

## MAX2135A ISDB-T/DVB-T Diversity Tuner

Industry's Only Diversity Tuner for Automotive TV Consumes Only 300mW

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### Status

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### Data Sheet

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### Description

The MAX2135A low-power, 6MHz ISDB-T and 6MHz/7MHz/8MHz DVB-T low-IF diversity tuner directly converts broadcast ISDB-T and DVB-T signals to a low-IF using a broadband I/Q downconverter. The operating frequency range covers the VHF and UHF broadcast TV bands from 90MHz to 862MHz.

The MAX2135A integrates LNAs, RF variable-gain amplifiers (VGAs), VHF and UHF tracking filters, I/Q downconverting mixers, baseband VGAs, and low-IF filters. The device also includes a fully monolithic VCO and tank circuit as well as a complete frequency synthesizer including an on-chip crystal oscillator and output buffer/divider.

The device incorporates a 2-wire (I<sup>2</sup>C) 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 register circuits active. Additionally, the entire device can be shut down by an external pin.

The MAX2135A is available in a 56-pin thin QFN package (7mm x 7mm) with an exposed paddle. Electrical performance is guaranteed over the extended -40°C to +85°C temperature range.

**NOTE: This product uses the following:**  
MAX2135A EVKIT Software

### Key Features

- Multiple Frequency Ranges
  - VHF-L: 90MHz to 108MHz
  - VHF-H: 170MHz to 230MHz
  - UHF: 470MHz to 862MHz
- Complete Diversity Solution
- Low UHF Noise Figure: 3.7dB (typ)
- High Dynamic Range: -99dBm to +10dBm
- Integrated VHF/UHF Tracking Filter
- Integrated VCO and Tank Circuits
- Low Phase Noise: -95dBc/Hz at 10kHz (typ)
- Integrated Channel Filters (6MHz, 7MHz, and 8MHz)
- Single +2.7V to +3.47V Supply Voltage Range
- Low Power: 396mW (typ)
- Shutdown and Standby Modes
- I<sup>2</sup>C Serial Interface

### Applications/Uses

- Automotive TV Diversity Systems
- Laptop/Desktop TV Receivers
- Portable LCD TVs
- Portable Navigation Devices

### Key Specifications:

TV Tuners													
Part Number	Ref. Clock Freq. (MHz)	IF f <sub>OUT</sub> (MHz)	Noise Figure (dB)	V <sub>SUPPLY</sub> (V)	I <sub>SUPPLY</sub> (mA)	Applications	f <sub>IN</sub>	Features	Footprint (mm x mm)	Package/Pins	Smallest Available Pckg. (mm <sup>2</sup> )	Industry Qualified	Budgetary Price
			typ										See Notes
MAX2135A	16 to 18 32 to 36	4.5	UHF=3.7 VHF=4.8 to 5.5	2.7 to 3.47	70	DVB-T ISDB-T (13 segments)	93 to 105, 173 to 227, 473 to 859	- 95dBc/Hz phase noise @ 10kHz -99 to +10dBm dynamic range Diversity Receiver I <sup>2</sup> C command interface Integrated VHF/UHF tracking filters Shutdown and Standby Modes	7.0 x 7.0	TQFN/56	49.1	Automotive - AECQ100 Automotive - General	\$4.94 @1k

[See All TV Tuners \(16\)](#)

**Pricing Notes:**  
This pricing is BUDGETARY, for comparing similar parts. Prices are in U.S. dollars and subject to change. Quantity pricing may vary substantially and international prices may differ due to local duties, taxes, fees, and exchange rates. For volume-specific prices and delivery, please see the price and availability page or contact an authorized distributor.

### Application Notes

[Tutorial 5100](#) [General Layout Guidelines for RF and Mixed-Signal PCBs](#)

### Product Guides

[Wireless \(PDF\)](#)

### Reliability Reports

Reliability Report: [MAX2135A.pdf](#)  
Show FIT data for: [MAX2135A](#) [Go](#)

### Software/Models

[MAX2135A EVKIT Software](#)

### Ordering Information

Filters: Part Number:  Package: [Any](#) Temperature: [Any](#)  Tape and Reel  Sample [Go](#)

Part Number	Free Sample	Buy	Status	Package: TYPE PINS FOOTPRINT DRAWING CODE/VAR *	Temp	RoHS/Lead-Free? Materials Analysis
MAX2135AE/W		<a href="#">Buy</a>	Active: Data sheet on request only	WAFER UNSAWN;NA pin;WAFER; Land Pattern: Not Applicable Use pkgcode/variation: WDICE28*	-40°C to +85°C	See data sheet
MAX2135AE/W+C76		<a href="#">Buy</a>	Active: Data sheet on request only	WAFER UNSAWN;NA pin;WAFER; Land Pattern: Not Applicable Use pkgcode/variation: WDICE28+*	-40°C to +85°C	See data sheet
MAX2135AE/W-T		<a href="#">Buy</a>	Active: Data sheet on request only	WAFER; Land Pattern: Not Available	-40°C to +85°C	See data sheet
MAX2135AETN+	<a href="#">Sample</a>	<a href="#">Buy</a>	Active: Data sheet on request only	TQFN;56 pin;49.1 mm <sup>2</sup> Outline Drawing:21-0144 (PDF) Land Pattern: 90-0043 (PDF) Use pkgcode/variation: T5677+2*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX2135AETN+T		<a href="#">Buy</a>	Active: Data sheet on request only	TQFN;56 pin;49.1 mm <sup>2</sup> Outline Drawing:21-0144 (PDF) Land Pattern: 90-0043 (PDF) Use pkgcode/variation: T5677+2*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX2135AETNV+		<a href="#">Buy</a>	Active: Data sheet on request only	TQFN;56 pin;49.1 mm <sup>2</sup> Outline Drawing:21-0144 (PDF) Land Pattern: 90-0043 (PDF) Use pkgcode/variation: T5677+2*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX2135AETNV+CBN		<a href="#">Buy</a>	Active: Data sheet on request only	TQFN;56 pin;49.1 mm <sup>2</sup> Outline Drawing:21-0144 (PDF) Land Pattern: 90-0043 (PDF) Use pkgcode/variation: T5677+2*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX2135AETNV+T		<a href="#">Buy</a>	Active: Data sheet on request only	TQFN;56 pin;49.1 mm <sup>2</sup> Outline Drawing:21-0144 (PDF) Land Pattern: 90-0043 (PDF) Use pkgcode/variation: T5677+2*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX2135AETNV+TCBN		<a href="#">Buy</a>	Active: Data sheet on request only	TQFN;56 pin;49.1 mm <sup>2</sup> Outline Drawing:21-0144 (PDF) Land Pattern: 90-0043 (PDF) Use pkgcode/variation: T5677+2*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
MAX2135AEVKIT#		<a href="#">Buy</a>	Active: Data sheet on request only	KIT; Land Pattern: Not Available		See data sheet

- Notes:
- Other options and links for purchasing parts are listed at: <http://www.maxim-ic.com/sales>.
  - Didn't Find What You Need? Ask our applications engineers. Expert assistance in finding parts, usually within one business day.
  - Part number suffixes: T or T&R = tape and reel, + = RoHS/lead-free, # = RoHS/lead-exempt, -D = drypack, -U/+U on DS parts = cut tape. More: See Full Data Sheet or Maxim Product Naming Conventions.
  - \* Some packages have variations, listed on the drawing. "PkgCode/Variation" tells which variation the product uses. Note that "+", "#", "-" in the part number suffix describes RoHS status. Package drawings may show a different suffix character.

### Similar Products by Function

MAX2136 [ISDB-T/DVB-T Low-IF Tuner](#)  
[See All TV Tuners \(21 Products\)](#)

### Similar Products by Application

[Automotive: TV-Tuner Systems > Tuner](#)  
[Broadcast TV and Radio > Mobile TV](#)  
[Flat-Panel TVs > Tuners](#)

### Products with Similar Part Numbers

MAX2135 [ISDB-T/DVB-T Diversity Tuner](#)

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