

FEATURES

- ◆ Alternate source for MAX931-MAX934
- ◆ Ultra-Low Quiescent Current Over Temperature
 - TSM931 Single+Reference: 4µA (max)
 - TSM932/TSM933 Dual+Reference: 6µA (max)
 - TSM934 Quad+Reference: 8.5µA (max)
- ◆ Single or Dual Power Supplies:
 - Single: +2.5V to +11V
 - Dual: ±1.25V to ±5.5V
- ◆ Input Voltage Range Includes Negative Supply
- ◆ 12µs Propagation Delay at 10mV Overdrive
- ◆ Push-pull TTL/CMOS-Compatible Outputs
- ◆ Crowbar-Current-Free Switching
- ◆ Continuous Source Current Capability: 40mA
- ◆ Internal 1.182V ±2% Reference:
 - TSM931/TSM932/TSM933
- ◆ Adjustable Hysteresis:
 - TSM931/TSM932/TSM933

APPLICATIONS

Threshold Detectors/Discriminators
 Oscillator Circuits
 Window Comparators
 Level Translators
 Battery-Powered Systems

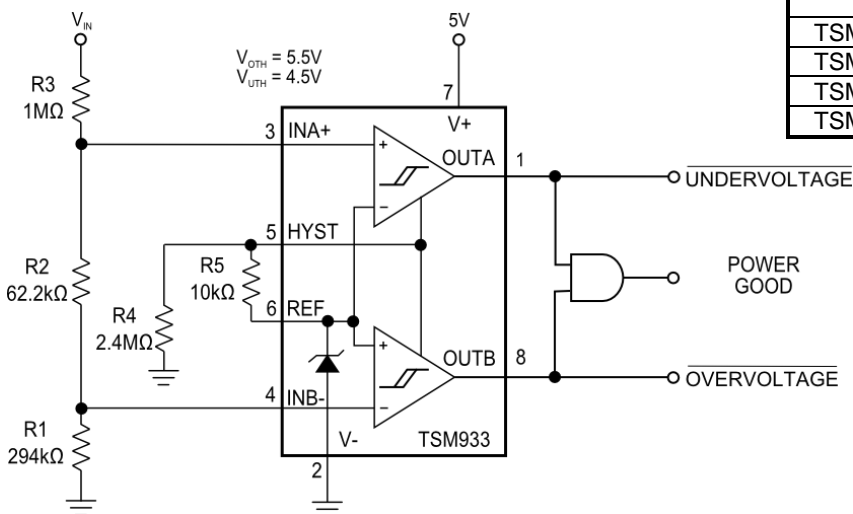
DESCRIPTION

The TSM931–TSM934 family of single/dual/quad, low-voltage, micropower analog comparators is electrically and form-factor identical to the MAX931–MAX934 family of analog comparators. Ideal for 3V or 5V single-supply applications, the TSM931–TSM934 family can operate from single +2.5V to +11V supplies or from ±1.25V to ±5V dual supplies. The single TSM931 draws less than 4µA (max) supply current over temperature. The dual TSM932/TSM933 and the quad TSM934 each draw less than 3µA per comparator over temperature.

All comparators in this family exhibit an input voltage range from the negative supply rail to within 1.3V of the positive supply. In addition, the comparators' push-pull output stages are TTL/CMOS compatible and capable of sinking and sourcing current. The TSM931/TSM932/TSM933 each incorporates an internal 1.182V ±2% voltage reference. Without complicated feedback configurations and only requiring two additional resistors, adding external hysteresis via a separate pin is available on the TSM931, the TSM932, and the TSM933.

TYPICAL APPLICATION CIRCUIT

A 5V, Low-Parts-Count Window Detector



PART	INTERNAL REFERENCE	COMPARATORS PER PACKAGE	INTERNAL HYSTERESIS
TSM931	Yes	1	Yes
TSM932	Yes	2	Yes
TSM933	Yes	2	Yes
TSM934	Yes	4	No

PART	TEMPERATURE RANGE	PACKAGE
TSM931C	0°C to 70°C	8-Pin MSOP/SOIC
TSM931E	-40°C to 85°C	
TSM932C	0°C to 70°C	8-Pin MSOP/SOIC
TSM932E	-40°C to 85°C	
TSM933C	0°C to 70°C	8-Pin MSOP/SOIC
TSM933E	-40°C to 85°C	
TSM934C	0°C to 70°C	16-Pin SOIC
TSM934E	-40°C to 85°C	

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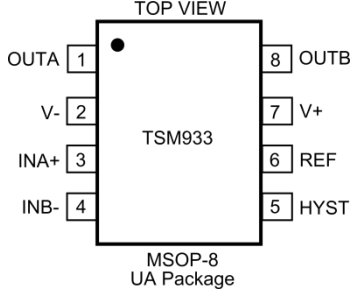
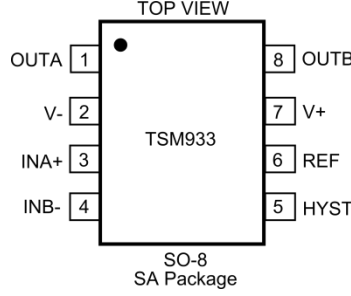
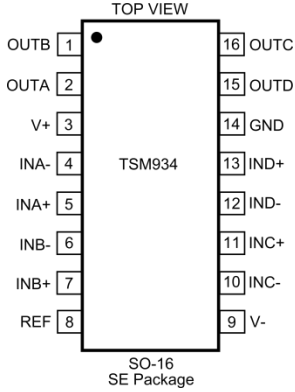
TSM931-TSM934 Product Brief



PACKAGE/ORDERING INFORMATION

<p>TOP VIEW MSOP-8 UA Package</p>				<p>TOP VIEW SO-8 SA Package</p>			
ORDER NUMBER	PART MARKING	CARRIER	QUANTITY	ORDER NUMBER	PART MARKING	CARRIER	QUANTITY
TSM931CUA+	TAAX	Tube	50	TSM931CSA+	TS931	Tube	97
				TSM931CSA+T		Tape & Reel	2500
TSM931CUA+T		Tape & Reel	2500	TSM931ESA+	TS931E	Tube	97
				TSM931ESA+T		Tape & Reel	2500
<p>TOP VIEW MSOP-8 UA Package</p>				<p>TOP VIEW SO-8 SA Package</p>			
ORDER NUMBER	PART MARKING	CARRIER	QUANTITY	ORDER NUMBER	PART MARKING	CARRIER	QUANTITY
TSM932CUA+	TABD	Tube	50	TSM932CSA+	TS932	Tube	97
				TSM932CSA+T		Tape & Reel	2500
TSM932CUA+T		Tape & Reel	2500	TSM932ESA+	TS932E	Tube	97
				TSM932ESA+T		Tape & Reel	2500

PACKAGE/ORDERING INFORMATION

 <p>MSOP-8 UA Package</p>				 <p>SO-8 SA Package</p>			
ORDER NUMBER	PART MARKING	CARRIER	QUANTITY	ORDER NUMBER	PART MARKING	CARRIER	QUANTITY
TSM933CUA+	TABB	Tube	50	TSM933CSA+	TS933	Tube	97
				TSM933CSA+T		Tape & Reel	2500
TSM933CUA+T		Tape & Reel	2500	TSM933ESA+	TS933E	Tube	97
				TSM933ESA+T		Tape & Reel	2500
 <p>SO-16 SE Package</p>							
ORDER NUMBER	PART MARKING	CARRIER	QUANTITY	ORDER NUMBER	PART MARKING	CARRIER	QUANTITY
TSM934CSE+	TS934	Tube	48	TSM934ESE+	TS934E	Tube	48
TSM934CSE+T		Tape & Reel	2500	TSM934ESE+T		Tape & Reel	2500

Lead-free Program: Touchstone Semiconductor supplies only lead-free packaging.

Consult Touchstone Semiconductor for products specified with wider operating temperature ranges.

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