2015 Q1

UNION SEMICONDUCTOR

www.union-ic.com

Power Management Selection Guide

Company Profile

Who We Are

Founded in 2001, Union Semiconductor is a fabless integrated circuit design company, engaged in inventing, designing and marketing high performance linear and mixed-signal integrated circuits (ICs) for use in a variety of electronic equipment.

Union Semiconductor's products bridge the analog real world and digital world by detecting, measuring, amplifying, converting power supply and providing protection for electronic circuits.

Corporate Mission

Union Semiconductor's mission is to continuously develop high quality and innovative mixed signal IC solutions that add value to customers' electronics equipment worldwide.

Products and Applications

Our products include power supplies, power management circuits, analog switches, interface circuits, ESD protection ICs and EMI filters.

Union Semiconductor markets over 180 analog ICs for uses in a wide variety of electronic equipment. These include PCs and their peripherals, portable devices, instrumentation, test equipments and digital consumer electronics.

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Table of Contents

Power Management

μP Supervisory ····· 1
Small Signal MOSFET ····· 1
Power Switches ····· 1

Appendix

Sales Contact ····· 4

Product Selection Guide

Power Management

µP Supervisory

Part Number	Description	Reset Thresh (V)	Timeout Period (Min) (ms)	Watchdog Feature	Watchdog Timeout	I_{CC} (µA)	Output Type	Operating Temp (℃)	Package
UM803xx	Power On Reset	**	140	No	NA	2	Open-Drain, Active Low	-40~85	SOT23-3 SOT323
UM809xx	Power On Reset	***	140	No	NA	3	Push-Pull, Active Low	-40~85	SOT23-3 SOT323
UM810xx	Power On Reset	***	140	No	NA	3	Push-Pull, Active High	-40~85	SOT23-3 SOT323
UM805xx	Power On Reset with General Manual Reset	**	140	No	NA	2	Open-Drain, Active Low	-40~85	SOT143
UM811xx	Power On Reset with General Manual Reset	**	140	No	NA	2	Push-Pull, Active Low	-40~85	SOT143
UM812xx	Power On Reset with General Manual Reset	**	140	No	NA	2	Push-Pull, Active High	-40~85	SOT143
UM807xx	Power On Reset with 1.68s/6.72s/ 10.08s Manual Reset Pulse Width	**	140	No	NA	2	Open-Drain, Active High	-40~85	SOT143
UM821xx	Power On Reset with 1.68s/6.72s/ 10.08s Manual Reset Pulse Width	**	140	No	NA	2	Push-Pull, Active Low	-40~85	SOT143
UM822xx	Power On Reset with 1.68s/6.72s/ 10.08s Manual Reset Pulse Width	**	140	No	NA	2	Push-Pull, Active High	-40~85	SOT143
*UM813x	Power On Reset with Manual Reset and Watchdog	**	140	Yes	1.6s	80	Push-Pull, Active High	-40~85	SOP8
UM706x	Power On Reset with Manual Reset and Watchdog	**	140	Yes	1.6s	80	Push-Pull, Active Low	-40~85	SOP8
UM708x	Power On Reset with Manual Reset	**	140	No	NA	80	Active Low & High	-40~85	SOP8

**: *Available reset threshold voltage: 4.63V, 4.38V, 4.00V, 3.08V, 2.93V, 2.63V, 2.32V*

***: *Available from 2.0V to 5.0V with 0.1V interval*

Power Switches

Part Number	Description	V_{IN} (V)	I_{LIMIT} (A) (Min)	I_{LOAD} (A) (Max)	Flag Delay Time (ms) (Typ)	$R_{DS(ON)}$ (mΩ)	Package
UM9711S	High-Side Power Switch with Flag	2.5~5.5	1.6	1.5	12	90	SOT23-5
*UM9711S8	High-Side Power Switch with Flag	2.5~5.5	1.6	1.5	12	90	SOP8
*UM9711AS	High-Side Power Switch without Flag	2.5~5.5	1.6	1.5	12	90	SOP8
UM3865P	Load Switch with Level Shifter	1.8~8.0		1	NA	300	SOT363
*UM2291P	80mΩ, 1.2A Load Switch	1.5~5.5	1.5	1.2	NA	80	SOT363

Small Signal MOSFET

Part Number	Description	BV_{DSS} (V)	$V_{GS(TH)}$ (V)	Continuous Drain Current Rating (A)	$R_{DS(ON)}$ (mΩ) V_{GS}=- 4.5V	Package
UM2301S	20V Pch	-20	-0.6	-1.5	200	SOT23-3
UM2301P	20V Pch	-20	-0.6	-1.1	200	SOT323
UM2302S	20V Nch	20	0.6	2	90	SOT23-3
UM2302P	20V Nch	20	0.6	1.6	90	SOT323
UM2362S	60V Nch	60	1	0.115	1700	SOT23-3
UM2362P	60V Nch	60	1	0.115	1700	SOT323
UM8516	20V Pch with Internal G-S Protection	-20	-0.6	-2	90	SOT23-6

**: Future product, contact factory.*

Power Management

Supervisory Circuit with Watchdog and Manual Reset

UM706xx

Key Features

- Manual Reset: Active-High Reset Output
- Supply Current: 200μA (Max)
- Minimum 140ms Reset Pulse Width
- 1.25V Voltage Monitor for Power-Fail or Low-Battery Warning
- Independent Watchdog Timer-1.6s Timeout

Applications

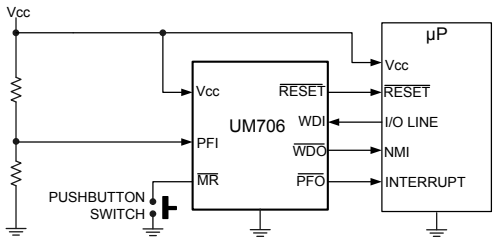
- CPU and Logic Circuit Reset
- Power Fail Detectors
- Computers
- Embedded Systems
- Battery-Powered Equipments
- Intelligent Instruments

Benefits

- Integrated Manual Reset and Watchdog

The UM706 provide four functions:

- A reset output during power-up, power-down and brownout conditions. The reset output is driven active within 10μs of power supply falling through the reset voltage threshold. Reset is keeping active for a minimum of 140ms after system power supply has risen above the reset threshold. Reset threshold suitable for operation with variety of supply voltage are available.
- An independent watchdog output that goes low if the watchdog input has not been toggled within 1.6 seconds.
- A 1.25V threshold detector for power-fail warning, low-battery detection, or for monitoring a power supply other than +5V.
- An active-low manual-reset input.



UM706xx Typical Application

Low Supply Current Supervisory Circuit

UM809xx/UM810xx

Key Features

- Wide Operation Voltage Range of 1V to 10V
- Typical Quiescent Current of 3μA
- Minimum 140ms Reset Pulse Width
- No External Components Required
- Available Reset Threshold from 2.0V to 5.0V, Step=100mV
- Correct Logic Output Guaranteed to V_{CC}=1.0V
- Push-Pull Low Active Reset Output (UM809)
- Push-Pull High Active Reset Output (UM810)
- 3-Pin Small SOT323 and SOT23 Packages

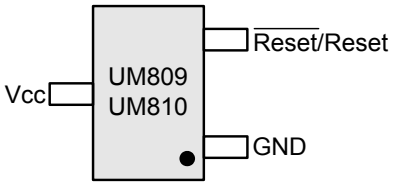
Applications

- CPU and Logic Circuit Reset
- Power Fail Detectors
- Computers
- Embedded Systems
- Battery-Powered Equipments
- Intelligent Instruments

Benefits

- No External Components Required, Saving PCB Space
- Wide Operation Voltage Range of 1V to 10V
- Ultra Low Quiescent Current: 3μA (Typ)

The UM809/810 series are ultra low current, cost effective system supervisory circuits designed to monitor the power supplies in digital systems. The reset output is driven active within 10 μs of power supply falling through the reset voltage threshold. Reset is keeping active for a minimum of 140ms after system power supply has risen above the reset threshold. Reset threshold suitable for operation with variety of supply voltage are available.



UM809/810xx Pin Configurations (SOT23-3, SOT323)

Power Management

4-Pin µP Voltage Monitor with Manual Reset Input

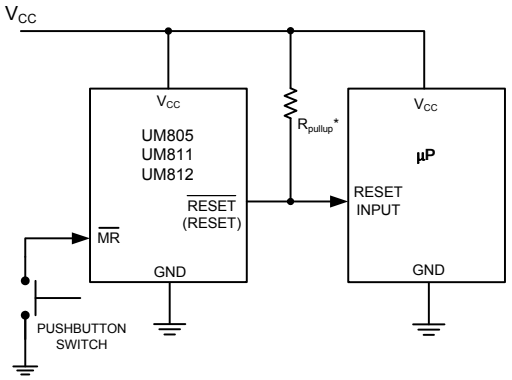
UM805/UM811/UM812

Key Features

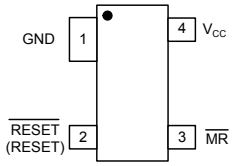
- No External Components
- V_{CC} Transient Immunity
- Correct Logic Output Guaranteed to V_{CC}=1.0V
- Precision V_{CC} Monitoring of 3.0V, 3.3V and 5.0V Supplies
- 2µA Supply Current
- 140ms Minimum Power-On Reset Pulse Width
- Available in 3 Output Configurations:
  Open-Drain Active-Low $\overline{\text{RESET}}$ Output (UM805)
  Push-Pull Active-Low $\overline{\text{RESET}}$ Output (UM811)
  Push-Pull Active-High RESET Output (UM812)
- 4-Pin SOT143 Package
- Wide Operation Temperature: -40°C to +85°C

Applications

- Computers
- Controllers
- Portable/Battery-Powered Equipments
- Intelligent Instruments
- Critical µP and µC Power Monitoring



Typical Application Circuit



Pin Configurations

µP Reset Circuit with Long Manual Reset Setup Period

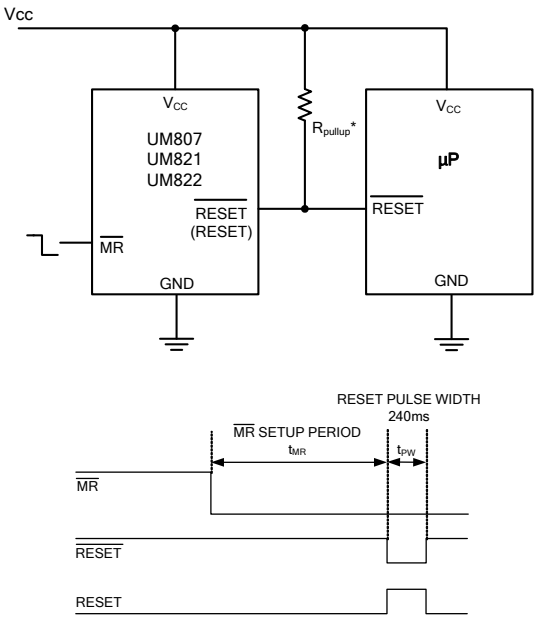
UM807/UM821/UM822

Key Features

- No External Components
- V_{CC} Transient Immunity
- Correct Logic Output Guaranteed to V_{CC}=1.0V
- Precision V_{CC} Monitoring of 3.0V, 3.3V and 5.0V Supplies
- 2µA Supply Current
- 140ms Minimum Power-On Reset Pulse Width
- Available in 3 Manual Reset Setup Periods (t_{MR}):
  A, 10.08s; B, 6.72s; C, 1.68s
- Available in 3 Output Configurations:
  Open-Drain Active-Low $\overline{\text{RESET}}$ Output (UM807)
  Push-Pull Active-Low $\overline{\text{RESET}}$ Output (UM821)
  Push-Pull Active-High RESET Output (UM822)
- 4-Pin SOT143 Package
- Wide Operation Temperature: -40°C to +85°C

Applications

- Set-Top Boxes
- Consumer Electronics
- DVD Players
- Cable/DSL Modems
- Industrial Equipments
- Automotive Systems
- Medical Devices



Typical Application Circuit and Manual Reset Setup Period

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