

RF Transmitters – fixed frequency, low power

Transmitter ICs	TH 72001	TH 72002	TH 72005	TH 72006	TH 72011	TH 72012	TH 72015	TH 72016	TH 72031	TH 72032	TH 72035	TH 72036
Frequency Range [MHz]	310 to 350				380 to 450				850 to 930			
Supply Range [V]	1.95 to 5.5				1.95 to 5.5				1.95 to 5.5			
Temperature Range [°C]	-40 to +125				-40 to +125				-40 to +125			
Supply Current [mA]	3.2 – 10.3			3.6 – 10.7	3.4 – 10.6			3.8 – 11.0	5.1 – 13.4			5.5 – 13.8
Standby Current [nA]	10				10				10			
Modulation	FSK	ASK	FSK, ASK	FSK, ASK	FSK	ASK	FSK, ASK	FSK, ASK	FSK	ASK	FSK, ASK	FSK, ASK
RF Output [dBm]	-13 to +11				-13 to +10				-13 to +10			
Clock Output	no			yes	no			yes	no			yes
Low-voltage det.	yes				yes				yes			
Package	SOIC 8	SOIC 8	10L QFN 3x3	10L QFN 3x3	SOIC 8	SOIC 8	10L QFN 3x3	10L QFN 3x3	SOIC 8	SOIC 8	10L QFN 3x3	10L QFN 3x3
Delivery Form	package or die				package or die				package or die			

note 1: all parts are RoHS compliant, all QFN packages are green

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Transmitter ICs	MLX 72013
Frequency Range [MHz]	425 to 445
Supply Range [V]	1.95 to 5.5
Temperature Range [°C]	automotive: -40 to +125 consumer: -10 to +70
Supply Current [mA]	3.5 – 15.9
Standby Current [nA]	10
Modulation	FSK, ASK
RF Output [dBm]	-13 to +12
Clock Output	no
Low-voltage det.	yes
Package	SOIC8
Delivery Form	package or die

note 1: all parts are RoHS compliant

RF Receivers – fixed frequency, low power

Receiver ICs	TH71101	TH71102	TH71111	TH71112
Frequency Range	300 to 450MHz	260 to 510MHz	800 to 930MHz	750 to 990MHz
Supply Range	2.3 to 5.5 V, ASK 2.5 to 5.5 V, FSK	2.3 to 5.5 V, ASK 2.5 to 5.5 V, FSK	2.3 to 5.5 V, ASK 2.5 to 5.5 V, FSK	2.3 to 5.5 V, ASK 2.5 to 5.5 V, FSK
Temperature Range	-40 to +85°C	-40 to +85°C	-40 to +85°C	-40 to +85°C -10 to +70°C
Operating Current	6.5 – 8.2mA	6.5 – 8.2mA	7.5 – 9.2mA	7.5 – 9.2mA
Standby Current	50nA	50nA	50nA	50nA
Demodulation	FSK, ASK	FSK, ASK	FSK, ASK	FSK, ASK
Frequency Conversion	single superhet	double superhet	single superhet	double superhet
Input Sensitivity narrow band with 30 kHz IF BW	-108dBm, FSK	-108dBm, FSK	-105dBm, FSK	-105dBm, FSK
Input Sensitivity wide band with 180 kHz IF BW	-104dBm, FSK -110dBm, ASK	-104dBm, FSK -110dBm, ASK	-103dBm, FSK -109dBm, ASK	-103dBm, FSK -109dBm, ASK
Max. FSK data rate	180kbps, NRZ	180kbps, NRZ	180kbps, NRZ	180kbps, NRZ
Max. ASK data rate	260kbps, NRZ	260kbps, NRZ	260kbps, NRZ	260kbps, NRZ
Max. Input Signal	0dBm, FSK -10dBm, ASK	0dBm, FSK -10dBm, ASK	0dBm, FSK -10dBm, ASK	0dBm, FSK -10dBm, ASK
Image Rejection (incl. SAW filter)	> 50dB	> 65dB	> 50dB	> 65dB
Spurious Emission	< -70dBm	< -70dBm	< -70dBm	< -70dBm
Package	LQFP32	LQFP32	LQFP32	LQFP32

note 1: all parts are RoHS compliant

RF Receivers – highly integrated, fixed frequency and frequency agile

Receiver ICs	MLX71120	MLX71121	MLX71122
Frequency Range	300 to 930MHz	300 to 930MHz	300 to 930MHz
Programmability	fixed frequency	fixed frequency	frequency agile and fully programmable via 3-wire SPI
Supply Range	2.1 to 5.5V	2.1 to 5.5V	3.0 to 5.5V
Temperature Range	-40 to +125°C	-40 to +125°C	-40 to +110°C
Operating Current	6.5 – 8.1 mA	10.0 – 11.1 mA	9.5 – 15 mA
Standby Current	50nA	50nA	50nA
Demodulation	FSK, ASK	FSK, ASK	FSK, ASK
Frequency Conversion	double superhet	double superhet	double superhet
FSK Demodulator	internal	internal	internal
IF Filter	external at 455kHz or 10.7MHz	internal with 300kHz bandwidth	internal with 230kHz bandwidth
Antenna Diversity	2 LNAs at 2 antennas	2 LNAs at 2 antennas	no
Frequency Diversity	433/868MHz	433/868MHz	any frequency
Min. Channel Spacing			25kHz
Input Sensitivity (typ.) internal IF filter with 230kHz IF BW			-107dBm FSK -112dBm ASK
Input Sensitivity (typ.) internal IF filter with 300kHz IF BW		-107dBm FSK (1 LNA) -115dBm FSK (2 LNAs) -112dBm ASK (1 LNA)	
Input Sensitivity (typ.) external 10.7MHz IF filter with 180kHz IF BW	-108dBm FSK (1 LNA) -116dBm FSK (2 LNAs) -113dBm ASK (1 LNA)		
Input Sensitivity (typ.) external 455kHz IF filter with 20kHz BW	-112dBm FSK (1 LNA) -118dBm FSK (2 LNAs)		
MCU clock frequency	2 – 3.4 MHz	2 – 3.4 MHz	10 MHz
Peak detection mode	yes	yes	yes
Max. FSK data rate	100kbps NRZ	100kbps NRZ	100kbps NRZ
Max. ASK data rate	100kbps NRZ	100kbps NRZ	100kbps NRZ
Max. Input Signal	0dBm, FSK -10dBm, ASK	0dBm, FSK -10dBm, ASK	0dBm, FSK -10dBm, ASK
Image Rejection (with external SAW filter)	> 65 dB	> 65 dB	> 65 dB
Spurious Emission	< -54dBm	< -54dBm	< -70dBm
Package	32L QFN 5x5	32L QFN 5x5	32L QFN 5x5

note 1: all parts are RoHS compliant and green

RF Transceivers – frequency agile

Transceiver ICs	TH7122	TH71221
Frequency Range in programmable user mode	300 to 930MHz	
Programmability	all parameters fully programmable via 3wire SPI	
Extended Frequency Range with external VCO varactor diode	27 to 930MHz	
Fixed-Frequency Settings in stand-alone user mode	315.0, 433.92, 868.3, 915.0MHz	
Supply Range	2.2 to 5.5V	
Operating Current in receive mode at max. gain	7 – 11mA	
Supply Range	-40 to +85°C	
Operating Current in transmit mode at 6 dBm	14 – 24mA	
Standby Current	50nA	
Modulation/Demodulation	FSK, ASK, FM	
Min. Channel Spacing	25 kHz	
Adjustable Output Power Range	-20 dBm to +10 dBm	
RX Input Sensitivity at 150 kHz IF filter BW	-105dBm at FSK, -107dBm at ASK	
Maximum Input Level	-10dBm at FSK, -20dBm at ASK	
Maximum Data Rate	115kbit/s NRZ	
Crystal Reference Frequency	3 – 12MHz	
Package	LQFP32	32L QFN 5x5

note 1: all parts are RoHS compliant, QFN package is green