



Industry's Fastest Comparators Drive 1.8V Logic Beyond 280MHz

MILPITAS, CA – March 11, 2015 – Linear Technology Corporation announces the [LTC6752](#) family of comparators with fast rise and fall times of 1.2ns and a toggle frequency of 280MHz, making them the fastest CMOS output comparators available today. Designed for driving logic levels from 3.3V down to 1.8V, the LTC6752 exhibits only 2.9ns of propagation delay and overdrive dispersion of only 1.8ns. Jitter is only 4.5ps for a 100mVpp, 100MHz sinusoidal input, and the outputs swing to within 200mV of the rails with up to 8mA of load current. All of this high speed performance is well suited for a broad range of timing-critical applications, where fast response times and CMOS output levels are required.

The LTC6752 consists of 5 options offered in different packages with unique combinations of features, such as separate input and output supplies, low power shutdown, output latch, adjustable hysteresis and complementary outputs. The latch provides the ability to quickly capture the state of the comparator. With the adjustable hysteresis feature, the default 5mV hysteresis can be increased up to 40mV for clean switching in the presence of noisy input signals, and it allows for hysteresis to be completely eliminated. The separate input and output supply allows the output logic level to be independent of the input signal range for translation from one logic level to another. With the shutdown, power can be reduced while enabling the comparator to wake up quickly. In addition, the complementary CMOS outputs simplify logic interfaces and eliminate the need for separate logic inversion.

The inputs for the LTC6752 extend beyond both rails, particularly useful for single supply operation. All members of the LTC6752 family are capable of driving 3.3V and 2.5V logic. The LTC6752-2, LTC6752-3 and LTC6752-4 have separate input and output supplies, decoupling the input and output voltage levels and enabling them to drive 1.8V logic.

“The LTC6752 family greatly expands the capabilities of CMOS output comparators with unprecedented speed and performance” stated Brian Hamilton, Design Manager for Linear Technology. “Each option combines a unique set of features to address a wide range of applications.”

The LTC6752 family is offered in the TSOT23, SC70, MSOP8 and a 12-lead 3mm x 3mm QFN package. These parts are fully specified over two temperature ranges: -40°C to 85°C and -40°C to 125°C . All members of the LTC6752 family are in full production, with prices starting at \$1.62 each in 1,000 piece quantities. For more information, visit www.linear.com/product/LTC6752

Photo Caption: 280MHz, 2.9ns CMOS Output Comparator Family

Summary of Features: LTC6752


- 280MHz Toggle Rate
- 2.9ns Low Propagation Delay
- Rail-to-Rail Inputs Extend Beyond Both Rails
- CMOS Outputs Capable of Driving $\pm 22\text{mA}$
- 4.5mA Low Quiescent Current
- Features within the LTC6752 Family:
 - o 2.45V to 5.25V Input Supply & 1.71V to 3.5V Output Supply (Separate Supply Option)
 - o 2.45V to 3.5V Supply (Single Supply Option)
 - o Shutdown Pin for Reduced Power
 - o Output Latch & Adjustable Hysteresis
 - o Complementary Outputs
- Packages: TSOT-23, MSOP, SC70, 3mm \times 3mm QFN
- Operating Temperature Range: -40°C to 125°C

PART#	ADJ. HYST	INPUT & OUTPUT SUPPLIES	SHUT- DOWN	Q / Q OUTPUTS	LATCH	Output CMOS Logic Levels			PACKAGE
						3.3V	2.5V	1.8V	
LTC6752						•	•		TSOT-23-5
LTC6752-1	•				•	•	•		SC70-6
LTC6752-2	•	•	•		•	•	•	•	MSOP8
LTC6752-3	•	•	•	•	•	•	•	•	3x3 QFN12
LTC6752-4		•				•	•	•	SC70-6

The USA list pricing shown is for budgetary use only. International prices may differ due to local duties, taxes, fees and exchange rates.

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for over three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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