

High Speed Comparators

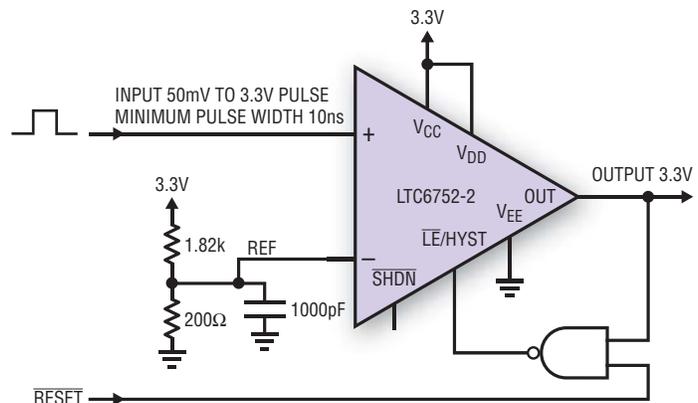
High toggle rate, nanosecond propagation delay and tiny packages are the hallmarks of Linear Technology's high speed comparators. Packed with innovative features, our complete family of high speed comparators allows your signal conditioning, timing and clock circuit designs to push the performance envelope.

Part Number	# Comps	Prop Delay	Toggle Rate	Adj Hyst	Latch	Separate Supply	Shut Down	Comp Outputs	CMOS Output Logic				Packages
									5V	3.3V	2.5V	1.8V	
LTC6752	1	2.9ns	280MHz							●	●		SOT-23
LTC6752-1	1	2.9ns	280MHz	●	●					●	●		SC70
LTC6752-2	1	2.9ns	280MHz	●	●	●	●			●	●	●	MSOP8
LTC6752-3	1	2.9ns	280MHz	●	●	●	●	●		●	●	●	9mm ² QFN
LTC6752-4	1	2.9ns	280MHz			●				●	●	●	SC70
LT1719	1	4.2ns	70MHz			●	●			●	●		SOT-23, SO8
LT1711	1	4.5ns	100MHz		●	●		●		●	●		MSOP8
LT1715	2	4ns	150MHz			●				●	●		MSOP10
LT1712	2	4.5ns	100MHz		●	●		●		●	●		SSOP16
LT1720	2	4.5ns	70MHz							●	●		9mm ² DFN, MSOP8, SO8
LT1721	4	4.5ns	70MHz							●	●		SSOP16, SO16

Featured High Speed Comparators: LTC6752 Family

The LTC6752 is a family of 5 comparators, offered in different packages with a variety of features. These extremely fast CMOS output comparators can swing to within 200mV of the rail with up to 8mA of load current. Propagation delay is only 2.9ns and these comparators can support a toggle rate up to 280MHz. They exhibit only 4.5ps of jitter for a 100mV_{p-p} 100MHz sinusoidal input. The CMOS outputs can support logic levels from 1.8V to 3.3V, and the inputs extend beyond both rails.

Several of the LTC6752 options include an internal latch function. The internal latch retains the output state when the LE/HYST pin is within 300mV of the negative supply. This feature is ideal for detecting short pulses, as shown in this simple fast event capture circuit. Once a fast event occurs, this circuit will hold the output until a reset occurs, allowing the interface (such as a microprocessor) to acknowledge the event.



Fast Event Capture Circuit



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Low Power Comparators

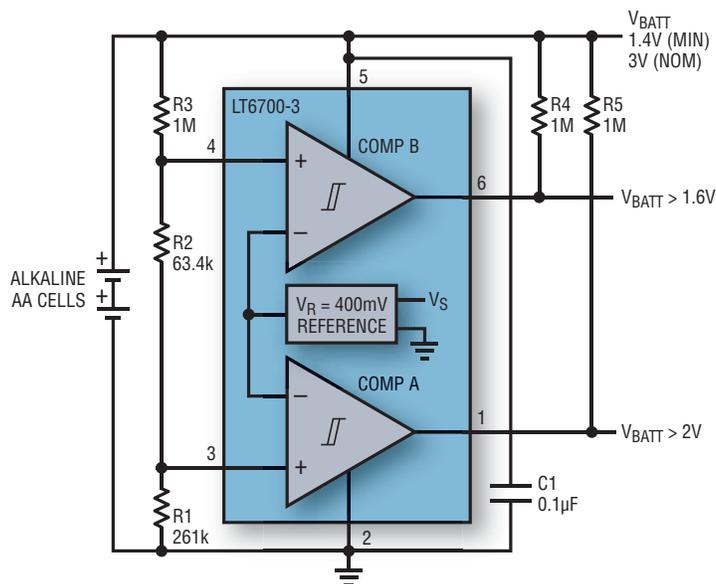
With supply currents starting at only 300nA, Linear Technology offers a broad line of ultralow power comparators. To achieve the lowest possible power and footprint, most of our low power comparators include an integrated precision voltage reference. For added design flexibility, the LTC1541 and LTC1542 also include a micropower, unity-gain stable op amp.

Part Number	# Comps	Voltage Reference	Supply Current	Includes Op Amp	Adj Hyst	Dual Supply	Supply Voltage	Output*	Packages
LTC1540	1	1.182V	0.3µA		●	●	2V to 11V	CMOS	9mm ² DFN, MSOP8, SO8
LTC1440	1	1.182V	2.1µA		●	●	2V to 11V	CMOS	9mm ² DFN, MSOP8, SO8, PDIP8
LTC1542	1	NONE	5µA	●			2.5V to 12.6V	CMOS	9mm ² DFN, MSOP8, SO8
LTC1541	1	1.2V	5µA	●			2.5V to 12.6V	CMOS	9mm ² DFN, MSOP8, SO8
LT6703	1	400mV	6.5µA				1.4V to 18V	OC ≤ 18V	4mm ² DFN, SOT-23
LT6703HV	1	400mV	6.5µA				1.4V to 18V	OC ≤ 36V	4mm ² DFN, SOT-23
LTC1441	2	NONE	3.5µA				2V to 11V	CMOS	SO-8, PDIP8
LTC1442	2	1.182V	3.5µA		●		2V to 11V	CMOS	SO-8, PDIP8
LT6700	2	400mV	6.5µA				1.4V to 18V	OC ≤ 18V	6mm ² DFN, SOT-23
LT6700HV	2	400mV	6.5µA				1.4V to 18V	OC ≤ 36V	6mm ² DFN, SOT-23
LTC1443	4	1.182V	5µA			●	2V to 11V	CMOS	20mm ² DFN, SO16, PDIP16
LTC1444	4	1.221V	5µA		●		2V to 11V	CMOS	20mm ² DFN, SO16, PDIP16
LTC1445	4	1.221V	5µA		●		2V to 11V	CMOS	20mm ² DFN, SO16, PDIP16

OC = Open-Collector output. Requires an external pull-up resistor.

Featured Low Power Comparators: LT6700 Family

The LT6700 combines two micropower comparators with a 400mV reference. Various options of the LT6700 offer unique combinations of input polarity. The open-collector outputs can be pulled up to 18V or 36V (depending on the option), and can sink more than 5mA over temperature. The LT6700 is an ideal choice for a micropower “gas gauge” with <2% total threshold error over temperature, as shown in this micropower battery monitor circuit. This example shows a simple 2-threshold “alkaline-cell” battery monitor: the bottom comparator goes low when battery voltage falls below 2V (1V per cell). The top comparator output goes low when the pack voltage falls below 1.6V (0.8V per cell), indicating that the battery pack has reached its end-of-life voltage.



Micropower Battery Monitor