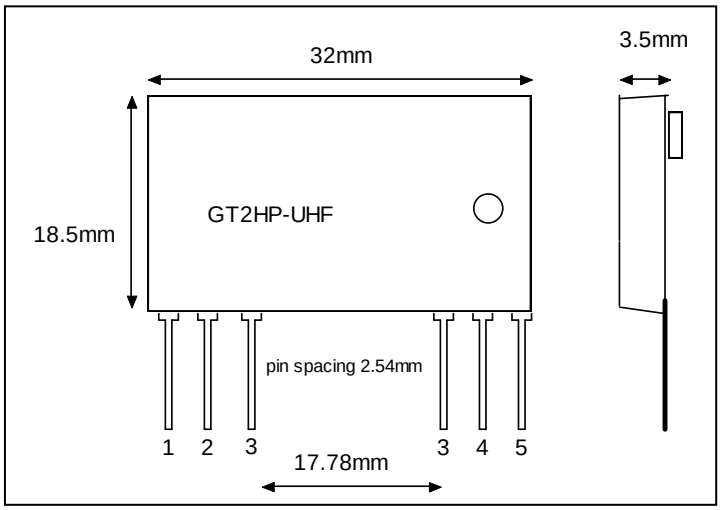


Figure : GT2HP Transmitter

Ordering Information

Standard Product;

Part No
GT2HP-458.850 (UK ONLY)

Please consult our sales department for further information or other frequencies.

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