



3.0V/3.3V Low Power Microprocessor Supervisory with Battery Switch-Over

features

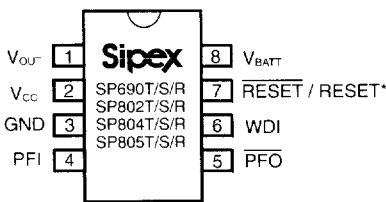
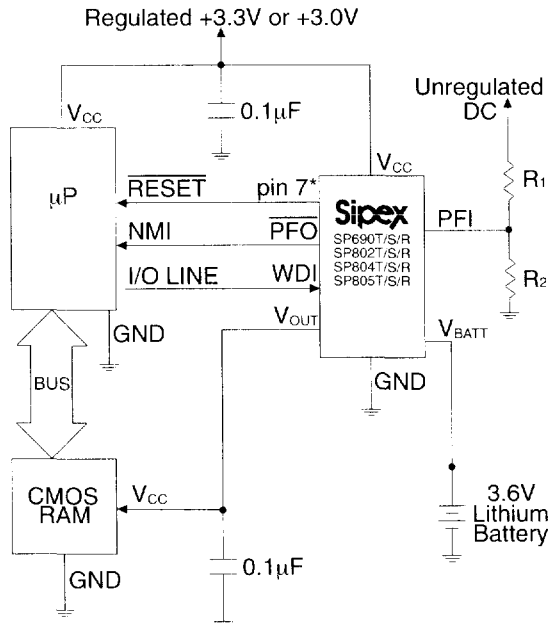
- RESET and RESET Outputs
- Reset asserted down to $V_{CC}=1V$
- Reset Time Delay - 200ms
- Watchdog Timer - 1.6 sec Timeout
- 40 μA Maximum V_{CC} Supply Current
- 1 μA Maximum Battery Supply Current
- Power Switching
 - 50mA Output in V_{CC} Mode (1.5 Ω)
 - 10mA Output in Battery Mode (15 Ω)
- Battery Can Exceed V_{CC} in Normal Operation
- Precision Voltage Monitor for Power-Fail or Low-Battery Warning
- Available in 8 pin SO and DIP packages
- Pin Compatible Upgrades to MAX690T/S/R, MAX802T/S/R, MAX804T/S/R, MAX805T/S/R

description

The SP690T/S/R, SP802T/S/R, SP804T/S/R and SP805T/S/R devices are a family of microprocessor (μP) supervisory circuits that integrate a myriad of components involved in discrete solutions to monitor power-supply and battery-control functions in μP and digital systems. The series will significantly improve system reliability and operational efficiency when compared to discrete solutions. The features of the SP690T/S/R, SP802T/S/R, SP804T/S/R and SP805T/S/R devices include a watchdog timer, a μP reset and backup-battery switchover, and power-failure warning; a complete μP monitoring and watchdog solution. The series is ideal for 3.0V or 3.3V applications in portable electronics, computers, controllers, and intelligent instruments and is a solid match for designs where it is critical to monitor the power supply to the μP and its related digital components. Refer to Sipex's SP690A/692A/802L/802M/805L/805M series for similar devices designed for +5V systems.



typical application circuit



*SP804T/S/R and SP805T/S/R only

*RESET for the SP690T/S/R and the SP802T/S/R
RESET for the SP804T/S/R and the SP805T/S/R

SP690T/S/R, SP802T/S/R, SP804T/S/R, SP805T/S/R

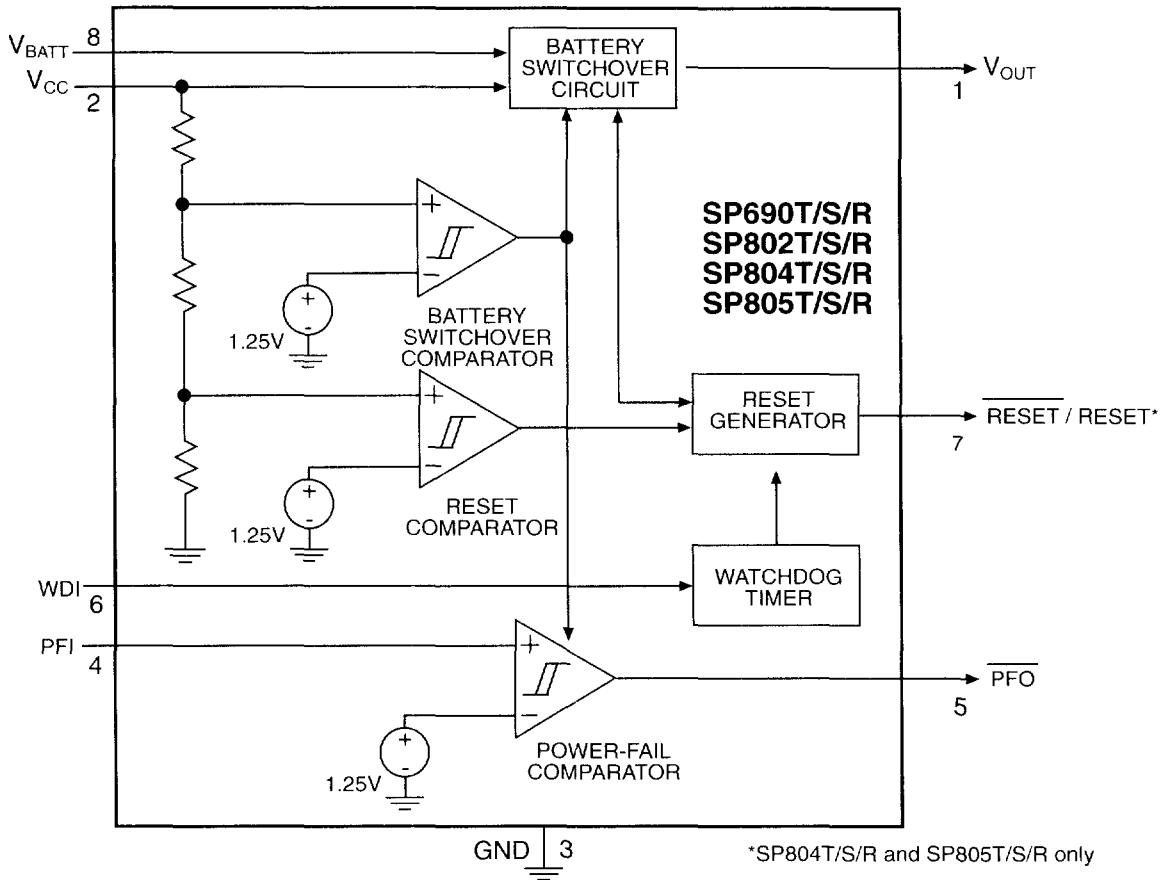
PIN NUMBER		NAME	DESCRIPTION
SP690/802	SP804/805		
1	1	V_{OUT}	Output Supply Voltage for CMOS RAM. When V_{CC} is above the reset threshold, V_{OUT} connects to V_{CC} through a P-channel MOSFET switch. When V_{CC} falls below the V_{SW} and V_{BATT} , V_{BATT} connects to V_{OUT} . Connect to V_{CC} if no battery is used.
2	2	V_{CC}	+5V Supply Input
3	3	GND	Ground reference for all signals
4	4	PFI	Power-Fail Comparator Input. When PFI is less than 1.25V or when V_{CC} falls below the V_{SW} , PFO goes LOW, otherwise PFO remains HIGH. Connect to GND if unused.
5	5	\overline{PFO}	Power-Fail Comparator Output. Leave open if unused.
6	6	WDI	Watchdog Input. If WDI remains HIGH or LOW for 1.6 seconds, the internal watchdog timer triggers a reset. The internal watchdog timer clears when reset is asserted or WDI sees a rising or falling edge. The watchdog function cannot be disabled.
7		\overline{RESET}	(Active Low Reset Output) Whenever \overline{RESET} is triggered by a watch dog timeout, it goes LOW for 200ms. It stays LOW whenever V_{CC} is below the reset threshold and remains LOW for 200ms after V_{CC} rises above the reset threshold or when the watchdog triggers a reset.
	7	RESET	(Active High Open-Drain Reset Output) The inverse operation of \overline{RESET} .
8	8	V_{BATT}	Backup-Battery Input. When V_{CC} falls below V_{SW} and V_{BATT} , V_{OUT} switches from V_{CC} to V_{BATT} . When V_{CC} rises above the reset threshold, V_{OUT} reconnects to V_{CC} . V_{BATT} may exceed V_{CC} . Connect to V_{CC} if no battery is used.

P

Part Number	RESET Active	RESET Threshold	RESET Accuracy	PFI Accuracy	Watchdog Input	Backup-Battery Switch
SP690T/805T	LOW/HIGH	3.075V	±75mV	±4%	YES	YES
SP802T/804T	LOW/HIGH	3.075V	±60mV	±2%	YES	YES
SP690S/805S	LOW/HIGH	2.925V	±75mV	±4%	YES	YES
SP802S/804S	LOW/HIGH	2.925V	±60mV	±2%	YES	YES
SP690R/805R	LOW/HIGH	2.625V	±75mV	±4%	YES	YES
SP802R/804R	LOW/HIGH	2.625V	±60mV	±2%	YES	YES

SP690T/S/R, SP802T/S/R, SP804T/S/R, SP805T/S/R

block diagram



SP690T/S/R, SP802T/S/R, SP804T/S/R, SP805T/S/R

ordering information - Please consult the factory for pricing and availability on a Tape-On-Reel option.

Temperature Range		Package Typ
0°C to +70°C	-40°C to +85°C	
SP690RCN	SP690REN	8-Pin NSOIC
SP690RCP	SP690REP	8-Pin PDIP
SP690SCN	SP690SEN	8-Pin NSOIC
SP690SCP	SP690SEP	8-Pin PDIP
SP690TCN	SP690TEN	8-Pin NSOIC
SP690TCP	SP690TEP	8-Pin PDIP
SP802RCN	SP802REN	8-Pin NSOIC
SP802RCP	SP802REP	8-Pin PDIP
SP802SCN	SP802SEN	8-Pin NSOIC
SP802SCP	SP802SEP	8-Pin PDIP
SP802TCN	SP802TEN	8-Pin NSOIC
SP802TCP	SP802TEP	8-Pin PDIP
SP804RCN	SP804REN	8-Pin NSOIC
SP804RCP	SP804REP	8-Pin PDIP
SP804SCN	SP804SEN	8-Pin NSOIC
SP804SCP	SP804SEP	8-Pin PDIP
SP804TCN	SP804TEN	8-Pin NSOIC
SP804TCP	SP804TEP	8-Pin PDIP
SP805RCN	SP805REN	8-Pin NSOIC
SP805RCP	SP805REP	8-Pin PDIP
SP805SCN	SP805SEN	8-Pin NSOIC
SP805SCP	SP805SEP	8-Pin PDIP
SP805TCN	SP805TEN	8-Pin NSOIC
SP805TCP	SP805TEP	8-Pin PDIP

P