MAX2136A

Global Automotive TV Tuner

Global Automotive TV Tuner Optimized for Lower Power and High Performance, Especially at Maximum Signal Levels

NDA Required. Request Full Data Sheet

Description

The MAX2136A is a low-power global automotive TV tuner. It directly converts a variety of broadcast signals including 3-13 segment ISDB-T, 6/7/8MHz DVB-T/T2, T-DMB/DAB, CTTB, CMMB, and ATSC/ATSC-MH to a low-IF using a broadband I/Q downconverter. The operating frequency range covers the VHF and UHF broadcast TV bands from 44MHz to 891MHz.

The MAX2136A integrates LNAs, RF variable-gain amplifiers (VGAs), VHF and UHF tracking filters, I/Q downconverting mixers, baseband VGAs, and baseband filters. The VGAs typically provide in excess of 120dB of control range. The device also includes fully monolithic VCOs and tank circuits, as well as a complete frequency synthesizer with an on-chip crystal oscillator and output buffer/divider.

The device incorporates a 2-wire (I^2C) serial control interface with multiple read and write addresses.

A low-power standby mode is available whereupon the signal path is shut down while leaving the serial control interface and crystal oscillator circuits active. For further power savings, the crystal oscillator can be disabled by placing the device in shutdown mode using the external shutdown pin.

The MAX2136A is available in a 32-pin TQFN package (5mm x 5mm) with an exposed pad. Electrical performance is guaranteed over the extended -40°C to +85°C temperature range.

Key Features

- Multiple Frequency Ranges
  - VHF-L: 44MHz to 108MHz
  - VHF-H: 167MHz to 254MHz
  - UHF: 469MHz to 891MHz
- Low Noise Figure: 3.7dB (typ)
- High Dynamic Range: -100dBm to +10dBm
- Integrated VHF/UHF Tracking Filter
- Integrated VCO and Tank Circuits
- Low Phase Noise: -95dBc/Hz at 10kHz (typ)
- Integrated Variable Bandwidth Channel Filters
- Single +3.3V Supply Voltage
- Low Power: 231mW (typ)
- Shutdown and Standby Modes
- I^2C Serial Interface

Applications/Uses

- Automotive TV Systems
- Laptop/Desktop TV Receivers
- Personal Multimedia Players
- Portable LCD TVs
- Portable Navigation Devices
- Tablets

Part Number	Ref. Clock Freq. (MHz)	Input Frequency (MHz)	Noise Figure (dB) typ	V_{SUPPLY} (V)	I_{SUPPLY} (mA)	Applications	Footprint (mm x mm)	Oper. Temp. (°C)	Package/Pins
MAX2136A	16 to 36	44 to 108 167 to 254 469 to 891	UHF=3.7 VHF=4.8 to 5.5	2.7 to 3.47	70	ATSC/ATSC-M/H CMMB DAB DTMB/GB20600 DVB-T/DVB-T2 ISDB-T (13 segments)	5.0 x 5.0	-40 to +85	TQFN/32

Device	Fab Process	Technology	Sample size	Rejects	FIT at 25°C	FIT at 55°C
MAX2136AETJ/V+	Contact reliability engineer for information					
MAX2136AEVKIT#	Contact reliability engineer for information					
MAX2136AETJ+T	Contact reliability engineer for information					
MAX2136AETJ/V+TQ00	Contact reliability engineer for information					
MAX2136AETJ/V+T	Contact reliability engineer for information					
MAX2136AETJ+	Contact reliability engineer for information					

Note : The failure rates are summarized by technology and mapped to the associated material part numbers. The failure rates are highly dependent on the number of units tested.