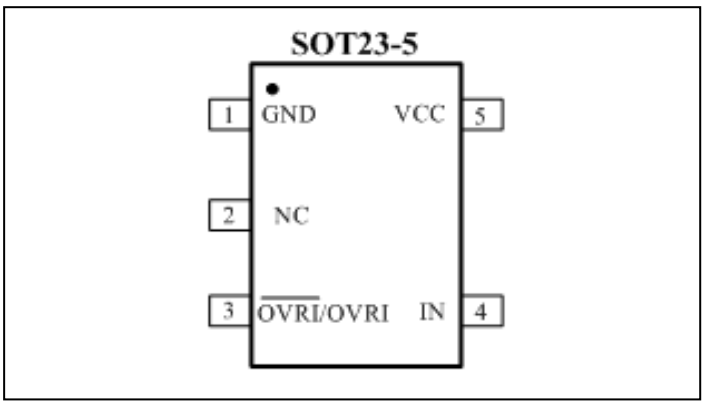
Ultra Low Voltage Detectors

Features

- Low/High Threshold voltage with 90mV/100mV for PT7M6101 and 190mV/200mV for PT7M6102 Internal Reference (10mV hysteresis)
- ±10mV Threshold Voltage Accuracy Over Temperature
- Low Power Consumption: 8μA (typical)
- Three Output Configurations
  Push-Pull Active Low-- $\overline{\text{OVRI}}$
  Push-Pull Active High--- OVRI
  Open-Drain Active Low--- $\overline{\text{OVRI}}$
- Guaranteed OVRI Valid to Vcc=1.0V
- Immune to Short Negative Vcc Transients
- SOT23-5LPackage are available

Pin Configuration



Description

PT7M6101/6102 series are designed for over current detector. They provide excellent circuit reliability and low cost by eliminating external components. These devices assert an OVRI signal when the voltage at IN pin rises above the high threshold. After IN pin declines below the low threshold, OVRI signal is de-asserted.

PT7M6101CL/6102CL have a push-pull active-low output. PT7M6101CH/6102CH have a push-pull active-high output. PT7M6101NL/6102NL have an open-drain active-low output. The open-drain active-low output requires a pull-up resistor that can be connected to a voltage higher than V_{DD}.

Low supply current of 8μA makes PT7M6101//6102 series ideal for using in battery power supply. These devices are available in SOT23-5 lead free packages.

Applications

- Over Current Protection in Battery Charger etc.
- Over Temperature Protection
- Power Supply
- Voltage Monitoring

Pin Description

Pin Name	I/O	Description
GND	GND	Ground
$\overline{\text{OVRI}}$	O	Over-current Output, Push-Pull or Open-Drain, Active-Low. OVRI changes from HIGH to LOW when IN rises above the typical high detection threshold (100mV). OVRI remains HIGH after IN drops below the low detection threshold (90mV).
OVRI	O	Over-current Output, Push-Pull, Active-High. OVRI changes from LOW to HIGH when IN rises above the typical high detection threshold (100mV). OVRI remains LOW after IN drops below the low detection threshold (90mV).
IN	I	Detection Voltage Input. High-impedance input for comparator. Connect this pin to over-current sampling network. OVRI is asserted when IN is above the high threshold voltage.
VCC	Power	Supply Voltage

Maximum Ratings

Storage Temperature…… - 65°C to +150°C
Ambient Temperature with Power Applied.....-40°C to +85°C
Supply Voltage to Ground Potential (V_{CC} to GND)…….. - 0.3 to V_{CC} +6.0V
DC Input/Output Current ……20mA
Power Dissipation…….245mW

Note:
Stresses greater than those listed under MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

AC Electrical Characteristics

(V_{CC} = +0.9V to +5.5V, unless otherwise noted. Typical values are at T_A = +25 ℃)

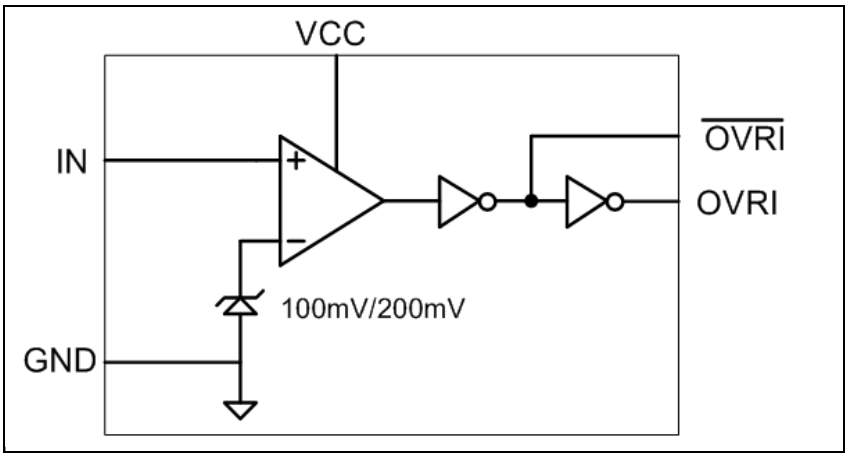
Description	Sym	Test Conditions	Min	Typ	Max	Unit
Vcc or RESET-IN to Reset Delay		IN rising, step signal from 0V to 1V	-	60	-	μs
Propagation Delay(D0 only)	t_P	IN falling, step signal from 1V to 0V	-	40	-	μs

DC Electrical Characteristics

(V_{CC} = +0.9V to +5.5V, unless otherwise noted. Typical values are at T_A = +25 ℃)

Description	Sym	Test Conditions	Min	Typ	Max	Unit
Operating Voltage Range	V_{CC}	T_A= -40 ℃ ~+85 ℃	0.9	-	5.5	V
Supply Current	I_{CC}	V_{CC}=1.2V, no load , reset not asserted	-	7.5	13	μA
		V_{CC}=1.8V, no load , reset not asserted	-	9	16	
		V_{CC}=3.6V, no load , reset not asserted	-	16	25	
IN Threshold	V_{RSTIN}	1.3V<=V_{CC}<=5.5V, -40 ℃ ~+85 ℃ (PT7M6101)	90	100	110	mV
		1.3V<=V_{CC}<=5.5V, -40 ℃ ~+85 ℃ (PT7M6102)	190	200	210	
Push-pull $\overline{OVRI}$ Output High Voltage	V_{OH}	V_{CC}>=1.1V, I_{source}=50 μA, reset not asserted	0.8×Vcc	-	-	-
		V_{CC}>=1.5V, I_{source}=150 μA, reset not asserted	0.8×Vcc	-	-	
		V_{CC} >=1.0V, I_{source}=50 μA, reset asserted	0.8×Vcc	-	-	
		V_{CC} >=1.5V, I_{source}=150 μA, reset asserted	0.8×Vcc	-	-	
Push-pull OVRI Output Low Voltage	V_{OL}	V_{CC} >=1.0V, I_{sink}=80 μA, reset asserted	-	-	0.2×Vcc	V
		V_{CC} >=1.5V, I_{sink}=200 μA, reset asserted	-	-	0.2×Vcc	
Push-pull $\overline{OVRI}$ Output Low Voltage		V_{CC} >=1.1V, I_{sink}=80 μA, reset not asserted	-	-	0.2×Vcc	
		V_{CC} >=1.5V, I_{sink}=200 μA, reset not asserted	-	-	0.2×Vcc	
Open-Drain $\overline{OVRI}$ Output Low Voltage		V_{CC} >=1.0V, I_{sink}=80 μA, reset asserted	-	-	0.15	V
		V_{CC} >=1.5V, I_{sink}=200 μA, reset asserted	-	-	0.2	
Open-Drain $\overline{OVRI}$ Output Leakage Current	I_{LKG}	V_{CC} > V_{TH} , reset not asserted	-	-	1.0	μA
IN Leakage Current	I_{RSTIN}	-	-25	-	+25	nA
Reset Threshold Hysteresis	V_{HYS}	-	-	10	-	mV

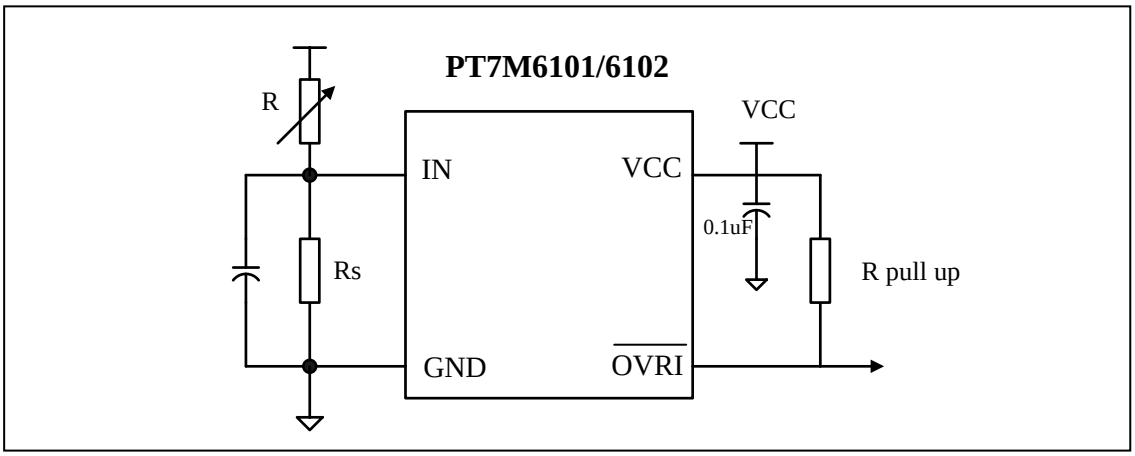
Block Diagram

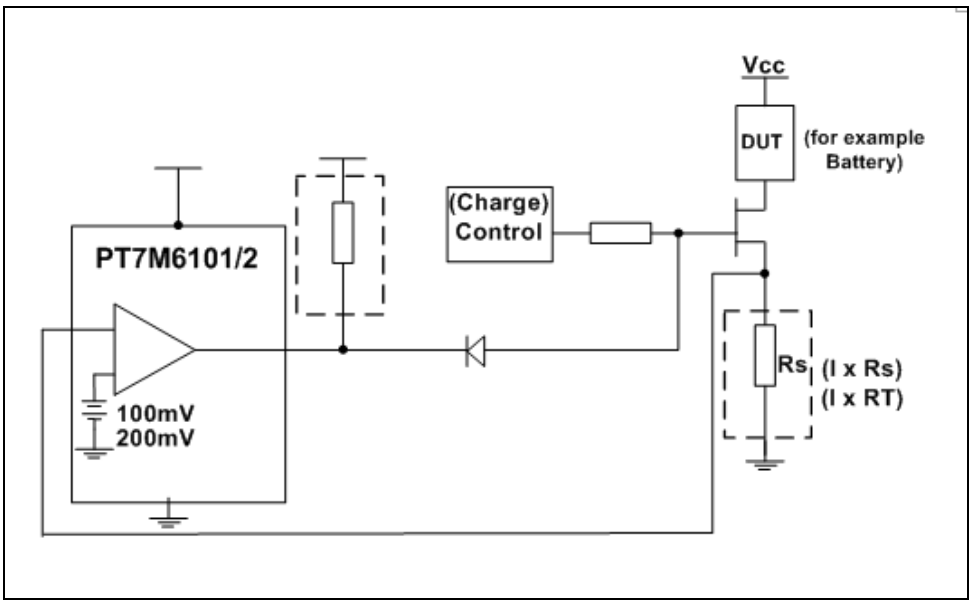


Functional Description

PT7M6101/6102 series are designed for over current detector. They provide excellent circuit reliability and low cost by eliminating external components. These devices assert an OVRI signal when the voltage at IN pin rises above the high threshold. After IN pin declines below the low threshold, OVRI signal is de-asserted.

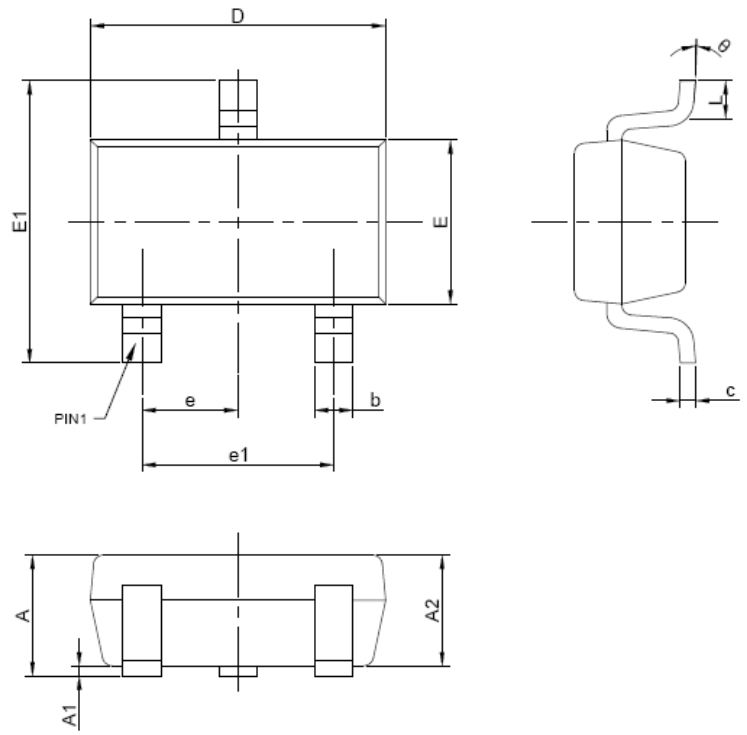
Application Circuit





Mechanical Information

TA (SOT23-5L)



PKG. DIMENSIONS(MM)		
SYMBOL	Min	Max
A	1.05	1.25
A1	0.00	0.10
A2	1.05	1.15
b	0.30	0.50
c	0.10	0.20
D	2.82	3.02
E	1.50	1.70
E1	2.65	2.95
e	0.95 BSC	
e1	1.80	2.00
L	0.30	0.60
θ	0°	8°

Note:
1. Ref: JEDEC TO-236H

PERICOM Enabling Serial Connectivity

DATE: 06/19/13

DESCRIPTION: 3-Pin, Small Outline Transistor Plastic Package (SOT23)

PACKAGE CODE: TA (TA3)

DOCUMENT CONTROL #: PD-2143 REVISION: --

Ordering Information

Part Number	Package Code	Package
PT7M610xCLTAE	TA	Lead free and Green SOT23-5L
PT7M610xCHTAE	TA	Leas free and Green SOT23-5L
PT7M610xNLTAE	TA	Lead free and Green SOT23-5L

Note:

- Suffix "x" shows 1 or 2 with different function. See Table 1
- E = Pb-free and Green
- Adding X Suffix= Tape/Reel
- Contact Pericom for availability

Table 1 Part No code comparison table

No.	Part No.	Code
1	PT7M6101CL	jp
2	PT7M6101CH	jq
3	PT7M6101NL	jl
4	PT7M6102CL	rz
5	PT7M6102CH	sa
6	PT7M6102NL	sb

Function comparison of PT7M6101/6102

No	Part No.	Output Open-Drain		Output Push-Pull	
		Active high	Active low	Active high	Active low
1	PT7M6101CL/6102CL	-	-	-	√
2	PT7M6101CH/6102CH	-	-	√	-
3	PT7M6101NL/6102NL	-	√	-	-