

MICROPROCESSOR SUPERVISORY CIRCUITS

LTC Family of Supervisory Circuit Products

FUNCTION	1235	690	691	692	693	694/694-3.3	695/695-3.3	699	1232
Pushbutton Reset	X								X
Battery Backup Switching-UL Recognized	X	X	X	X	X	X	X		
Conditional Battery Backup	X								
RAM Write Protect	X		X		X		X		
Watchdog Timer	X	X	X	X	X	X	X	X	X
Power Fail Warning	X	X	X	X	X	X	X		
Power Up/Down Reset	X	X	X	X	X	X	X	X	X
Reset Threshold (V)	4.65	4.65	4.65	4.40	4.40	4.65/2.90	4.65/2.90	4.65	4.62 ¹
Reset Pulse Width (ms)	200	50	50	200	200	200	200	200	610
Guaranteed V _{CC} Reset Level (V)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Power Supply Current (μA)	600	600	600	600	600	600	600	600	500
Packages: Plastic	16	8	16	8	16	8	16	8	8
CERDIP		8	16			8	16		
SO	16 ²	8 ³	16 ²	8 ³	16 ²	8 ³	16 ²	8 ³	8 ³
Temperature Ranges	C	C, I	C, I	C, I	C, I	C, I	C, I	C	C

Notes: 1. 4.62V or 4.37V threshold selectable

2. 0.300" SO wide package

3. 0.150" SO narrow package

4. Temperature ranges: C = 0°C to 70°C, I = -40°C to 85°C, M = -55°C to 125°C

Definitions of Functions

Pushbutton Reset: Provides a manual reset input, usually triggered by a pushbutton switch, which is debounced and will initiate the usual reset sequence.

Battery Backup Switching: When V_{CC} drops below the battery voltage, V_{OUT} is connected to V_{BATT} and the device is placed in standby mode to conserve power. This provides backup power to the CMOS RAM while consuming less than 1μA of supply current. LTC devices are UL recognized for lithium battery backup.

Conditional Battery Backup: Electrically disconnects the battery during shipment and storage to prevent unnecessary discharge. Disconnection is done by detecting the power down sequencing of the supply and battery inputs.

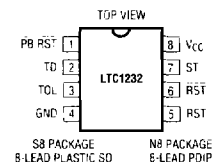
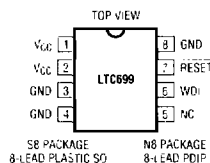
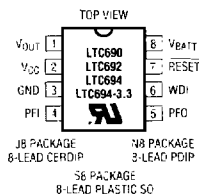
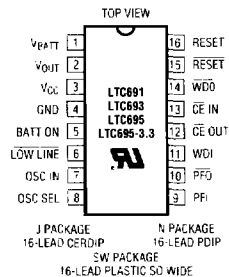
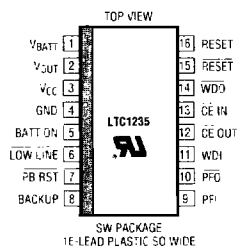
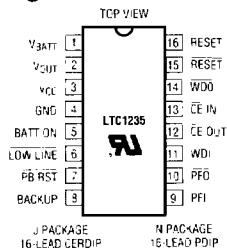
RAM Write Protect: The system RAM enable line is gated by the supervisory circuit. When the supply voltage drops below the reset voltage threshold, the enable line is inhibited, preventing erroneous data from being written into the RAM when V_{CC} is at an invalid level. The maximum enable delay for LTC's supervisors is 45ns.

Watchdog Timer: Monitors the activity of the μP. The processor must toggle this input line before the given timeout period expires, or a reset will be initiated. This function is intended to prevent μP's from becoming accidentally stalled in micro-code loops indefinitely.

Power Fail Warning: Provides early warning to the μP of an impending power failure by monitoring the unregulated power supply. This gives the processor time to perform shutdown activities before all regulated power is lost.

Power Up/Down Reset: Resets the μP when the power supply line drops below the preset threshold. LTC's supervisors will hold the reset line low down to supply voltages of 1.0V, providing a reliable reset through V_{CC} voltages which may allow the processor to begin operation.

Pin Configurations



9