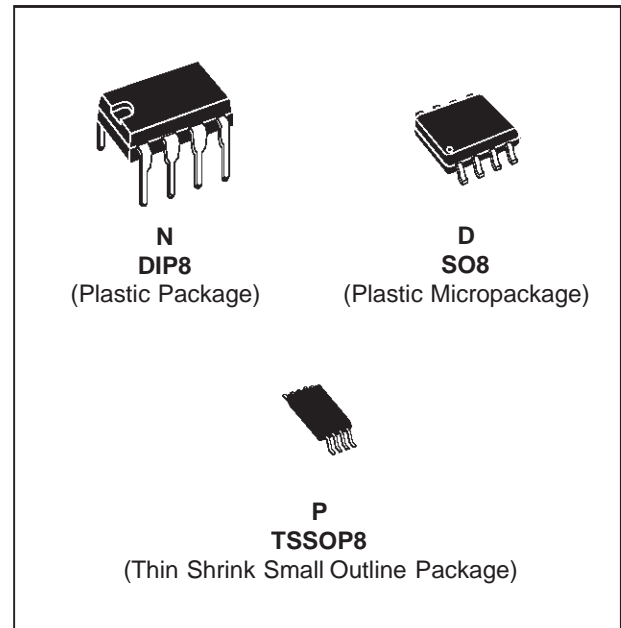




TS834

MICROPOWER VOLTAGE SUPERVISOR RESET ACTIVE LOW OR HIGH WITH INTEGRATED TIMER

- ULTRA LOW POWER CONSUMPTION : 12 μ A 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 $V_{ol} = 450mV$ typ. @ $I_{ol} = 8mA$ & $V_{CC} = 4V$
- FAST RESPONSE TIME : 20 μ s FOR A 10mV OVERDRIVE
- 100mV INTERNAL HYSTERESIS



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 20 μ s response (with 10mV overdrive).

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

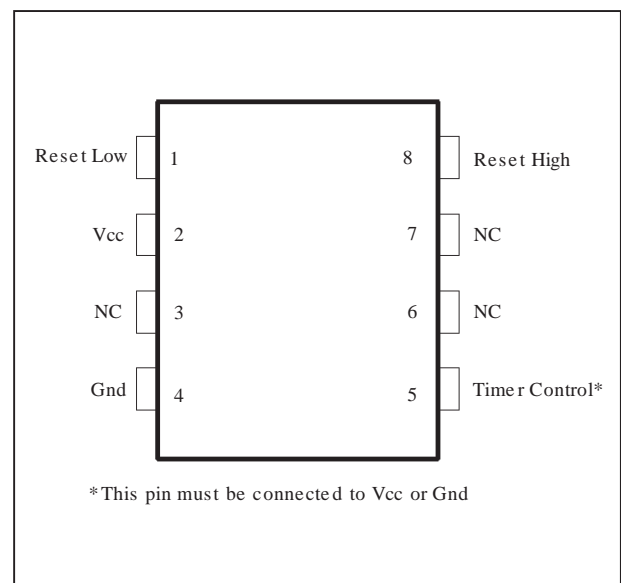
APPLICATIONS

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

ORDER CODES

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

PIN CONNECTIONS



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	
P_d	Power Dissipation - note 2	SO8 DIP8 TSSOP8	700 1200 625	mW
T_{oper}	Operating Free Air Temperature Range	-40 to +85	°C	
T_{stg}	Storage Temperature	-65 to +150	°C	

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

OPERATING CONDITIONS

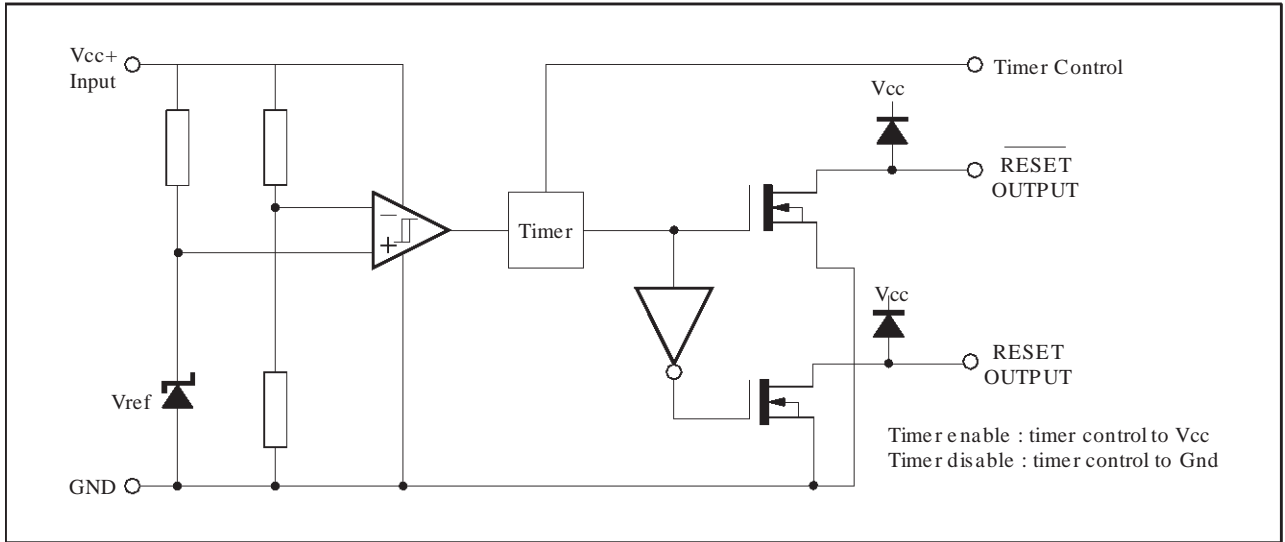
Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	1.5 to 5.5	V

TS834-5
ELECTRICAL CHARACTERISTICS $T_{amb} = 25^\circ\text{C}$ (unless otherwise specified)

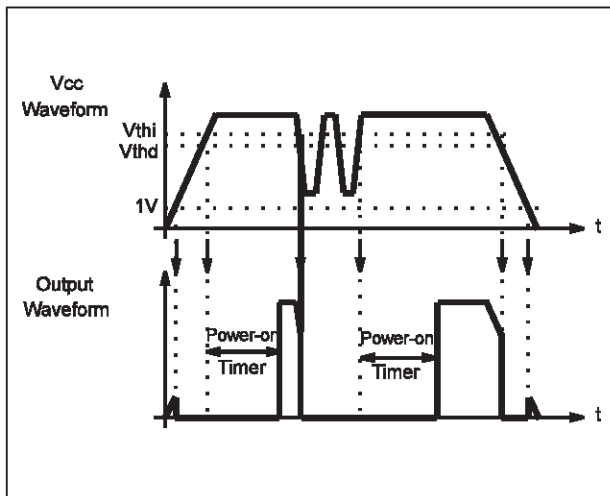
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_{thi}	Threshold Voltage V_{CC} Increasing	$T_{amb} = 25^\circ\text{C}$ $-40 \leq T_{amb} \leq +85^\circ\text{C}$	4.10	4.33	4.46	V
V_{thd}	Threshold Voltage V_{CC} Decreasing	$T_{amb} = 25^\circ\text{C}$ $-40 \leq T_{amb} \leq +85^\circ\text{C}$	4.10	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)	$V_{CC} = 4V$, $I_{OL} = 8\text{mA}$, $-40 \leq T_{amb} \leq +85^\circ\text{C}$		450	800 1000	mV
V_{OL2}	Low Level Output Voltage (OUTPUT 2)	$V_{CC} = 5V$, $I_{OL} = 8\text{mA}$, $-40 \leq T_{amb} \leq +85^\circ\text{C}$		450	800 1000	mV
I_{OH1}	Output Off-state Leakage current (OUTPUT 1)	$V_{CC} = 5V$ $-40 \leq T_{amb} \leq +85^\circ\text{C}$		2	40 1000	nA
I_{OH2}	Output Off-state Leakage current (OUTPUT 2)	$V_{CC} = 4V$ $-40 \leq T_{amb} \leq +85^\circ\text{C}$		2	40 1000	nA
tphl	Response Time High to Low	$R_L = 10\text{k}\Omega$, $C_L = 15\text{pF}$ $V_{CC} = V_{thd} - 10\text{mV}$		20		μs

TIMING DIAGRAMS

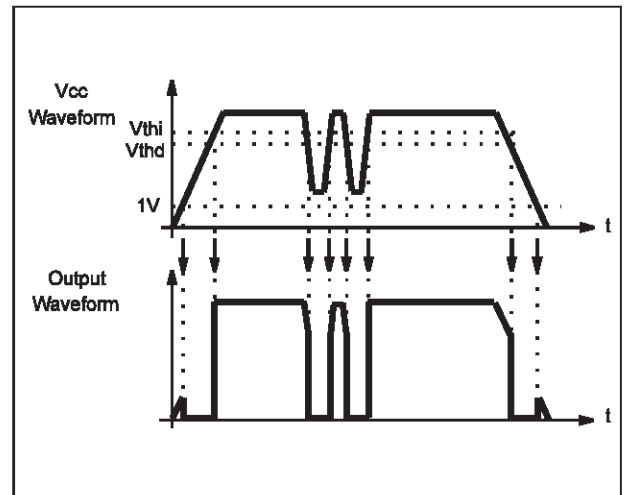
All the timing diagrams are given with outputs loaded by 10kΩ resistors to V_{CC} .



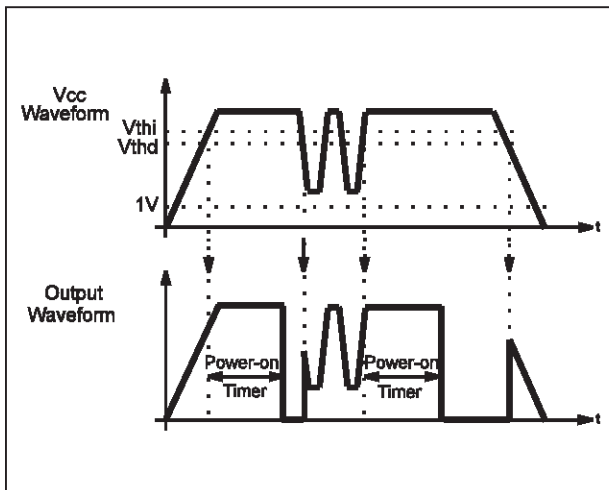
Active Low Reset, Timer Enabled



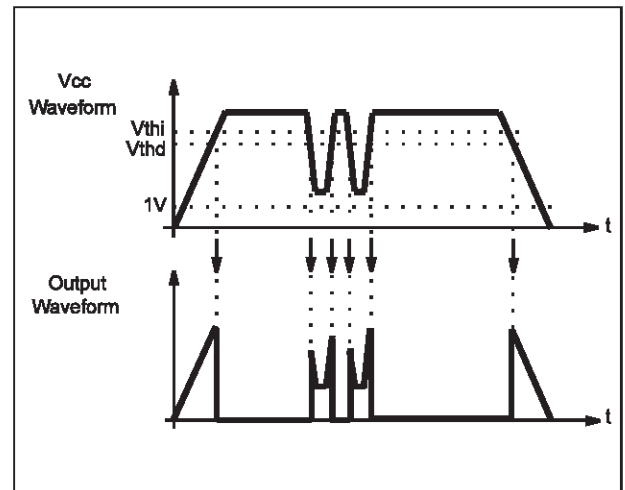
Active Low Reset, Timer Disabled



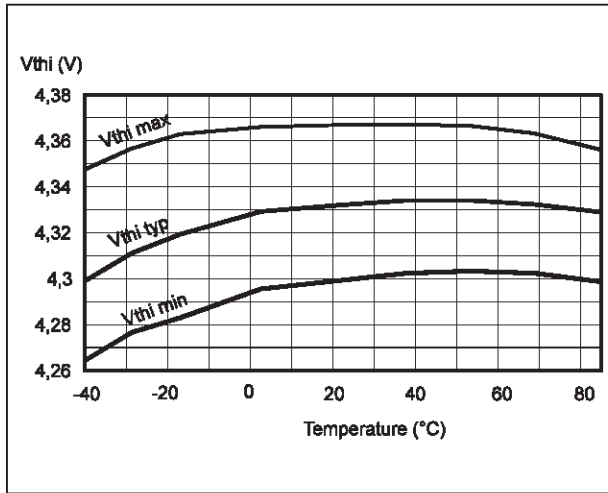
Active High Reset, Timer Enabled



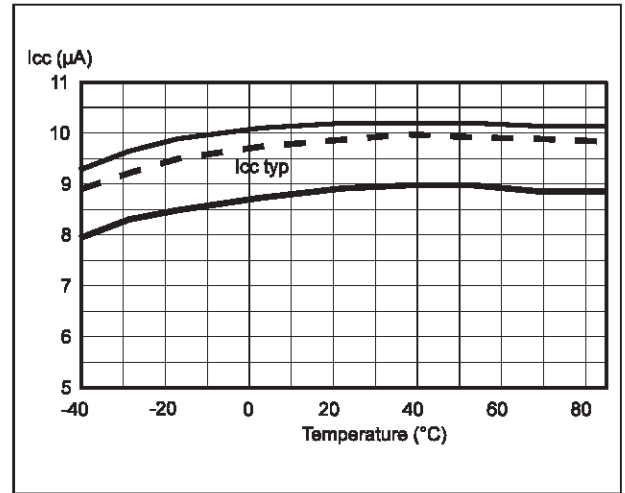
Active High Reset, Timer Disabled



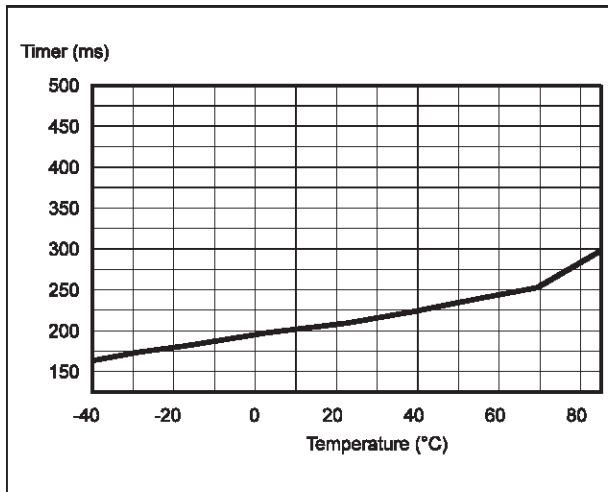
Voltage Threshold (Vthi) vs Temperature



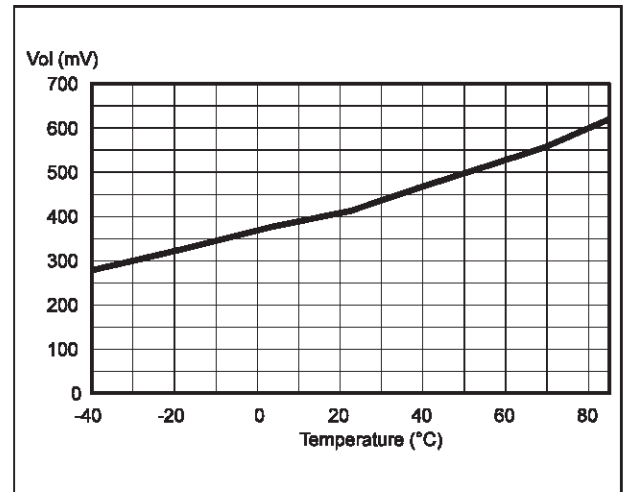
Current Consumption vs Temperature



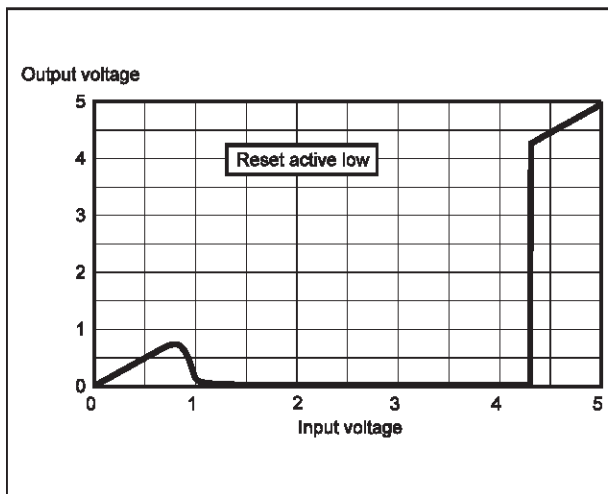
Timer Period (trst) vs Temperature



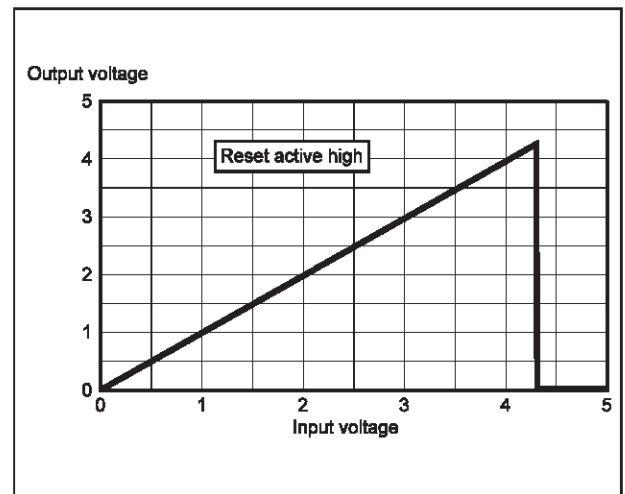
Vol vs Temperature



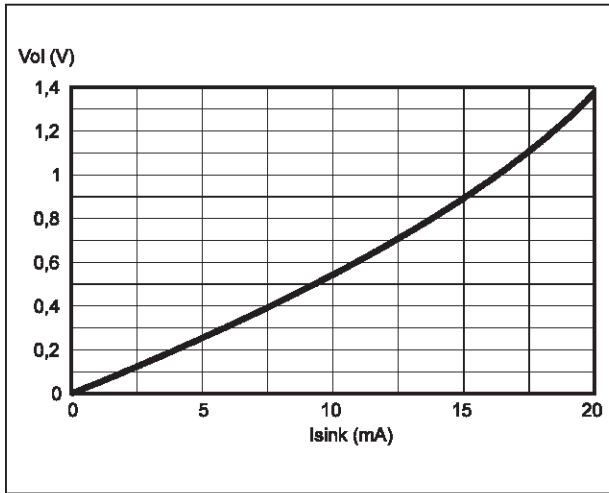
Output Voltage vs Input



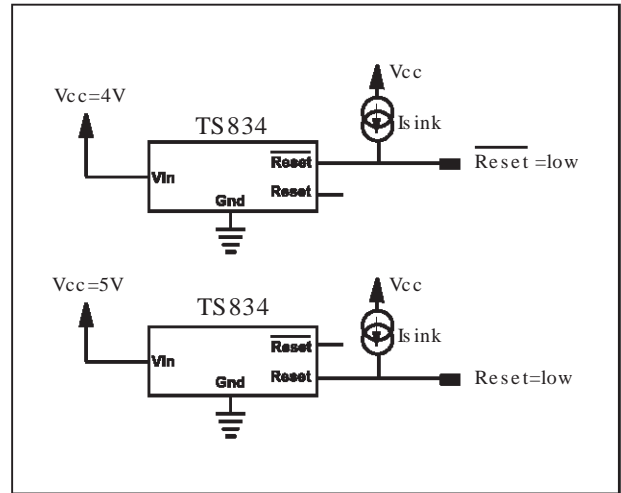
Output Voltage vs Input



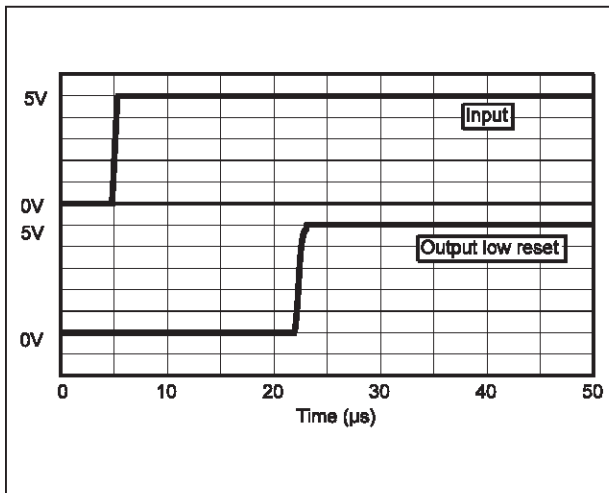
Vol vs Isink



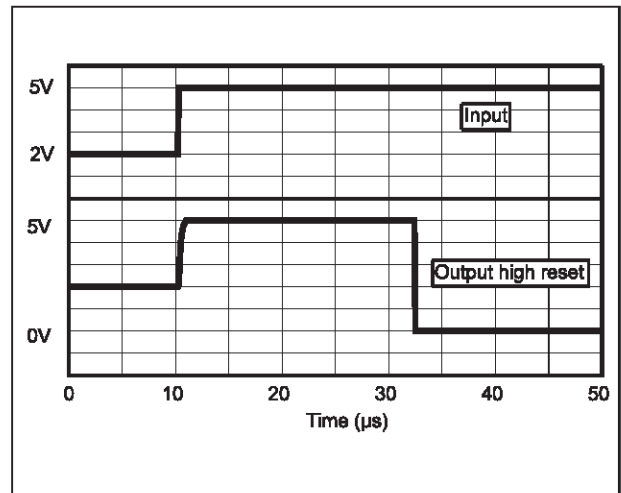
Schematic to Measure Vol vs Isink



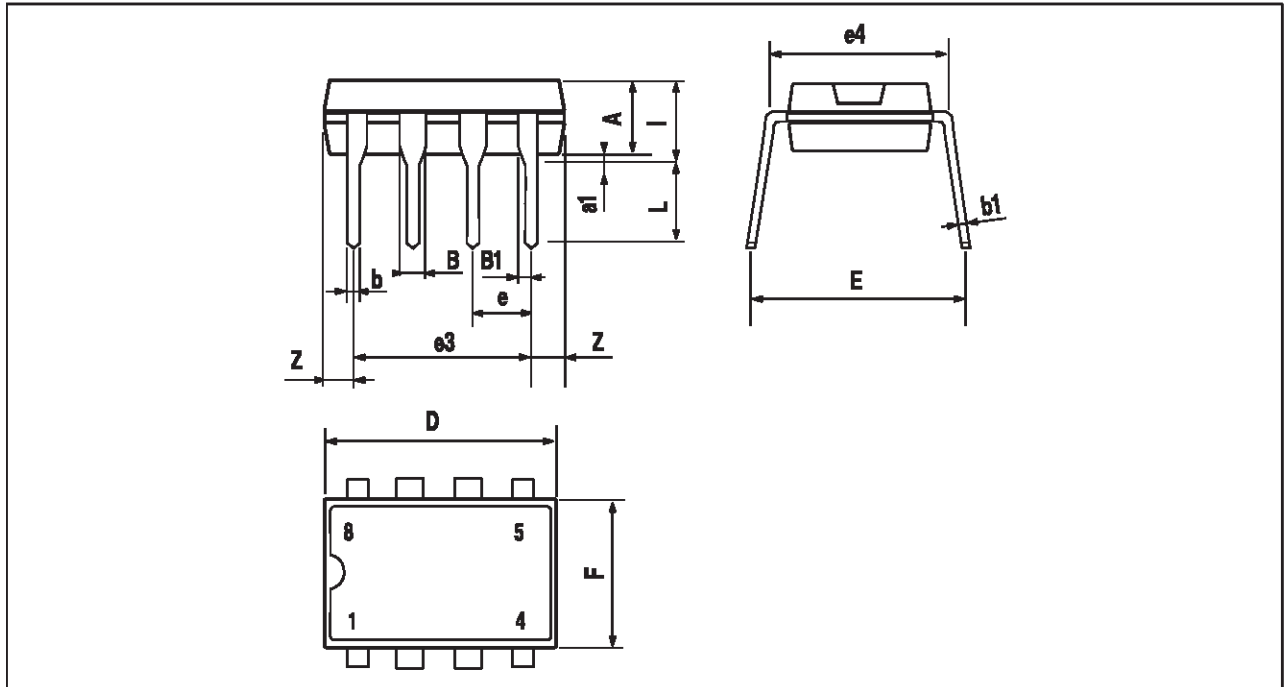
Reset High After Vcc Transition (timer disabled)



Reset Low After Vcc Transition (timer disabled)

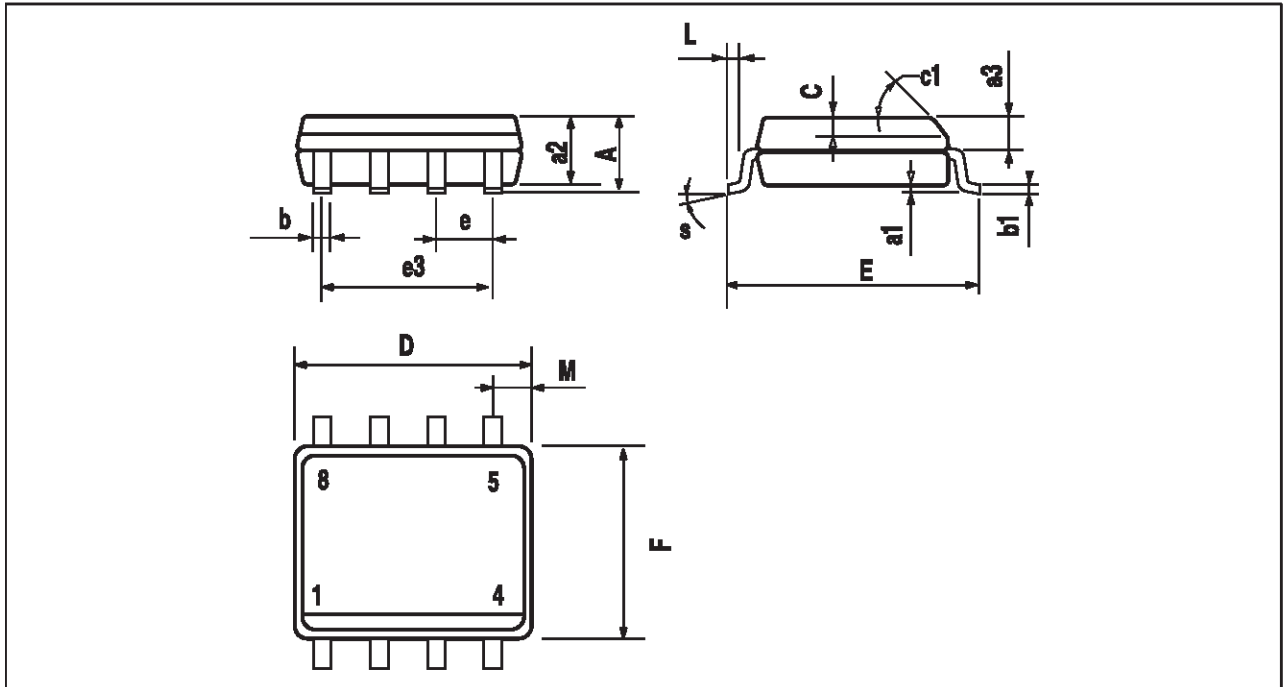


PACKAGE MECHANICAL DATA
8 PINS - PLASTIC PACKAGE



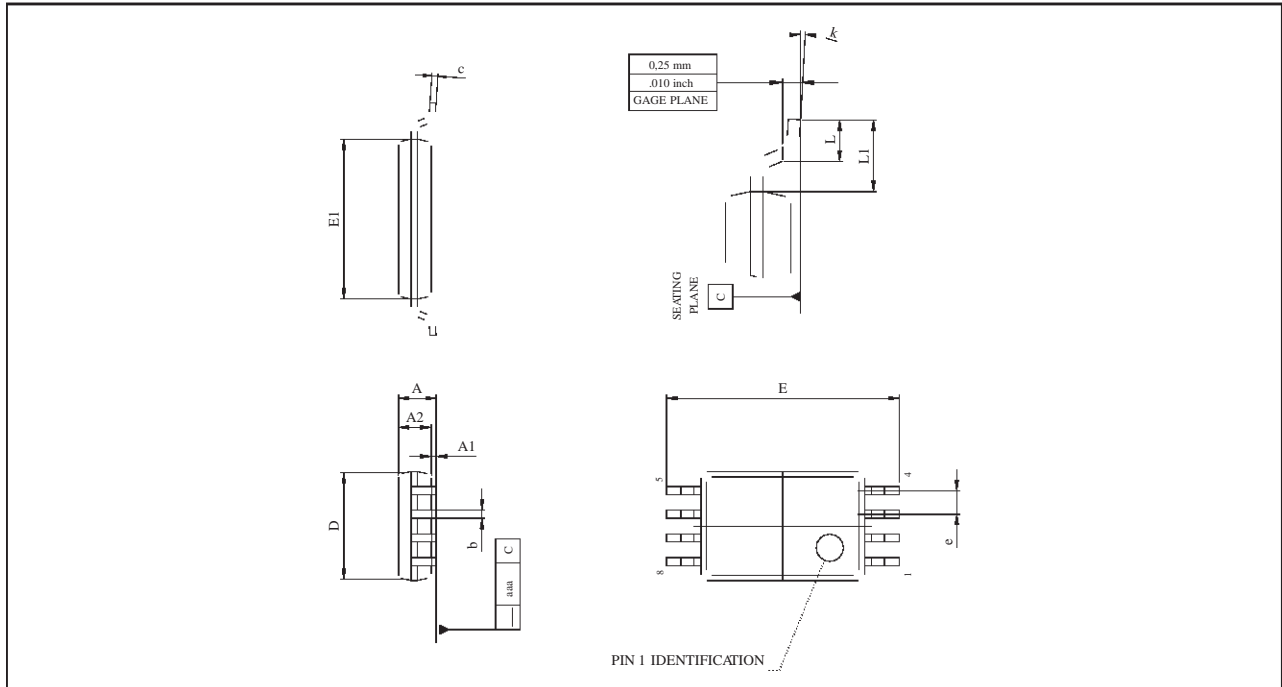
Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.32			0.131	
a1	0.51			0.020		
B	1.15		1.65	0.045		0.065
b	0.356		0.55	0.014		0.022
b1	0.204		0.304	0.008		0.012
D			10.92			0.430
E	7.95		9.75	0.313		0.384
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			6.6			0.260
i			5.08			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

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