

Wireless Communication LSIs

Specified Low Power Radio (Sub-GHz Band Radio)

(LAPIS Semiconductor products)

UHF Transmitter LSIs												
Part No.	Support Standard	Frequency Band	Supply Voltage (V)	Modulation Method	FEC Mode	Control I/F	Transmission Rate	Transmission Output (dBm)	Reception Sensitivity	Operating Temperature (°C)	Package	Halogen Free Support ²⁾
ML7386	ARIB STD-T67 RCR STD-30	426MHz band	1.8 to 3.6	2- FSK MSK	-	Synchronous serial (Control) DIO (DATA)	2.4kbps	10mW	-	-25 to +85	P-WQFN28-0404-0.40	✓
ML7386B							4.8kbps 7.2kbps	1mW/ 10mW				✓
UHF Transceiver LSIs												
ML7396D	ARIB STD-T108 EN300-220 IEEE802.15.4g	900 to 960MHz	1.8 to 3.6	2- (G) FSK (G) MSK	IEEE 802.15.4g compliant	Synchronous serial (Control) DIO (DATA)	to 50kbps 100kbps 150kbps 200kbps 400kbps	1mW/ 10mW/ 20mW	-107dBm [100kbps BER=0.1%] ¹⁾	-40 to +85	P-WQFN40-0606-0.50	✓
ML7396E	EN300-220 EN1357-4:2011	750 to 900MHz						1mW/ 10mW/ 20mW				✓
ML7344J	ARIB STD-T67 RCR STD-30	160 to 510MHz	1.8 to 3.6	2- (G) FSK (G) MSK	-	Synchronous serial (Control) DIO (DATA)	to 15kbps	1mW/ 10mW/ 20mW	-117dBm [4.8kbps BER=0.1%] ¹⁾	-40 to +85	P-WQFN40-0606-0.50	✓
ML7344C	Q/GDW374.3		3.3 to 3.6 (100mW)	-				20mW/ 100mW				✓
ML7406	EN300-220 EN1357-4: 2011 IEEE802.15.4g	750 to 960MHz	1.8 to 3.6	2- (G) FSK (G) MSK	-	Synchronous serial (Control) DIO (DATA)	to 500kbps	1mW/ 10mW/ 20mW	-106dBm [100kbps BER=0.1%] ¹⁾	-40 to +85	P-WQFN32-0505-0.50	✓
ML7345	ARIB STD-T67 ARIB STD-T108 RCR STD-30	160 to 960MHz		2- (G) FSK (G) MSK					-123dBm [2.4kbps BER=1%] ¹⁾			
ML7345D	EN300-220 EN13757-4: 2013 IEEE802.15.4g	315 to 960MHz	3.3 to 3.6 (100mW)	4- (G) FSK	-	Synchronous serial (Control) DIO (DATA)	to 100kbps	20mW/ 100mW	-119.5dBm [2.4kbps BER=1%] ¹⁾	-40 to +85	P-WQFN32-0505-0.50	✓
ML7345C	Q/GDW374.3	470 to 510MHz		4- (G) FSK BPSK (TX only)					-123dBm [2.4kbps BER=1%] ¹⁾			✓
ML7414	ARIB STD-T67 ARIB STD-T108 Sigfox® (Rev 2.E) RCR STD-30 EN300-220 EN13757-4: 2013 IEEE802.15.4g	315 to 960MHz	1.8 to 3.6	2- (G) FSK (G) MSK 4- (G) FSK BPSK (TX only)	IEEE 802.15.4g compliant	Synchronous serial (Control) DIO (DATA)		1mW/ 10mW/ 20mW	-106dBm [100kbps BER=1%] ¹⁾	-40 to +85	P-WQFN32-0505-0.50	✓

¹⁾ BER means Bit Error Rate.

²⁾ A check mark of halogen free support means that we will be able to ship out the halogen free products. For details, please inquire to the sales.
 Sigfox® is a registered trademark of SIGFOX A.B.

LPWA

(LAPIS Semiconductor products)

UHF Transceiver LSI												
Part No.	Supported Standard	Frequency Band	Supply Voltage (V)	Modulation Method	FEC Mode	Control Interface	Transmission Rate	Transmission Output (dBm)	Reception Sensitivity	Operating Temperature (°C)	Package	Halogen Free Support ²⁾
ML7404	ARIB STD-T67 ARIB STD-T108 RCR STD-30 EN300-220 EN13757-4: 2013 Sigfox® (Rev 2.E) IEEE802.15.4k IEEE802.15.4g	315 to 960MHz	1.8 to 3.6	2- (G) FSK (G) MSK 4- (G) FSK BPSK DSSS	IEEE 802.15.4k compliant	Synchronous serial (Control) DIO (DATA)	to 100kbps (xFSK) 80k to 200kcpes (DSSS)	1mW/ 10mW/ 20mW	-119.5dBm [2.4kbps BER=1%] ¹⁾ (xFSK) -121dBm [200kpcps, SF=64, PER=1%] ²⁾ (DSSS)	-40 to +85	P-WQFN32-0505-0.50	✓

Sigfox® is a registered trademark of SIGFOX A.B.

¹⁾ BER means Bit Error Rate. ²⁾ PER means Packet Error Rate.

³⁾ A check mark of halogen free support means that we will be able to ship out the halogen free products. For details, please inquire to the sales.

Multiplex Band Radio (Sub-GHz Band & 2.4GHz Band Radio)

(LAPIS Semiconductor products)

UHF Transceiver LSI												
Part No.	Supported Standard	Frequency Band	Supply Voltage (V)	Modulation Method	FEC Mode	Control Interface	Transmission Rate	Transmission Output (dBm)	Reception Sensitivity	Operating Temperature (°C)	Package	Halogen Free Support ^{1,2}
New ML7421	ARIB STD-T66 ARIB STD-T67 ARIB STD-T108 EN300-220 FCC part15 IEEE802.15.4g	400 to 960MHz 2.4GHz	1.8 to 3.6	2- (G) FSK (G) MSK 4- (G) FSK	IEEE 802.15.4g compliant	Synchronous serial (Control) DIO (DATA)	1.2k to 300kbps	1mW/ 10mW/ 20mW	-107dBm [100kbps BER=1%] ¹ (860/920MHz band) -95dBm [100kbps BER=1%] ¹ (2.4GHz band)	-40 to +85	P-WQFN36-0606-0.50	✓

¹ BER means Bit Error Rate. ² A check mark of halogen free support means that we will be able to ship out the halogen free products. For details, please inquire to the sales.

MCU Included Specified Low Power Radio (Sub-GHz Band Radio) System LSI

(LAPIS Semiconductor products)

UHF Transceiver LSI												
Part No.	Support Standard	Frequency Band	Supply Voltage (V)	Modulation Method	CPU core	Memory resources	Transmission Rate	Transmission Output (dBm)	Reception Sensitivity	Operating Temperature (°C)	Package	Halogen Free Support ^{1,2}
ML7416N	ARIB STD-T108 IEEE802.15.4g	750 to 960MHz	1.8 to 3.6	2- (G) FSK (G) MSK	Cortex®-M0+ (to 40MHz)	FLASH512KB, RAM64KB	to 50kbps 100kbps 150kbps 200kbps 400kbps	1mW/ 10mW/ 20mW	-106dBm [100kbps BER=0.1%] ¹	-40 to +85	P-LFBGA81-1010-1.00	✓
New ML7436N	ARIB STD-T66 ARIB STD-T67 ARIB STD-T108 EN300-220 FCC part15 IEEE802.15.4g	400 to 960MHz 2.4GHz	2.6 to 3.6	2- (G) FSK (G) MSK 4- (G) FSK	Cortex®-M3 (to 81MHz)	FLASH1024KB, RAM256KB	1.2k to 300kbps		-107dBm [100kbps BER=1%] ¹ (860/920MHz band) -95dBm [100kbps BER=1%] ¹ (2.4GHz band)		P-TQFP48-0707-0.50	✓

Cortex® is a registered trade mark of SIGFOX S.A.

¹ BER means Bit Error Rate. ² A check mark of halogen free support means that we will be able to ship out the halogen free products. For details, please inquire to the sales.

Car Communication LSIs

FM Data Broadcast Reception LSIs

(LAPIS Semiconductor products)

FM Data Reception Tuner							
Part No.	Feature	Supply Voltage (V)	Supply Current (Max) (mA)	Operating Temperature (°C)	Package	Halogen Free Support ¹	Automotive Grade ²
ML7174 [J]	FM VICS® tuner, FM multiplexing demodulate LSI for VICS®, Built-in BPF, frame memory, and VICS® descrambler, Frames A,B,C, SPI slave	3.0 to 3.6	85	-40 to +85	P-WQFN64-0909-0.50-63	✓	YES
ML7183 [J]	FM VICS® tuner & Filter LSI, BPF, I²C slave		75				YES
FM Multiplexing Demodulate for VICS®							
ML7154 [J]	VICS® compliant FM multiplexing demodulate LSI for VICS®, Built-in BPF, frame memory, and VICS® descrambler, Frames A,B,C, SPI slave	3.0 to 3.6	28	-40 to +85	P-WQFN64-0909-0.50-63	✓	YES

[J] This LSI is limited to the market in Japan.

VICS® is a registered trademark of Vehicle Information and Communication System Center.

¹ A check mark of halogen free support means that we will be able to ship out the halogen free products. For details, please inquire to the sales.

² Please inquire to the sales for AEC-Q100.