

By Category PDF

Category Wireless LSI

ICs

# Wireless LSI

Includes LAPIS Technology products

## Industrial Wireless

### Communication LSIs — 86

Specified Low Power Radio  
(Sub-GHz Band Radio) ..... 86

LPWA ..... 86

MCU Included Specified Low Power Radio  
(Sub-GHz Band & 2.4GHz Band Radio)  
System LSI ..... 87

### Car Communication LSIs — 87

FM Data Broadcast Reception LSIs ..... 87

**Wireless LSI**

Industrial Wireless Communication LSIs

P.86

Car Communication LSIs

P.87

# Industrial Wireless Communication LSIs

Specified Low Power Radio (Sub-GHz Band Radio)

(LAPIS Technology 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)	Input Clock	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 -0404-0.40-63	✓
ML7386B							4.8kbps 7.2kbps	1mW/ 10mW				P-WQFN28 -0404-0.40-63	✓

## UHF Transceiver 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)	Input Clock	Package	Halogen Free Support*2
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%] <sup>*1</sup>	-40 to +85	-	P-WQFN40 -0606-0.50-63	✓
ML7396E	EN300-220 EN1357-4:2011	750 to 900MHz						1mW/ 10mW/ 20mW	-107dBm [100kbps BER=0.1%] <sup>*1</sup>			P-WQFN40 -0606-0.50-63	✓
ML7344Jy	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%] <sup>*1</sup>	-40 to +85	y= (C) rystal input y= (S) PXO input y= (T) CXO input	P-WQFN32 -0505-0.50-A63	✓
ML7344Cy	Q/GDW374.3		3.3 to 3.6 (100mW)					20mW/ 100mW	-117dBm [4.8kbps BER=0.1%] <sup>*1</sup>			P-WQFN32 -0505-0.50-A63	✓
ML7406y	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%] <sup>*1</sup>	-40 to +85	-	P-WQFN32 -0505-0.50-A63	✓
ML7345	ARIB STD-T67 ARIB STD-T108 RCR STD-30	160 to 960MHz							-123dBm [2.4kbps BER=1%] <sup>*1</sup>			P-WQFN32 -0505-0.50-A63	✓
ML7345D	EN300-220 EN13757-4: 2013 IEEE802.15.4g	315 to 960MHz	3.3 to 3.6 (100mW)	2-(G) FSK (G) MSK 4-(G) FSK	-	Synchronous serial (Control) DIO (DATA)	to 100kbps	1mW/ 10mW/ 20mW	-119.5dBm [2.4kbps BER=1%] <sup>*1</sup>	-40 to +85	-	P-WQFN32 -0505-0.50-A63	✓
ML7345C	Q/GDW374.3	470 to 510MHz							-123dBm [2.4kbps BER=1%] <sup>*1</sup>			P-WQFN32 -0505-0.50-A63	✓
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)	to 100kbps	1mW/ 10mW/ 20mW	-106dBm [100kbps BER=1%] <sup>*1</sup>	-40 to +85	-	P-WQFN32 -0505-0.50-A63	✓

\*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.  
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## LPWA

(LAPIS Technology products)

## UHF Transceiver LSI

Part No.	Supported Standard	Frequency Band	Supply Voltage (V)	Modulation Method	FEC Mode	Control Interface	CPU core	Memory resources	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	IEEE 802.15.4k compliant	Synchronous serial (Control) DIO (DATA)	-	-	to 100kbps (xFSK) 80k to 200kcp (DSSS)	-	-119.5dBm [2.4kbps BER=1%] <sup>*1</sup>	-40 to +85	P-WQFN32 -0505-0.50-A63	✓
ML7414	ARIB STD-T67 ARIB STD-T108 Sigfox® (Rev 2.E) RCR STD-30 EN300-220 EN13757-4: 2013 IEEE802.15.4g			2-(G) FSK (G) MSK 4-(G) FSK (G) MSK BPSK (TX only)							IEEE 802.15.4g compliant		-106dBm [100kbps BER=1%] <sup>*1</sup>	P-WQFN32 -0505-0.50-A63
<b>New</b> ML7446N	ARIB STD-T67 ARIB STD-T108 Sigfox® (Rev 2.E) RCR STD-30 EN300-220 EN13757-4: 2013 IEEE802.15.4g	315 to 960MHz	2.6 to 3.6	2-(G) FSK (G) MSK 4-(G) FSK BPSK (TX only)	IEEE 802.15.4g compliant	Synchronous serial (Control) DIO (DATA)	Cortex®-M3 (to 81MHz)	FLASH1024KB, RAM256KB	0.1k to 100kbps	-	-106dBm [100kbps BER=1%] <sup>*1</sup>	-40 to +85	P-TFPGA81 -6.5x6.5-0.65-9-MC	✓

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**MCU Included Specified Low Power Radio (Sub-GHz Band & 2.4GHz Band Radio) System LSI** (LAPIS Technology 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*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-LFPGA81 -1010-1.00-1-MC	✓
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		P-TQFP48 -0707-0.50-29K6-MC	✓

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 \*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 Technology 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.