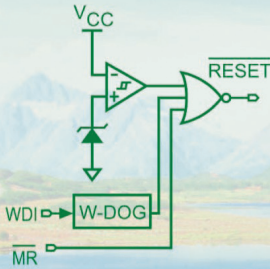


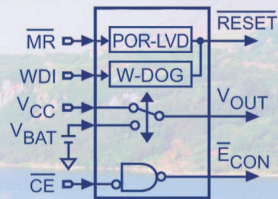
# Microprocessor supervisors and reset ICs

Selection guide

## Microprocessor supervisors and reset ICs



## Microprocessor supervisors with switchover

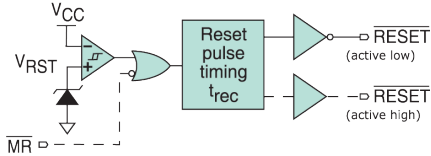


September 2008

# Reset ICs, smart on/off controllers and voltage detectors

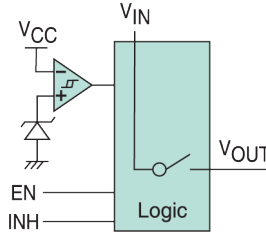
## Single and multiple voltage reset ICs

- Monitor voltage
- 100 ms minimum reset pulse width (trec)
- Power-on and low-voltage detect (POR/LVD) reset



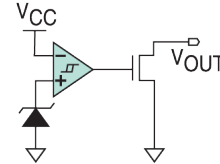
## Smart on/off controllers

- Enable / inhibit input
- Power-on



## Voltage detectors

- Monitor voltage



## Reset ICs

	Part number	Voltages monitored	Manual reset input	Reset voltage typ (V)					Active output level	Reset output	Reset pulse width (ms)		RSTin inputs	Operating temperature (°C)		Package
				Reset 1	Reset 2	Reset 3	Reset 4	Reset 5			min	max		min	max	
Single-voltage reset ICs	STM1001	1		2.63 - 4.63					Active low	Open-drain	140	280		-40	85	SOT23-3
	STM1810	1		4.37 - 4.62					Active low	Push-pull	100	200		-40	105	SOT23-3
	STM1811 <sup>(1)</sup>	1		4.37 - 4.62					Active low	Open-drain	100	200		-40	105	SOT23-3
	STM1812	1		4.37 - 4.62					Active high	Push-pull	100	200		-40	105	SOT23-3
	STM1813	1		4.37 - 4.62					Active low	Bidirectional	100	200		-40	105	SOT23-3
	STM1815	1		2.55 - 3.06					Active low	Push-pull	100	200		-40	105	SOT23-3
	STM1816 <sup>(1)</sup>	1		2.55 - 3.06					Active low	Open-drain	100	200		-40	105	SOT23-3
	STM1817	1		2.55 - 3.06					Active high	Push-pull	100	200		-40	105	SOT23-3
	STM1818	1		2.55 - 3.06					Active low	Bidirectional	100	200		-40	105	SOT23-3
	STM6315	1	•	2.63 - 4.63					Active low	Open-drain	See note 2			-40	125	SOT143-4
	STM809	1		2.63 - 4.38					Active low	Push-pull	140	280		-40	85	SOT23-3
	STM810	1		2.63 - 4.63					Active high	Push-pull	140	280		-40	85	SOT23-3
	STM811	1	•	2.63 - 4.63					Active low	Push-pull	140	280		-40	85	SOT143-4
STM812	1	•	2.63 - 4.63					Active high	Push-pull	140	280		-40	85	SOT143-4	

(1) Includes an internal pull-up resistor on the reset output

(2) Available in 4 different reset pulse width ranges: 1 to 2 ms, 20 to 40 ms, 140 to 280 ms, 1120 to 2240 ms.

## Reset ICs, smart on/off controllers and voltage detectors

### Reset ICs (cont'd)

	Part number	Voltages monitored	Manual reset input	Reset voltage typ (V)					Active output level	Reset output	Reset pulse width (ms)		RSTin inputs	Operating temperature (°C)		Package
				Reset 1	Reset 2	Reset 3	Reset 4	Reset 5			min	max		min	max	
Multi-voltage reset ICs	STM6717 <sup>(3)</sup>	2	•	2.925 - 3.075	0.788 - 2.313				Active low	Open-drain	140	280		-40	85	SOT23-5
	STM6718	2	•	2.925 - 3.075	1.05 - 2.313				Active low	Push-pull	140	280		-40	85	SOT23-5
	STM6719	3	•	2.925 - 3.075	1.05 - 2.313	Adjustable			Active low	Open-drain	140	280	•	-40	85	SOT23-6
	STM6720	3	•	2.925 - 3.075	1.05 - 2.313	Adjustable			Active low	Push-pull	140	280	•	-40	85	SOT23-6
	STM6777	2	•	2.925 - 3.075	1.05 - 2.313				Active low	Open-drain	140	280		-40	85	SOT23-6
	STM6778	2	•	2.925 - 3.075	1.05 - 2.313				Active low	Push-pull	140	280		-40	85	SOT23-6
	STM6779	2	•	1.575 - 4.625	Adjustable				Active low	Open-drain	140	280		-40	85	SOT23-6
	STM6780	2	•	1.575 - 4.625	Adjustable				Active low	Push-pull	140	280		-40	85	SOT23-6
	STM6904	4	•	2.866 - 3.078	1.050 - 2.333	Adjustable	Adjustable		Active low	Open-drain	140 <sup>(4)</sup>	280 <sup>(4)</sup>	•	-40	85	MSOP8
	STM6905	5	•	2.866 - 3.078	1.050 - 2.333	Adjustable	Adjustable	Adjustable	Active low	Open-drain	140 <sup>(4)</sup>	280 <sup>(4)</sup>	•	-40	85	MSOP8

(3) Also available in a reset pulse width ranging from 600 ms to 1200 ms

(4) Other reset pulse widths available, see datasheet for details

### Smart on/off controllers

Part number	Voltage range (V)	Monitored voltage to enable (V)	Monitored voltage accuracy (%)	Enable pin	Inhibit pin	Supply current (µA)	Power-on switch input	Operating temperature (°C)		Package
								min	max	
STM1066	2.7 - 5.5	3.35 <sup>(5)</sup>	+/- 3	Yes	Yes	1.5	No	-30	85	Flip Chip, 6 bump
STM1068	2.7 - 5.6	3.35 <sup>(5)</sup>	+/- 3	Yes	Yes	1.5	Yes	-30	85	Flip Chip, 8 bump
STM11 <sup>(6)</sup>	2.5 - 5.5	3.1 <sup>(7)</sup>	+/- 3	Yes	Yes	2	Yes	-30	85	TDFN8

(5) Other monitored voltages available upon request

(6) Low on-resistance P-channel MOSFET integrated (3.7 A typical  $R_{DS(on)}$  0.065 Ω at 4.5 V)

(7) Monitored voltages range from 3.0 V to 3.6 V in 50 mV increments

### Voltage detectors

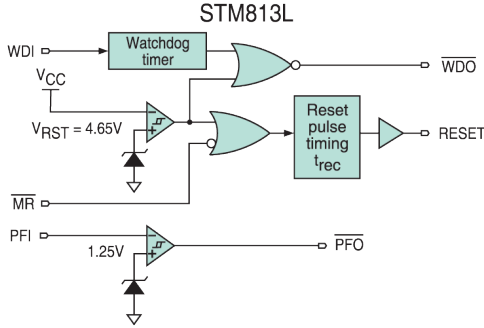
Part number	Voltage detection threshold (V)	Current, $I_{cc}$ max (µA)		Voltage detection threshold		Package
		<3.6 V	<5.5 V	% min	% max	
STM1061 <sup>(8)</sup>	1.6 - 3.8	3	3.6	-2	2	SOT 23-3

(8) Output is open drain, active low. Voltage detection thresholds are available in 100mV increments

# Microprocessor supervisors

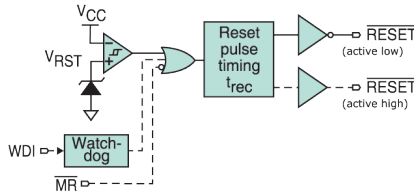
## Supervisors

- POR/LVD reset
- Separate watchdog output
- Early power-fail warning (PFI/PFO: power-fail in/out)



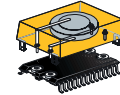
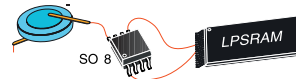
## Reset ICs with watchdog

- POR/LVD reset
- Separate watchdog output

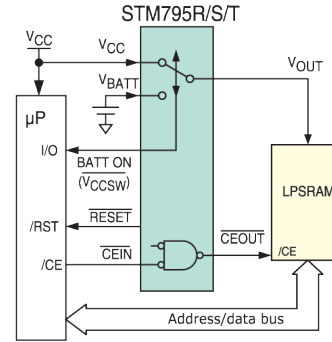


## Supervisors with switchover (NVRAM supervisors)

- Added automatic battery switchover turns low-power SRAM into NVRAM



SNAPHAT®  
battery top  
with SOH28 IC



## Microprocessor supervisors

	Part number	Reset threshold (V)	Active output level	Reset output	Manual reset input	PFI/PFO	Watchdog timer	Chip enable gate	Battery freshness seal	Battery low detect	Package
Microprocessor supervisors with switchover (NVRAM supervisors)	M40S2100W	2.60	Active low	Open-drain	•	•		1		•	S016
	M40Z111/W	n/a	n/a	n/a				1			SOH28
	M40Z300W	2.60	Active low	Open-drain				4		•	SOH28, S016
	STM690A	4.65	Active low	Push-pull		•	•				S08
	STM692A	4.40	Active low	Push-pull		•	•				S08
	STM690T/S/R	2.63, 2.93, 3.08	Active low	Push-pull		•	•				S08
	STM703	4.65	Active low	Push-pull	•	•					S08
	STM704	4.65	Active low	Push-pull	•	•					S08
	STM704T/S/R	2.63, 2.93, 3.08	Active low	Push-pull	•	•					MSOP8, S08
	STM795T/S/R	2.63, 2.93, 3.08	Active low	Open-drain	•						S08
	STM802L/M	4.40, 4.65	Active low	Push-pull		•	•				S08
	STM802T/S/R	2.63, 2.93, 3.08	Active low	Push-pull		•	•				S08
	STM804T/S/R	2.63, 2.93, 3.08	Active high	Open-drain	•	•	•				S08
	STM805L	4.65	Active high	Push-pull		•	•				S08
	STM805T/S/R	2.63, 2.93, 3.08	Active high	Open-drain		•	•				S08
	STM806T/S/R	2.63, 2.93, 3.08	Active low	Push-pull	•	•	•				S08
	STM817L/M	4.40, 4.65	Active low	Push-pull		•	•		•		S08
STM818L/M	4.40, 4.65	Active low	Push-pull			•		•		MSOP8, S08	
STM819L/M	4.40, 4.65	Active low	Push-pull	•	•			•		S08	
Microprocessor supervisors	STM705	4.65	Active low	Push-pull	•	•	•				S08
	STM706	4.40	Active low	Push-pull	•	•	•				S08
	STM706P	2.63	Active high	Push-pull	•	•	•				S08
	STM706T/S/R	2.63, 2.93, 3.08	Active low	Push-pull	•	•	•				MSOP8, S08
	STM707	4.65	Active high, active low	Push-pull	•	•					S08
	STM708	4.40	Active high, active low	Push-pull	•	•					S08
	STM708T/S/R	2.63, 2.93, 3.08	Active high, active low	Push-pull	•	•					S08
	STM813L	4.65	Active high	Push-pull	•	•	•				S08

## Microprocessor supervisors (cont'd)

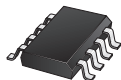
	Part number	Reset threshold (V)	Active output level	Reset output	Manual reset input	PFI/PFO	Watchdog timer	Chip enable gate	Battery freshness seal	Battery low detect	Package
Reset + watchdog	STWD100	Watchdog only	Active low	Open-drain			•				SOT 23-5
	STM6321 <sup>(9)</sup>	2.32 - 4.63	Active high, active low	Push-pull			•				SOT 23-5
	STM6322 <sup>(9)</sup>	2.32 - 4.63	Active high, active low	Push-pull	•						SOT 23-5
	STM6821 <sup>(9)</sup>	2.32 - 4.63	Active high	Push-pull	•		•				SOT 23-5
	STM6822 <sup>(9)</sup>	2.32 - 4.63	Active low	Open-drain	•		•				SOT 23-5
	STM6823 <sup>(9)</sup>	2.32 - 4.63	Active low	Push-pull	•		•				SOT 23-5
	STM6824 <sup>(9)</sup>	2.32 - 4.63	Active high, active low	Push-pull			•				SOT 23-5
	STM6825 <sup>(9)</sup>	2.32 - 4.63	Active high, active low	Push-pull	•						SOT 23-5

(9) The standard reset thresholds are the following: 2.63 V, 2.93 V, 3.08 V, 4.38 V, 4.63 V. Other reset thresholds and watchdog time out periods are available, see datasheet for details

## Packages



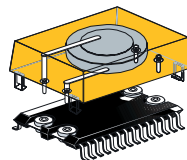
MSOP8



SO-8



SO-16



SOH28 with  
SNAPHAT®  
battery top



SOT23-3



SOT143-4



SOT23-5



SOT23-6

## Order codes

Examples

Generic part	Reset threshold <sup>(10)</sup>	Package	Temperature range	Packing type	
<p>STM6322 STM6719</p> <p>L: 4.63 M: 4.39 / 4.40 T: 3.08 S: 2.93 / 2.88 R: 2.63 / 2.55 Z: 2.32 Y: 2.19 W: 1.67 V: 1.56 F: 1.05 G: 1.11</p>	<p>R TG</p>	<p>WY6 MB6</p> <p>MSOP8: DS SO8: M SO16: MQ SOH28: MH SOT143-4: W1<sup>(11)</sup> SOT23-3: WX SOT23-5: WY SOT23-6: WB</p>	<p>Code 3: -40 to +125 °C</p> <p>Code 6: -40 to +85 °C</p> <p>Code 7: -40 to +105 °C</p>	<p>F E</p> <p>E: Tube F: Tape and reel</p>	<p>Reset supervisor, VRST = 2.63, SOT23-5, Tape and reel Multi-voltage reset supervisor, VRST1 = 3.08, VRST2 = 1,11, SOT23-6, Tube</p> <p>Notes: (10) The following devices do not use the voltage code: M40x, STM1061, STM690A, STM692A, STM703, STM705, STM706P, STM707 (11) Second character is optional. It is used for multi-voltage reset supervisors.</p>



All devices listed  
are Lead-free



© STMicroelectronics - September 2008 - Printed in Italy - All rights reserved

The STMicroelectronics corporate logo is a registered trademark of the STMicroelectronics group of companies.

SNAPHAT, TIMEKEEPER and SECURITIZOR are STMicroelectronics trademarks.

All other names are the property of their respective owners.

For more information on ST products and solutions,  
visit [www.st.com](http://www.st.com)

Order code: SGMICROSTP070

[www.BDTIC.com/ST](http://www.BDTIC.com/ST)



Recycled and chlorine free paper