FLR24G30 DATASHEET

1333mW 802.11B/G, mini PCI

The **FLR24G30** is an industrial grade, 1333mW TX power IEEE 802.11b/g miniPCI radio module. It is designed for the 2.4GHz ISM license exempt frequency band to support high value applications. The **FLR24G30** assures low EVM (Error Vector Magnitude) at higher modulation rates to maintain low packet errors and maximize data throughput. The design uses highly linear output power amplifiers in balanced mode to deliver linear power even at 64 QAM radio modulations while maintaining EVM below 4%. With better RX sensitivity and high SNR (specs stated in field conditions), the **FLR24G30** is specially designed to deliver best performance in long range outdoor applications. The industrial grade design (-40°C - +85°C) and enhanced resilience to RF surges and ESD makes it ideal for deploying in harsh environments.

Applications

- Long range outdoor broadband wireless applications
- Backhauls
- Access points and high performance CPEs
- Mesh wireless infrastructure applications
- Industrial applications

Key Features

- High power 31dBm (1333mW)
- High accuracy EVM maintains lowest packet errors to maximize data throughput at higher data modulation
- Support 5MHz / 10MHz / 20MHz channel bandwidth maximizing spectrum efficiency
- Two MMCX connectors that offers flexibility to system designers with diversity or internal / external antenna selection options
- Accurate power control 0dBm to 31dBm range
- Industrial grade (-40°C - +85°C) design ensures durability in harsh operating environments and adverse weather conditions
- Integrated RF surge protection for enhanced ESD performance up to approx. 14 KV
- Supported by open source MadWiFi Linux kernel drivers for industrial and outdoor broadband wireless communications systems
- Windows 2000/XP/Vista drivers offers easy integration into Industrial PCs

RADIO SYSTEM INFORMATION	
Model No	FLR24G30
Chipset & CPU	Atheros AR5414A
Interface	32bits, 33MHz miniPCI Type III A
Operation Voltage	3.3V
Radio Frequency Band	2.4GHz ISM (2412MHz - 2484MHz)
Data Rates	54, 48, 36, 24, 18, 12, 9, 6 Mbps (Auto fall back)
Channel Bandwidth	5, 10, 20Mhz
Driver	Linux MadWiFi, Windows XP, Windows 2000

PHYSICAL, ENVIRONMENTAL AND OTHER SPECIFCIFICATIONS					
Antenna Ports	Two MMCX Ports				
Power Consumption Matrix	**DBPSK**	**BPSK**	**QPSK**	**16QAM**	**64QAM**
Continuous Transmit at the Power as above	2.4A (8W)	2.4A (8W)	2.3A (7.5W)	2.2A (7.3W)	1.9A (6.3W)
Operating Temperature	-40°F to +185°F (-40°C to +85°C)				
Dimension & Weight	2.36" x 2.04 " (60 x 52 mm), approx. 0.04 lb (0.02 kg)				

RADIO SYSTEM INFORMATION				
Tx/Rx Specification	**DATA RATE**	**MODULATION**	**TX POWER**	**RX SENSITIVITY**
20MHz Channel Width	1 Mbps	DBPSK/DSS	31dBm ± 1dBm	-97dBm ± 1dBm
2412 MHz – 2484 MHz	2 Mbps	DQPSK/DSS	31dBm ± 1dBm	-95dBm ± 1dBm
	5.5 Mbps	CCK/DSS	31dBm ± 1dBm	-92dBm ± 1dBm
	11 Mbps	CCK/DSS	31dBm ± 1dBm	-90dBm ± 1dBm
	6 Mbps	BPSK/COFDM	30dBm ± 1dBm	-93dBm ± 1dBm
	9 Mbps	BPSK/COFDM	30dBm ± 1dBm	-93dBm ± 1dBm
	12 Mbps	QPSK/COFDM	29dBm ± 1dBm	-91dBm ± 1dBm
	18 Mbps	QPSK/COFDM	29dBm ± 1dBm	-89dBm ± 1dBm
	24 Mbps	16QAM/COFDM	28dBm ± 1dBm	-86dBm ± 1dBm
	36 Mbps	16QAM/COFDM	28dBm ± 1dBm	-82dBm ± 1dBm
	48 Mbps	64QAM/COFDM	27dBm ± 1dBm	-77dBm ± 1dBm
	54 Mbps	64QAM/COFDM	27dBm ± 1dBm	-74dBm ± 1dBm

RADIO SYSTEM INFORMATION				
Tx/Rx Specification	**DATA RATE**	**MODULATION**	**TX POWER**	**RX SENSITIVITY**
10MHz Channel Width	3Mbps	BPSK/COFDM	30dBm ± 1dBm	-95dBm ± 1dBm
2412 MHz – 2484 MHz	4.5Mbps	BPSK/COFDM	30dBm ± 1dBm	-95dBm ± 1dBm
	6Mbps	QPSK/COFDM	30dBm ± 1dBm	-93dBm ± 1dBm
	9Mbps	QPSK/COFDM	30dBm ± 1dBm	-91dBm ± 1dBm
	12Mbps	16QAM/COFDM	30dBm ± 1dBm	-88dBm ± 1dBm
	18Mbps	16QAM/COFDM	29dBm ± 1dBm	-84dBm ± 1dBm
	24Mbps	64QAM/COFDM	28dBm ± 1dBm	-79dBm ± 1dBm
	27Mbps	64QAM/COFDM	27dBm ± 1dBm	-76dBm ± 1dBm

RADIO SYSTEM INFORMATION				
Tx/Rx Specification	**DATA RATE**	**MODULATION**	**TX POWER**	**RX SENSITIVITY**
5MHz Channel Width	1.5Mbps	BPSK/COFDM	30dBm ± 1dBm	-97dBm ± 1dBm
2412 MHz – 2484 MHz	2.25Mbps	BPSK/COFDM	30dBm ± 1dBm	-97dBm ± 1dBm
	3Mbps	QPSK/COFDM	30dBm ± 1dBm	-95dBm ± 1dBm
	4.5Mbps	QPSK/COFDM	30dBm ± 1dBm	-93dBm ± 1dBm
	6Mbps	16QAM/COFDM	30dBm ± 1dBm	-90dBm ± 1dBm
	9Mbps	16QAM/COFDM	29dBm ± 1dBm	-86dBm ± 1dBm
	12Mbps	64QAM/COFDM	28dBm ± 1dBm	-81dBm ± 1dBm
	13.5Mbps	64QAM/COFDM	27dBm ± 1dBm	-78dBm ± 1dBm

Technical Information

The FLR24G30 has a 12.5 dB TX power offset from the internal system registers. As an example, in order to achieve a 30dBm transmit output power, the system should be set to 17.5 dBm. It is also recommended not to override the calibrated power settings as this will increase the packet error rate due to increased EVM.