TS834

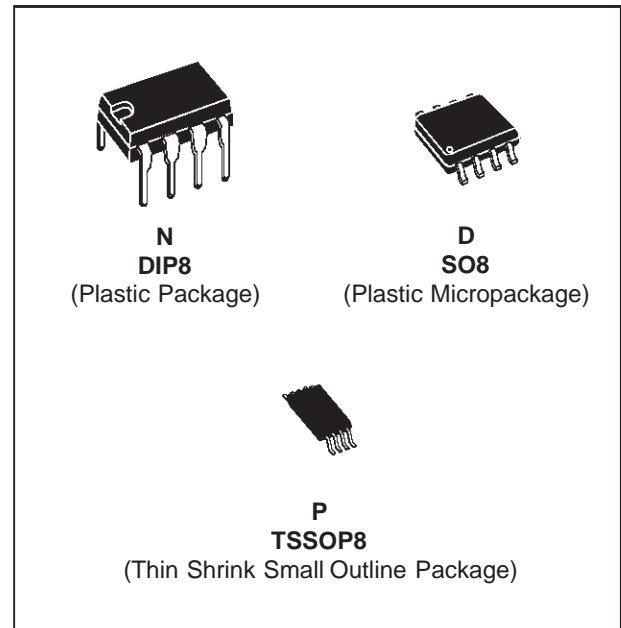## MICROPOWER VOLTAGE SUPERVISOR
RESET ACTIVE LOW OR HIGH WITH INTEGRATED TIMER

- ULTRA LOW POWER CONSUMPTION : 12μA max. @ V_{CC} = 5V
- BOTH ACTIVE HIGH AND ACTIVE LOW OUTPUTS
- RESET TIMER WITH DISABLE FUNCTION
- PRECISION RESET THRESHOLD (guaranteed over Temperature)
- 4.33V typ. THRESHOLD VOLTAGE GUARANTEED RESET OPERATION DOWN TO 1.5V
- OPEN DRAIN OUTPUT WITH V_{ol} = 450mVtyp. @ I_{ol} = 8mA & V_{CC} = 4V
- FAST RESPONSE TIME : 20μs FOR A 10mV OVERDRIVE
- 100mV INTERNAL HYSTERESIS

N
DIP8
(Plastic Package)

D
SO8
(Plastic Micropackage)

P
TSSOP8
(Thin Shrink Small Outline Package)

ORDER CODES

Part Number	Temperature Range	Package		
		N	D	P
TS834-5I	-40, +85°C	●	●	●

DESCRIPTION

The TS834 is a voltage supervisor providing two different outputs (one active low and one active high) with an integrated timer that can be disabled.

It incorporates a high stability bandgap voltage reference and a comparator with open drain output.

The threshold voltage is set at 4.33V by internal thermally matched resistors.

The comparator exhibits a 20μs response (with 10mV overdrive).

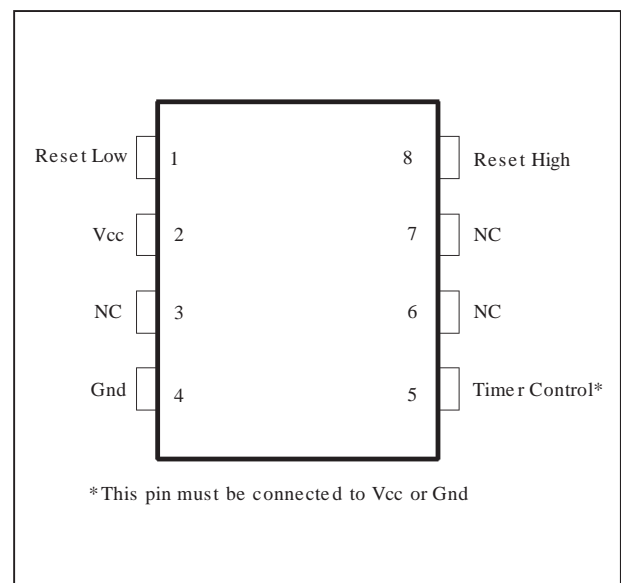An internal hysteresis of 100mV increases the comparator noise margin and prevents false reset operation.

APPLICATIONS

- Computers
- Microcontrollers
- Microprocessor systems
- Intelligent instruments
- Power failure detection

PIN CONNECTIONS

Reset Low	1	8	Reset High
Vcc	2	7	NC
NC	3	6	NC
Gnd	4	5	Timer Control*

*This pin must be connected to Vcc or Gnd

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V_{cc}	Supply Voltage - note 1		7	V
V_{out}	Output Voltage - note 1		-0.3 to V_{cc} + 0.3	V
I_{out}	Output Current		20	mA
Pd	Power Dissipation - note 2	SO8 DIP8 TSSOP8	700 1200 625	mW
T_{oper}	Operating Free Air Temperature Range		-40 to +85	$^{\circ}$C
T_{stg}	Storage Temperature		-65 to +150	$^{\circ}$C

Note: 1. All voltages values, except differential voltage are with respect to network ground terminal.
2. T_j= 150°C, T_{amb} = 25°C with R_{thja} = 175°C/W for SO8 package
R_{thja} = 100°C/W for DIP8 package
R_{thja} = 200°C/W for TSSOP8 package

OPERATING CONDITIONS

Symbol	Parameter	Value	Unit
V_{cc}	Supply Voltage	1.5 to 5.5	V

TS834-5

ELECTRICAL CHARACTERISTICS T_{amb} = 25°C (unless otherwise specified)

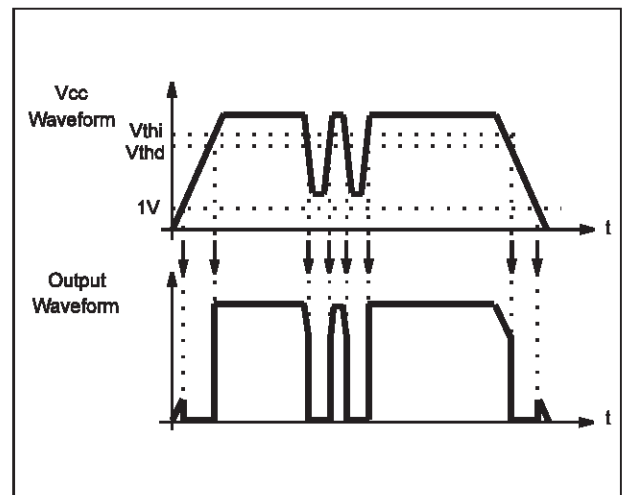| Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_{thi}	Threshold Voltage V_{cc} Increasing	T_{amb} = 25°C $-40 \leq T_{amb} \leq$ +85°C	 4.10	4.33	 4.46	V
V_{thd}	Threshold Voltage V_{cc} Decreasing	T_{amb} = 25°C $-40 \leq T_{amb} \leq$ +85°C	 4.10	4.23	 4.46	V
V_{hys}	Hysteresis Voltage		50	100	200	mV
I_{cc}	Current Consumption	V_{cc} = 5V			12	μA
V_{OL1}	Low Level Output Voltage (OUTPUT 1)	V_{cc} = 4V, I_{OL} = 8mA, $-40 \leq T_{amb} \leq$ +85°C		450	800 1000	mV
V_{OL2}	Low Level Output Voltage (OUTPUT 2)	V_{cc} = 5V, I_{OL} = 8mA, $-40 \leq T_{amb} \leq$ +85°C		450	800 1000	mV
I_{OH1}	Output Off-state Leakage current (OUTPUT 1)	V_{cc} = 5V $-40 \leq T_{amb} \leq$ +85°C		2	40 1000	nA
I_{OH2}	Output Off-state Leakage current (OUTPUT 2)	V_{cc} = 4V $-40 \leq T_{amb} \leq$ +85°C		2	40 1000	nA
tphl	Response Time High to Low	R_L = 10kΩ, C_L = 15pF V_{cc} = V_{thd} -10mV		20		μs

TIMING DIAGRAMS

All the timing diagrams are given with outputs loaded by 10kW resistors to V_CC.
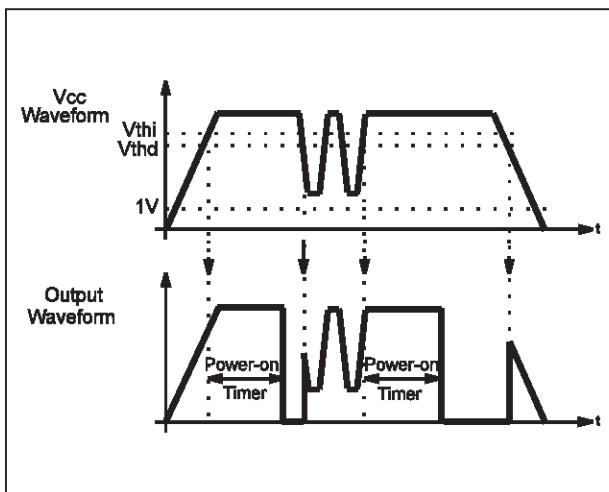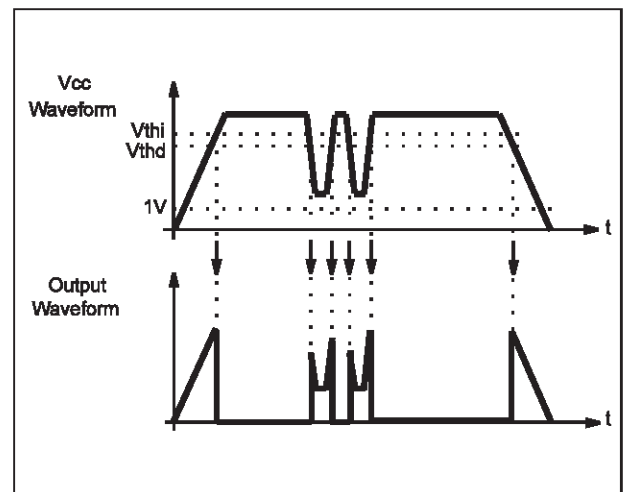

Active Low Reset, Timer Enabled
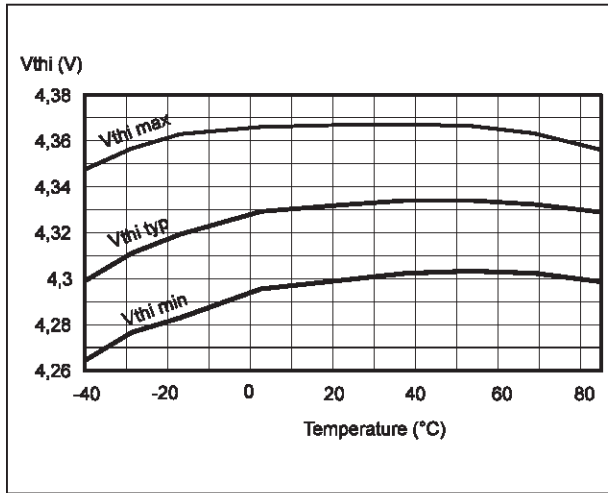

Active Low Reset, Timer Disabled

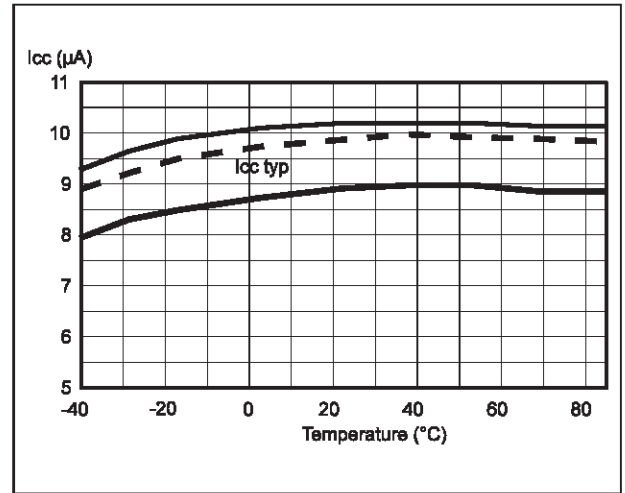### Active High Reset, Timer Enabled

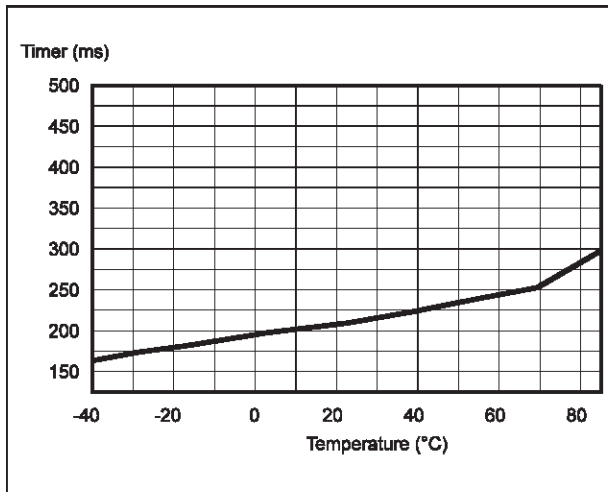

Active High Reset, Timer Disabled
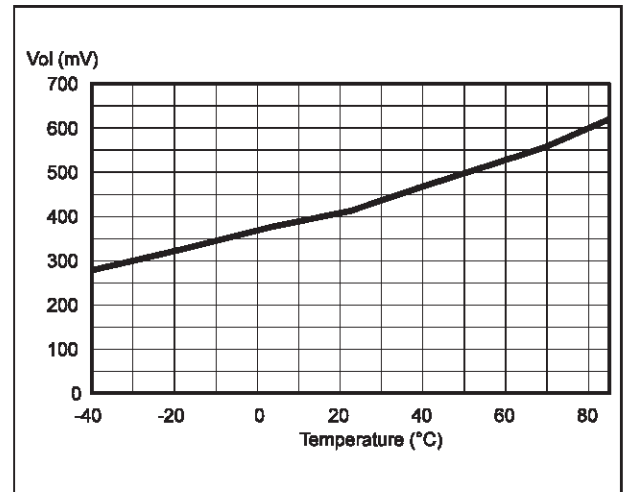
Voltage Threshold (Vthi) vs Temperature

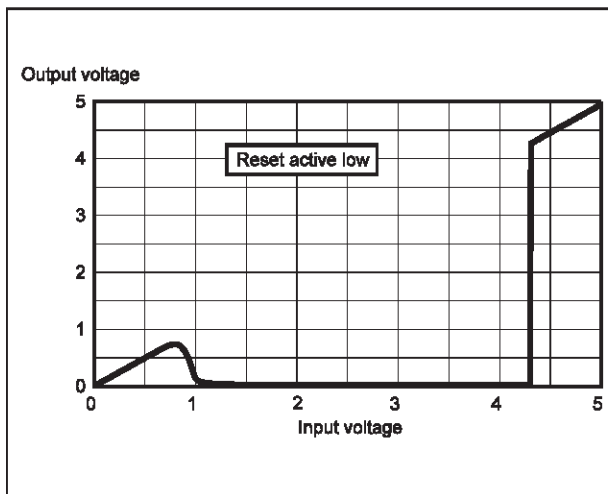## Current Consumption vs Temperature

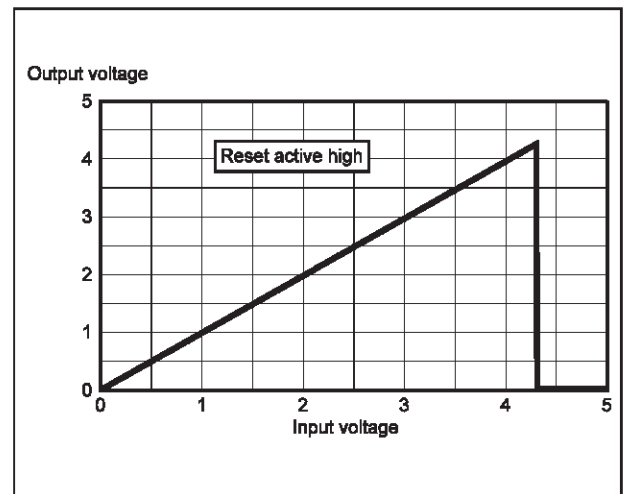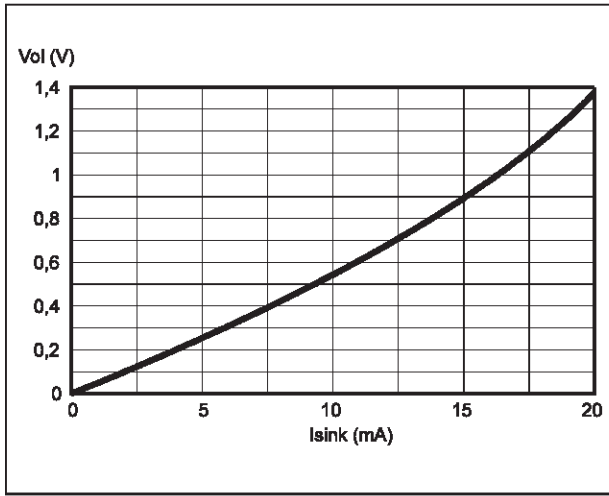## Timer Period (trst) vs Temperature

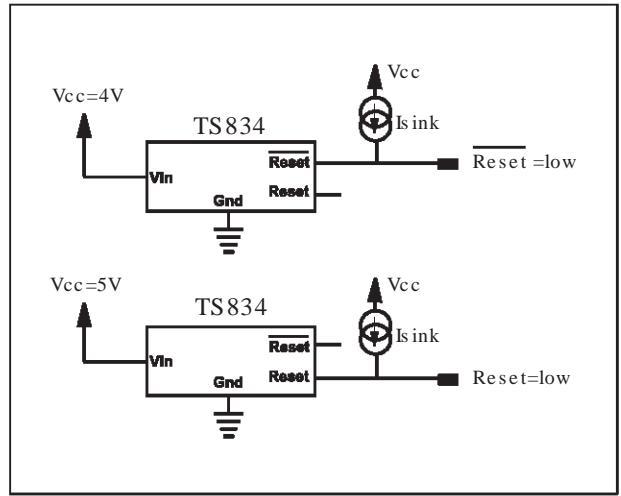## Vol vs Temperature

Output Voltage vs Input
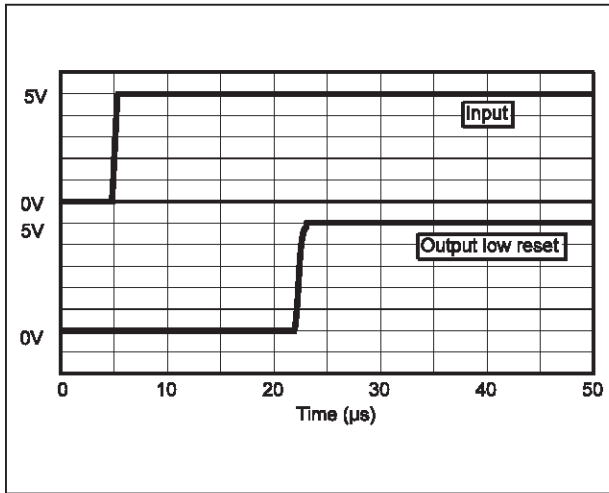
Output Voltage vs Input
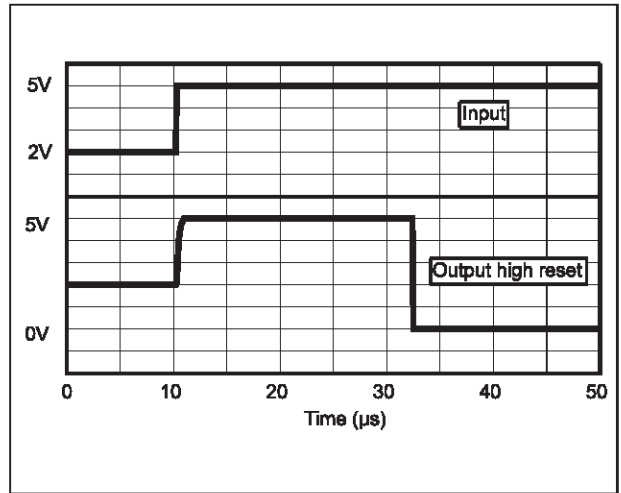
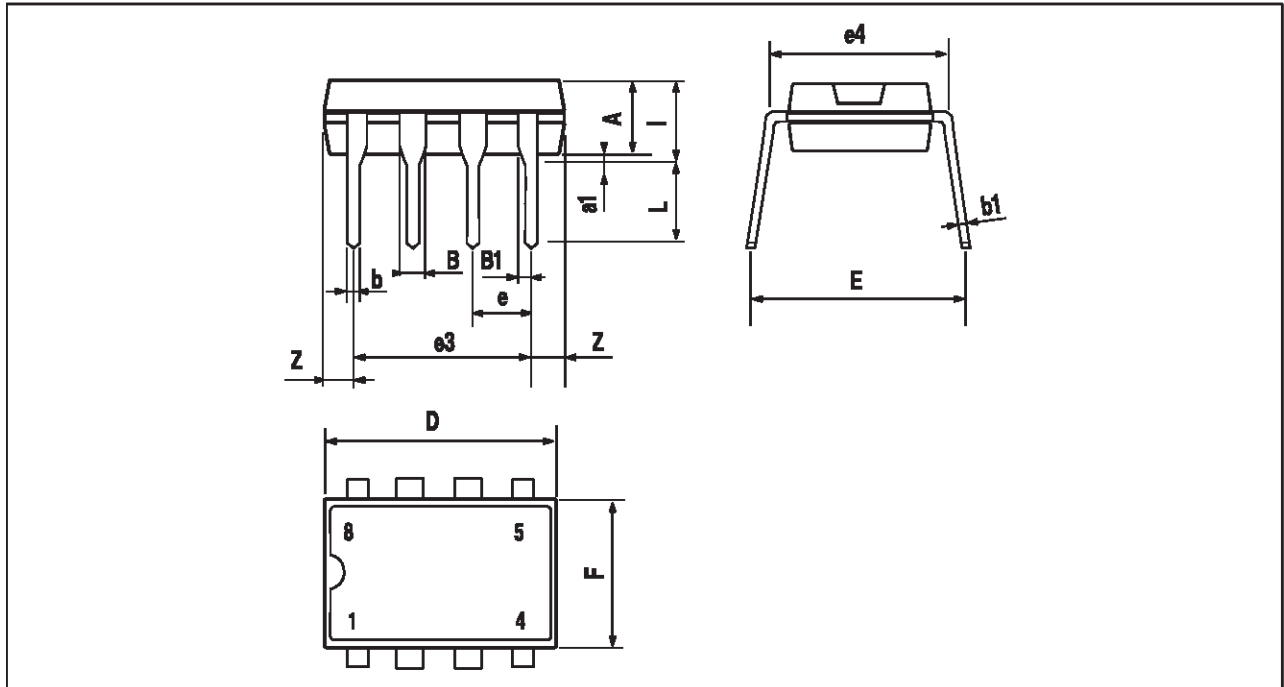## Vol vs Isink

Schematic to Measure Vol vs Isink

Reset High After Vcc Transition (timer disabled)

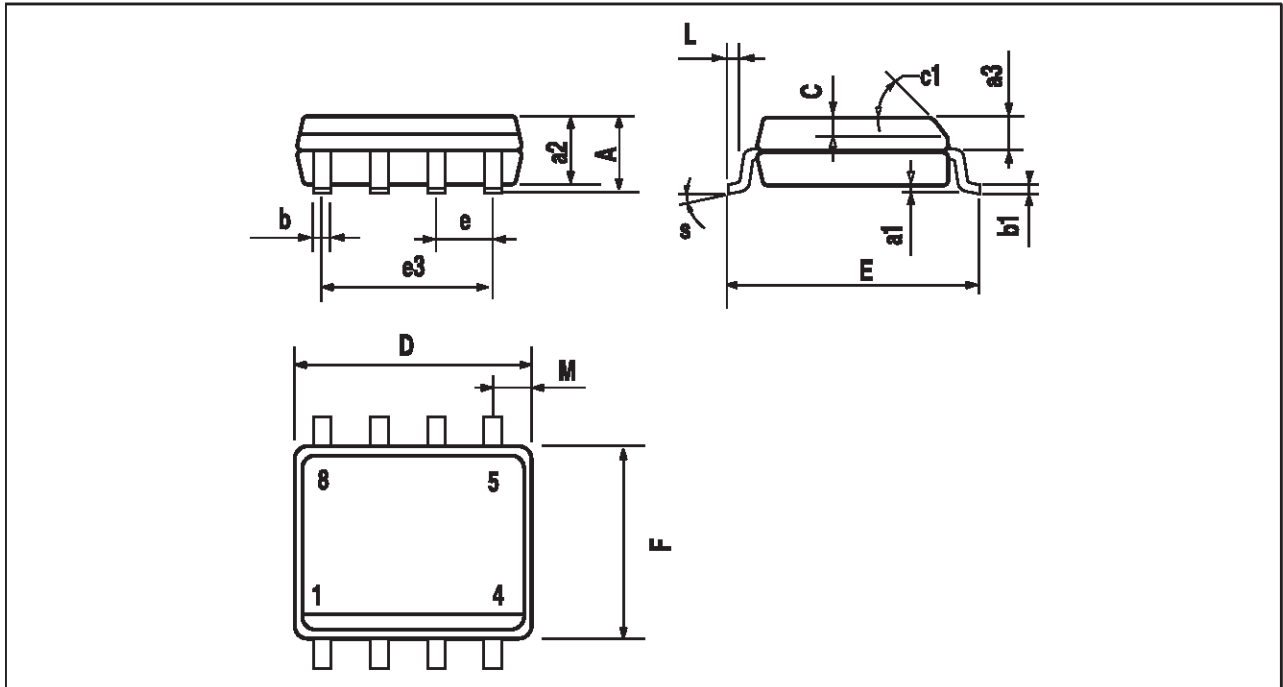## Reset Low After Vcc Transition (timer disabled)
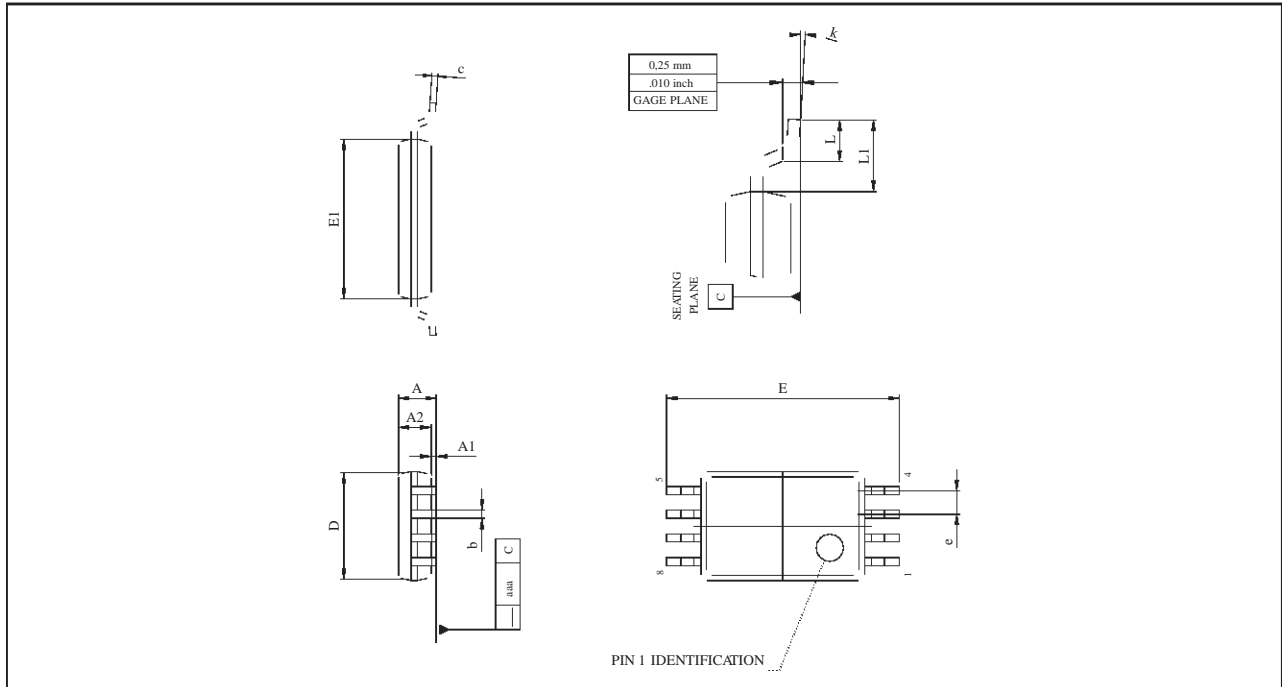
PACKAGE MECHANICAL DATA
8 PINS - PLASTIC PACKAGE

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.32			0.131	
a1	0.51			0.020		
B	1.15		1.65	0.045		0.065
b	0.356		0.55	0.014		0.022
b1	0.204		0.304	0.008		0.012
D			10.92			0.430
E	7.95		9.75	0.313		0.384
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			6.6			0260
i			5.08			0.200
L	3.18		3.81	0.125		0.150
Z			1.52			0.060

PACKAGE MECHANICAL DATA
8 PINS - PLASTICMICROPACKAGE (SO)

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
a3	0.65		0.85	0.026		0.033
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C	0.25		0.5	0.010		0.020
c1	45° (typ.)					
D	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F	3.8		4.0	0.150		0.157
L	0.4		1.27	0.016		0.050
M			0.6			0.024
S	8° (max.)					

PACKAGE MECHANICAL DATA
8 PINS - THIN SHRINK SMALL OUTLINE PACKAGE

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.20			0.05
A1	0.05		0.15	0.01		0.006
A2	0.80	1.00	1.05	0.031	0.039	0.041
b	0.19		0.30	0.007		0.15
c	0.09		0.20	0.003		0.012
D	2.90	3.00	3.10	0.114	0.118	0.122
E		6.40			0.252	
E1	4.30	4.40	4.50	0.169	0.173	0.177
e		0.65			0.025	
k	0°		8°	0°		8°
l	0.50	0.60	0.75	0.09	0.0236	0.030