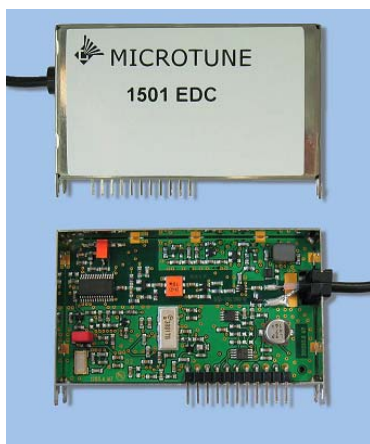




MT1501 EDC DAB TUNER MODULE

PRODUCT BRIEF

The MT1501 tuner module is designed for terrestrial digital audio broadcasting (DAB) in high-end automobile radios and entertainment system.



MT1501 Tuner Module

The MT1501 EDC DAB Tuner Module is designed for VHF Band III and L-Band reception according to the Eureka 147 DAB standard. It has been optimized to meet the specific requirements for mobile applications and to provide superior performance under extreme environmental conditions (-40 to +85 °C).

The MT1501 module features a down-conversion to a fixed IF which can be demodulated by an appropriate external channel decoder. An internal closed-loop AGC automatically controls the IF output level. The threshold level can be set by the serial bus.

The MT1501 module also features digitally aligned tracking filters for both bands as well as an IF SAW filter in order to minimize interferences and distortion caused by undesired signals or adjacent channels. The antenna matching is also digitally aligned. An integrated EEPROM is provided to store these alignment data.

By using the WAGC input pin the external demodulator can freeze the integrated AGC circuit to keep the IF output level unchanged during the null symbol of the DAB signal. This prevents the A/D converter from clipping as the transmission resumes.

A 12V DC phantom power supply can be routed from the pin connector to the antenna input of an active antenna system. Moreover a level indicator circuit provides a DC-voltage dependent on the RF-input level.

The MT1501 module fully complies with RoHS requirements. Customized mechanics and connectors are available on request.

APPLICATIONS

- High-end automotive radio and entertainment system

FEATURES

VHF Band III

- Single down-conversion
- Digitally aligned antenna matching

L-Band

- Double down-conversion
- Additional L-Band AGC
- Power down selectable

GENERAL

- Automatic alignment
- Serial bus-controlled
- IF SAW filter
- Selectable IF output level
- Single ended IF output
- Selectable AGCs threshold level
- 50 Ω input impedance
- 12 V phantom power input port for an active antenna
- On-board EEPROM
- Customized cable and input connectors e.g. FAKRA plug (compliant to DIN 72594-1)
- Lead-free and RoHS compliant

RECOMMENDED OPERATING CONDITIONS

PARAMETER	MIN	TYP	MAX	UNIT
8.5 V Power Supply Voltage				
Current VHF Band III Mode		125		mA
Current L-Band Mode		175		mA
Voltage		8.5		V
12 V Power Supply Voltage (Phantom Feeding)				
Current			250	mA
Voltage		12		V
Operating Temperature				
Parametric temperature range	-40		85	°C
Storage temperature	-40		95	°C

INPUT/OUTPUT CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT
IF Output (single ended)				
Load resistance		50		Ω
IF Output Level (VHF Band III)		-12		dBm
IF Output Level (L - Band)		-12		dBm
IF Output frequency		38.912		MHz
Antenna Input (AGC not active)			4	VSWR
Level Voltage	0		3.3	V
SDA	SDA and SCL HIGH and LOW levels are specified according to a 3.3V serial bus. The bus pins also tolerate thresholds of a 5V bus.			
SCL				
WAGC Input				
AGC on hold voltage	2.0			V
AGC active voltage			0.7	V

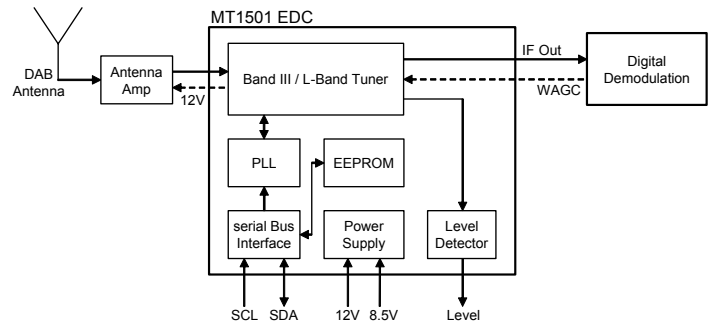
DIMENSIONS*

PARAMETER	MEASUREMENT	UNIT
Length	70.0	mm
Width	46.2	mm
Height	13.0	mm

*Number of pins is 11; pin grid is 2.54 mm

ELECTRICAL CHARACTERISTICS

PARAMETER	MIN	TYP	MAX	UNIT
Receiving frequency range				
L-Band	1452.816		1491.184	MHz
VHF Band III	174.928		239.200	MHz
Image Rejection (Image IF1= tuned frequency + 77.824 MHz)				
VHF Band III		60		dB
L-Band		60		dB
Min. RF Input for 10dB S/N				
VHF Band III		-98		dBm
L-Band		-96		dBm
Adjacent Channel Power Ratio high				
VHF Band III		19		dB
L-Band		19		dB
Adjacent Channel Power Ratio low				
VHF Band III		19		dB
L-Band		19		dB
Overall Gain (RF Input = -90 dBm)		75		dB
IF Level (RF Input = -80 dBm)		-12		dBm
Level Output Voltage				
at RF Input = -100dBm		2.1		V
at RF Input = -90dBm		2.5		V
at RF Input = -80dBm		3.1		V



MT1501 Block Diagram



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