Features

- MINIATURE SIL PACKAGE
- FULLY SHIELDED
- DATA RATES UP TO 64KBITS/S
- BANDWIDTH EFFICIENT PLL TECHNOLOGY
- EUROPEAN VERSIONS;
  868.45 MHz for 1% duty cycle band
  869.85 MHz for 100% duty cycle band
- 20mW VERSION AVAILABLE (868.45)
- AMERICAN VERSION ON 914.5 MHz
- WIDE OPERATING VOLTAGE
- EN 300-220 compliant module

Applications

- REMOTE CONTROL FOR CRANES ETC
- WIRELESS MONITORING
- DISPERSED ALARM APPLICATIONS
- DOMESTIC AND COMMERCIAL SECURITY

Compatible Receiver Modules

- MKR6-XXX (see data sheet MKR6)
- MKR6LC-XXX

General Description

The MKT6 miniature transmitter UHF radio module enables the implementation of a wireless telemetry link at data rates of up to 64Kbit/s when used with the compatible MKR6 receiver modules.

The transmitter is based on a classical phase lock loop using a crystal reference oscillator. This results in an accurately controlled RF output in the frequency domain. A significant advantage of this is that narrow filtering can then be used in the receiver which results in high interference immunity.

In addition, the module is fitted with an on board voltage regulator which enhances the module performance due to better supply filtering as well as ensuring a constant RF output level.
The MKT6 module will suit one-to-one and multi-node wireless links in applications including building and car security, remote industrial process monitoring and computer networking. Because of its small size and low power requirements, this modules is ideal for use in portable battery powered wireless applications.

Absolute Maximum Ratings: Transmitter

Operating temperature:	-20°C to +55°C
Storage temperature:	-40°C to +100°C
Supply Voltage (pin 3)	10V
Data input (pin 5)	10V

Electrical Characteristics: Transmitter

	pin	min.	Typ.	max.	units	notes
DC LEVELS						
Supply voltage	3	2.3	5.0	10.0	Volts	
Current & RF POWER (Same for T6B)						3
868.45 MHz (Same for 869.85 & 914.5 MHz)						
Supply current @ V_{CC} = 5V	3		7		mA	1
RF power	2		1		mW	1
MKT6H-868.45 Only						
Supply voltage range		4	5	5.5	Volts	
Supply current			30		mA	
RF Power			20		mW	
RF & Data						
2^{nd} harmonic			-55		dBm	2
Harmonics @ > 1GHz			-50		dBm	2
Initial frequency accuracy error				30	KHz	
FM deviation			+/-50		KHz	
Modulation bandwidth @ -3dB			35		KHz	
Power up time to full RF			5		ms	
Data rate		0		64000	bits/s	
Data pulse width		15			µs	

Note 1: Measured into a 50Ω impedance
2: The limit for the European spec EN 300 220 is –36dBm.
3: B version is a lower cost un-shielded version

Connection Details

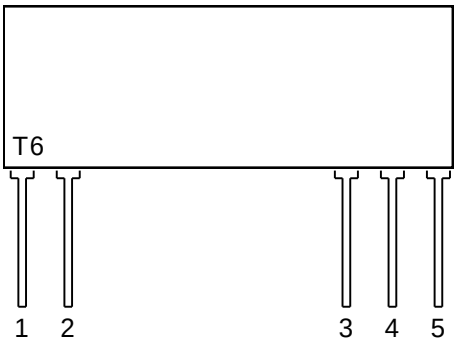

Figure 1: MK Transmitter

Pin Description:

RF GND *(pin 1)*
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 3)*
+Ve supply pin. The module will generate RF when V_{CC} is present.

GND *(pin 4)*
Supply and data ground connection, connected to pin 1.

Data IN *(pin 5)*
This input has an impedance of 47KΩ and should ideally be driven by a CMOS logic drive or compatible. The drive circuitry should be supplied with the same supply voltage as the Tx module.

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 (7cm @ 868 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 10cm radius. In this case, the antenna should be connected to the module via some 50 ohm characteristic impedance coax

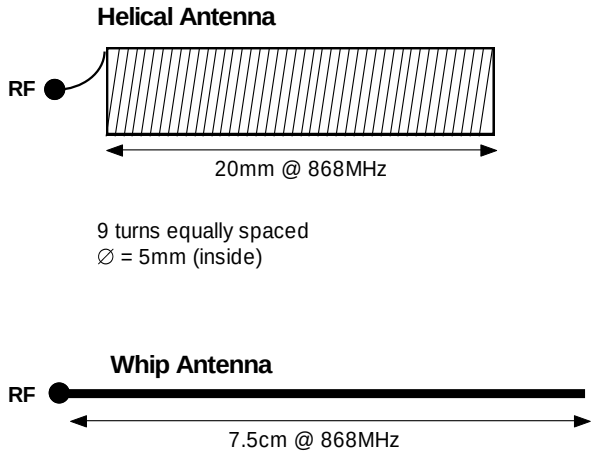

Figure 2: Antenna Configurations To Be Used With The MKT6 Transmitter Modules

Application Circuit

The application circuit shows how the MKT6 transmitter can easily be integrated into a system to form a wireless link

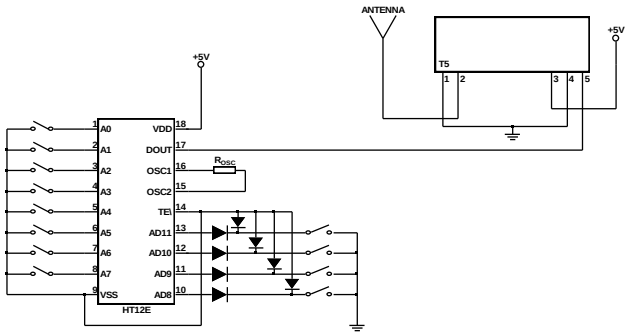

Figure 3: MK Transmitter Application Circuit

Mechanical Dimensions

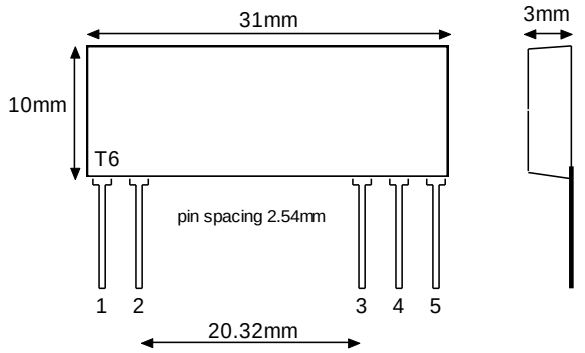

Figure 4: MK Transmitter

Ordering Information

Standard Product;

Part No		Description
MKT6-868.45	or B version	868.45 MHz Transmitter
MKT6H-868.45		20mW 868.45 MHz Transmitter
MKT6-869.85	or B version	869,85 MHz Transmitter
MKT6-914.5	or B version	914.5 MHz Transmitter

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