

Linear Building Block – Single Comparator in SOT Package

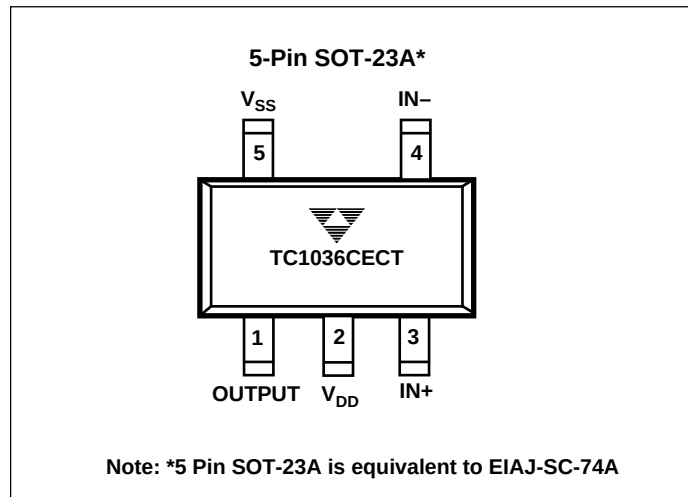
FEATURES

- Space Saving SOT-23A Package
- Optimized for Single-Supply Operation
- Ultra Low Input Bias Current Less than 100pA
- Low Quiescent Current 4 μ A
- Rail-to-Rail Inputs and Outputs
- Operation Down to $V_{DD} = 1.8V$
- LMC7211 Pin Replaceable

APPLICATIONS

- Power Management Circuits
- Battery Operated Equipment
- Consumer Products

PIN CONFIGURATION



GENERAL DESCRIPTION

The TC1036 is a single low-power comparator designed for low-power applications.

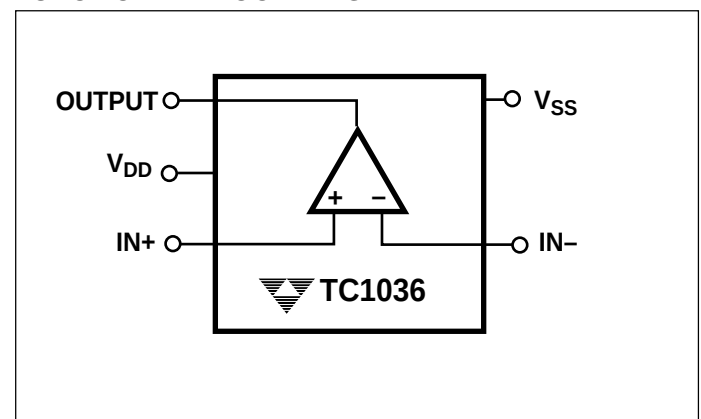
This comparator is specifically designed for operation from a single supply. However, operation from dual supplies also is possible, and power supply current is independent of the magnitude of the power supply voltage. The TC1036 can operate from two 1.5V alkaline cells down to $V_{DD} = 1.8V$. Active supply current is 4 μ A for the TC1036. Input and output swing of these devices is rail-to-rail.

Packaged in a 5-Pin SOT-23A, the TC1036 comparator is ideal for applications requiring high integration, small size, and low power.

ORDERING INFORMATION

Part No.	Package	Temp. Range
TC1036CECT	5-Pin SOT-23A	- 40°C to +85°C

FUNCTIONAL BLOCK DIAGRAM



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TC1036

ABSOLUTE MAXIMUM RATINGS*

Supply Voltage 6.0V
Voltage on Any Pin: (With Respect to Supplies)
..... ($V_{SS} - 0.3V$) to ($V_{DD} + 0.3V$)
Operating Temperature Range: $-40^{\circ}C$ to $+85^{\circ}C$
Storage Temperature Range $-55^{\circ}C$ to $+150^{\circ}C$
Lead Temperature (Soldering, 10 sec) $+260^{\circ}C$

* Static-sensitive device. Unused devices must be stored in conductive material. Protect devices from static discharge and static fields. Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to Absolute Maximum Rating Conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS: Typical values apply at $25^{\circ}C$ and $V_{DD} = 3.0V$. Minimum and maximum values apply for $V_{DD} = 1.8V$ to $5.5V$, and $T_A = -40^{\circ}C$ to $+85^{\circ}C$, unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DD}	Supply Voltage		1.8	—	5.5	V
I_Q	Supply Current, Operating	All Outputs Unloaded	—	4	8	μA
V_{ICMR}	Common Mode Input Voltage Range		$V_{SS} - 0.2$	—	$V_{DD} + 0.2$	V
V_{OS}	Input Offset Voltage	$V_{DD} = 3V$, $V_{CM} = 1.5V$, $T_A = 25^{\circ}C$ $T_A = -40^{\circ}C$ to $85^{\circ}C$	-5 -5	—	+5 +5	mV mV
I_B	Input Bias Current	$T_A = 25^{\circ}C$, $IN+$, $IN- = V_{DD}$ to V_{SS}	—	—	± 100	pA
V_{OH}	Output High Voltage	$R_L = 10K\Omega$ to V_{SS}	$V_{DD} - 0.3$	—	—	V
V_{OL}	Output Low Voltage	$R_L = 10K\Omega$ to V_{DD}	—	—	0.3	V
CMRR	Common Mode Rejection Ratio	$T_A = 25^{\circ}C$, $V_{DD} = 5V$ $V_{CM} = V_{DD}$ to V_{SS}	66	—	—	dB
PSRR	Power Supply Rejection Ratio	$T_A = 25^{\circ}C$, $V_{CM} = 1.2V$ $V_{DD} = 1.8V$ to $5V$	60	—	—	dB
I_{SRC}	Output Source Current	$IN+ = V_{DD}$, $IN- = V_{SS}$ Output Shorted to V_{SS} $V_{DD} = 1.8V$	1	—	—	mA
I_{SINK}	Output Sink Current	$IN+ = V_{SS}$, $IN- = V_{DD}$, Output Shorted to V_{DD} $V_{DD} = 1.8V$	2	—	—	mA
t_{PD1}	Response Time	100mV Overdrive, $C_L = 100pF$	—	4	—	μsec
t_{PD2}	Response Time	10mV Overdrive, $C_L = 100pF$	—	6	—	μsec

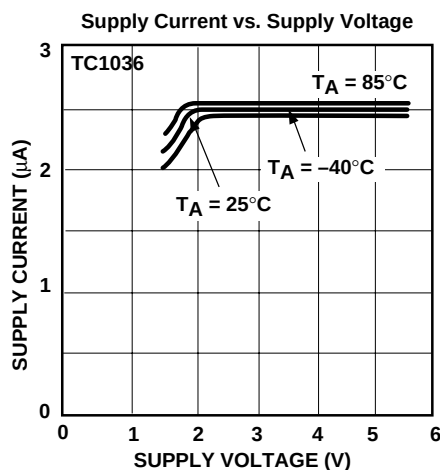
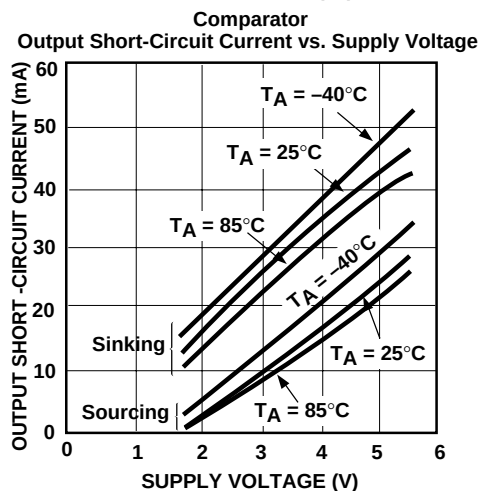
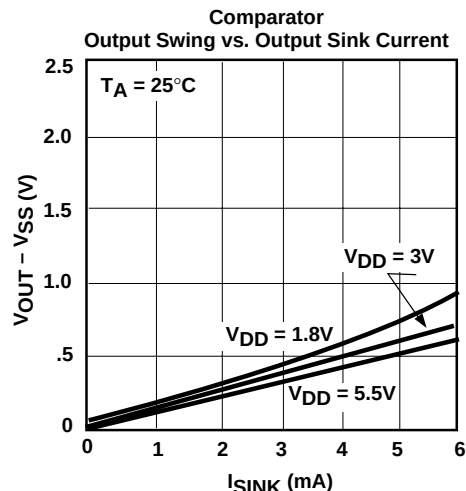
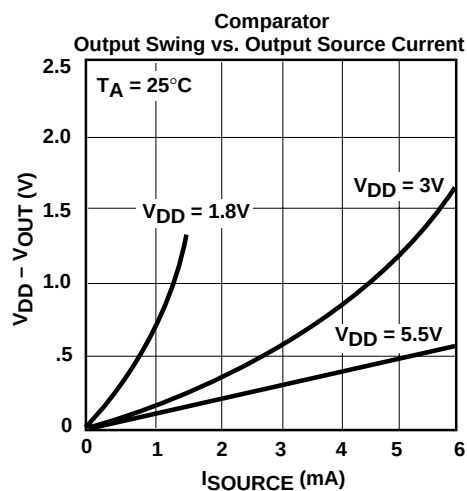
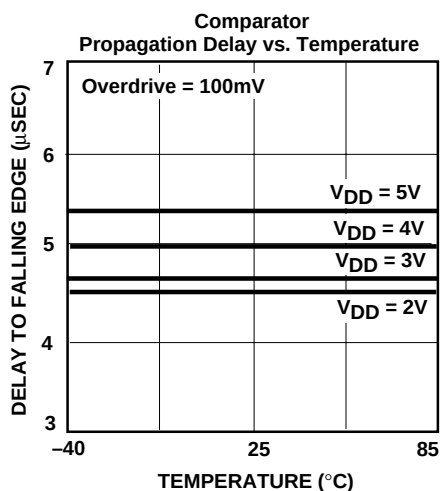
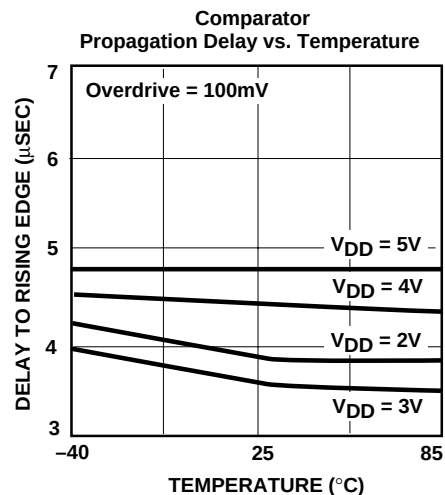
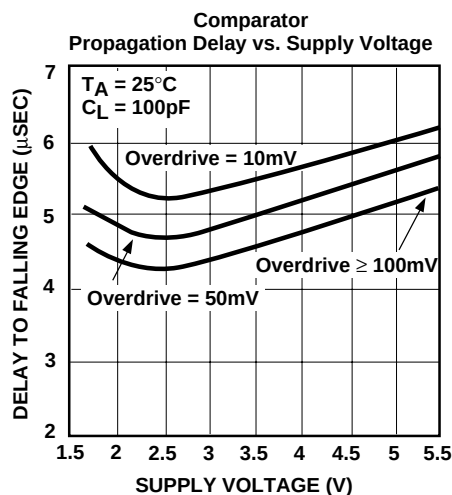
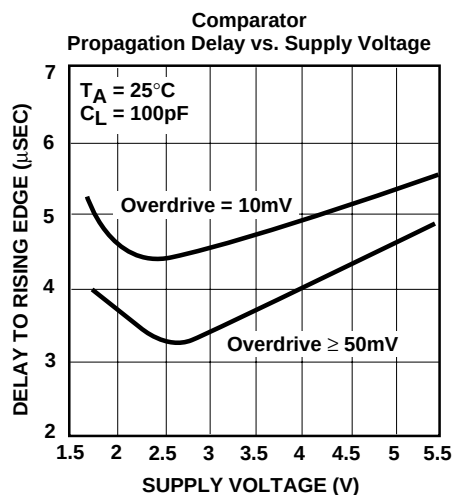
PIN DESCRIPTION

Pin No.	Name	Description
1	OUTPUT	Comparator Output Terminal.
2	V_{DD}	Positive Supply Voltage.
3	$IN+$	Comparator Non-Inverting Input Terminal.
4	$IN-$	Comparator Inverting Input Terminal.
5	V_{SS}	Ground Terminal.

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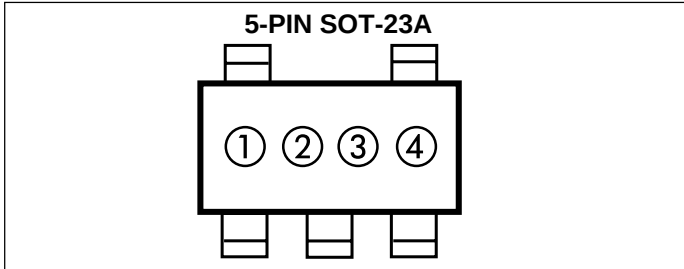
TYPICAL CHARACTERISTICS



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MARKINGS



① & ② = part number code + temperature range and voltage

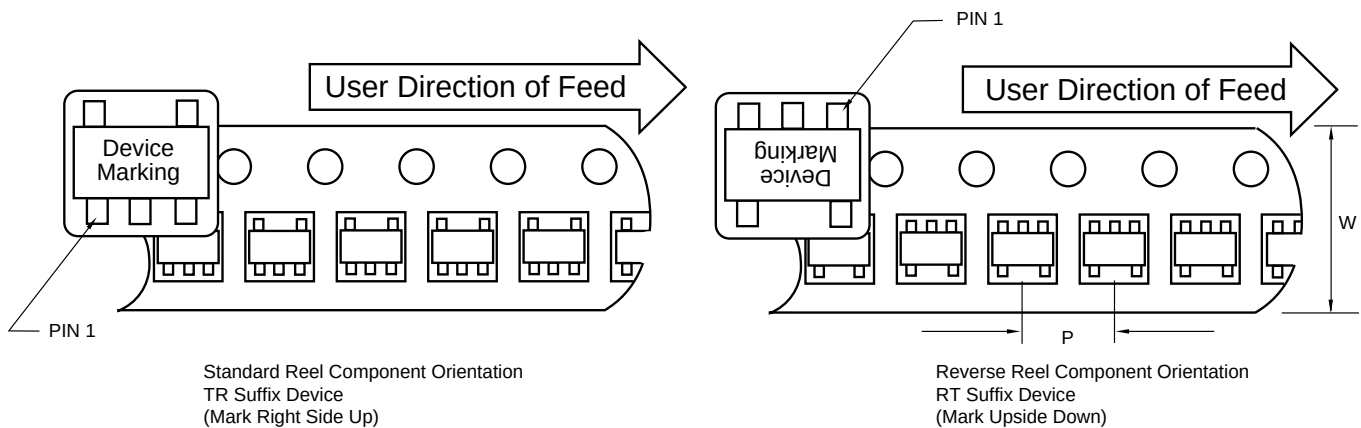
Part Number Code
TC1036CECT BP

ex: 1036CECT = (B)(P)○○○

③ represents year and 2-month period code

④ represents lot ID number

Component Taping Orientation for 5-Pin SOT-23A (EIAJ SC-74A) Devices



Carrier Tape, Number of Components Per Reel and Reel Size

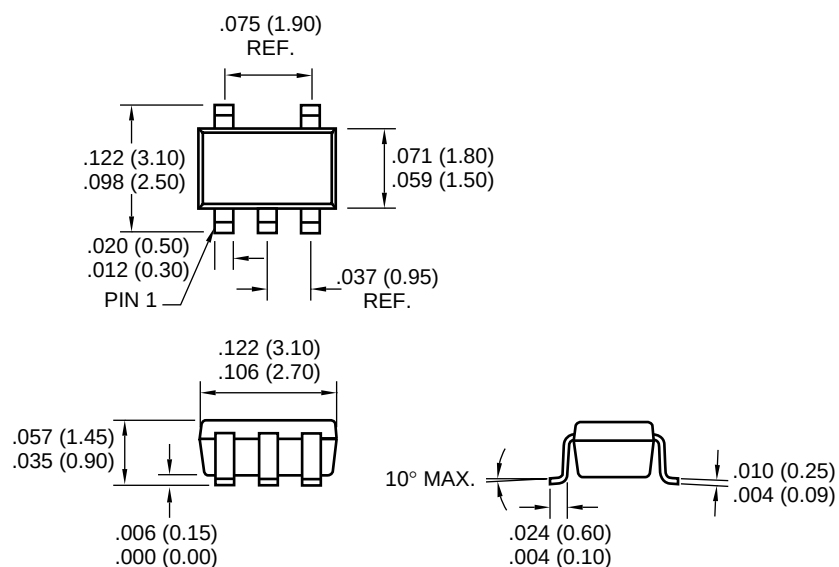
Package	Carrier Width (W)	Pitch (P)	Part Per Full Reel	Reel Size
5-Pin SOT-23A	8 mm	4 mm	3000	7 in

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PACKAGE DIMENSIONS

5-Pin SOT-23A (EIAJ SC-74A)



Dimensions: inches (mm)

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