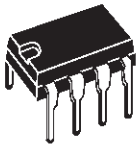
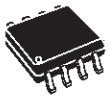
TS834

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)

ORDER CODES

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

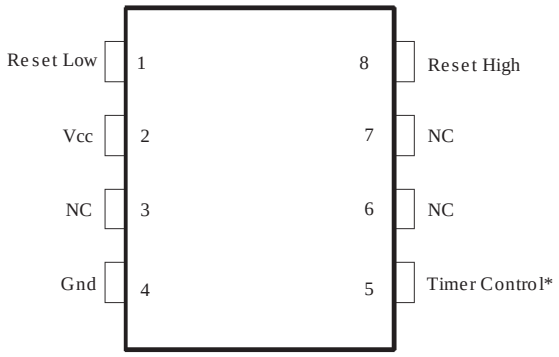
DESCRIPTION

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



* 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	700 1200	mW
T_{oper}	Operating Free Air Temperature Range		-40 to +85	^oC
T_{stg}	Storage Temperature		-65 to +150	^oC

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

OPERATING CONDITIONS

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

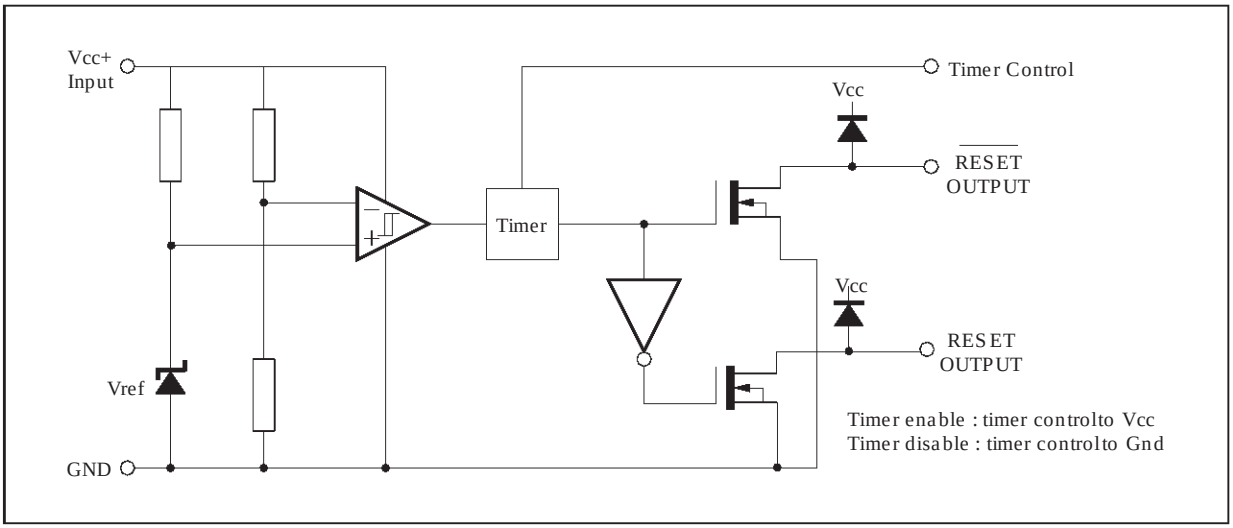
TS834-5

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

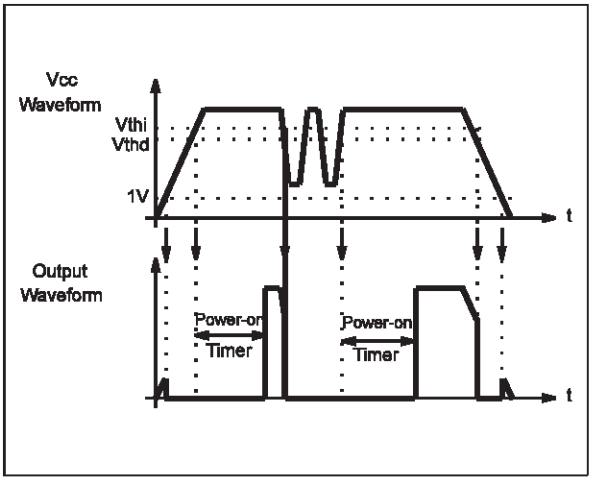
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_{thi}	Threshold Voltage V_{CC} Increasing	T_{amb} = 25^{o}C -40 ≤ T_{amb} ≤ +85^{o}C	 4.10	4.33	 4.46	V
V_{thd}	Threshold Voltage V_{CC} Decreasing	T_{amb} = 25^{o}C -40 ≤ T_{amb} ≤ +85^{o}C	 4.10	4.23	 4.46	V
V_{hys}	Hysteresis Voltage		50	100	200	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 ≤ T_{amb} ≤ +85^{o}C		450	800 1000	mV
V_{OL2}	Low Level Output Voltage (OUTPUT 2)	V_{CC} = 5V, I_{OL} = 8mA, -40 ≤ T_{amb} ≤ +85^{o}C		450	800 1000	mV
I_{OH1}	Output Off-state Leakage current (OUTPUT 1)	V_{CC} = 5V -40 ≤ T_{amb} ≤ +85^{o}C		2	40 1000	nA
I_{OH2}	Output Off-state Leakage current (OUTPUT 2)	V_{CC} = 4V -40 ≤ T_{amb} ≤ +85^{o}C		2	40 1000	nA
tphl	Response Time High to Low	R_L = 10kΩ, C_L = 15pF V_{CC} = V_{thd} -10mV		20		µs
trst	Reset Pulse width	Timer enabled -40 ≤ T_{amb} ≤ +85^{o}C	125	300	500	ms

TIMING DIAGRAMS

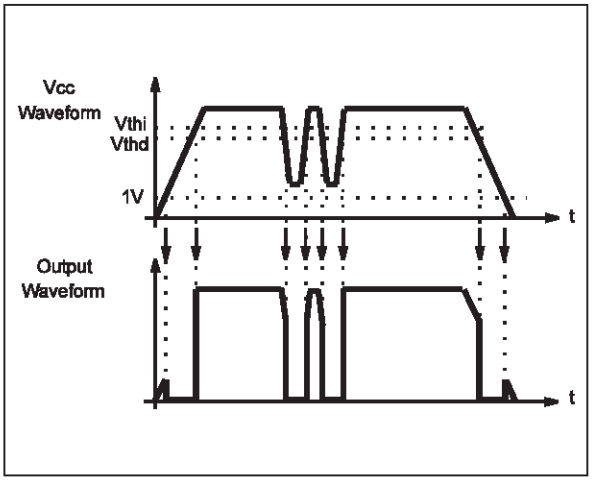
All the timing diagrams are given with outputs loaded by 10kΩ resistors to V_{CC}.



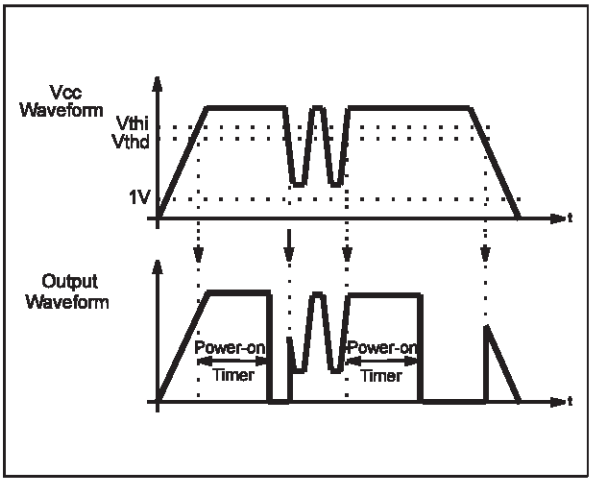
Active Low Reset, Timer Enable



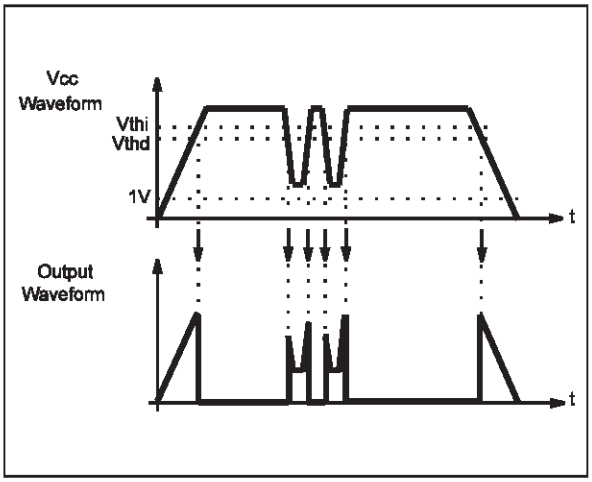
Active Low Reset, Timer Disable



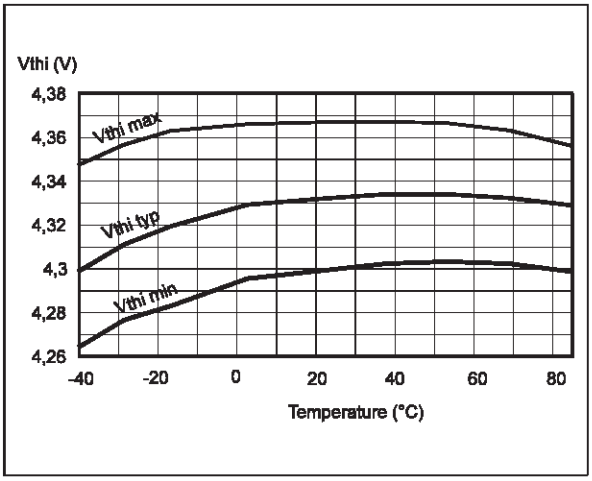
Active High Reset, Timer Enable



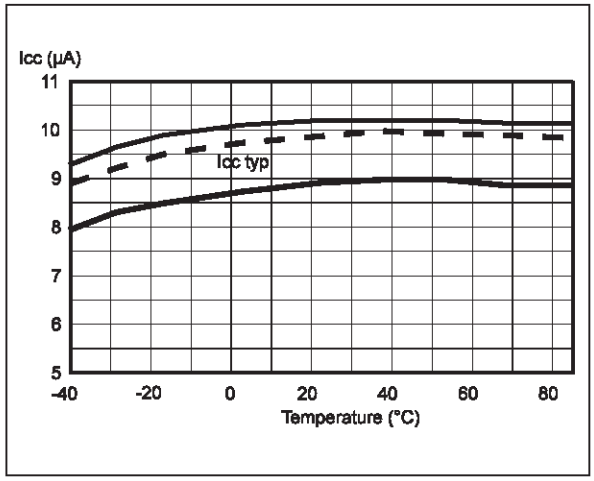
Active High Reset, Timer Disable



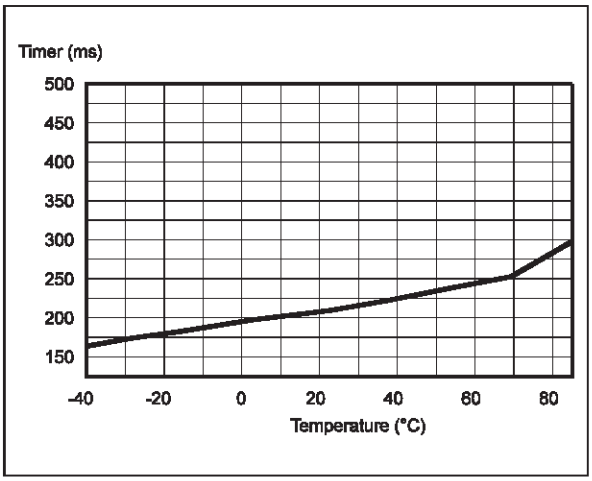
Voltage Threshold (Vthi) vs Temperature



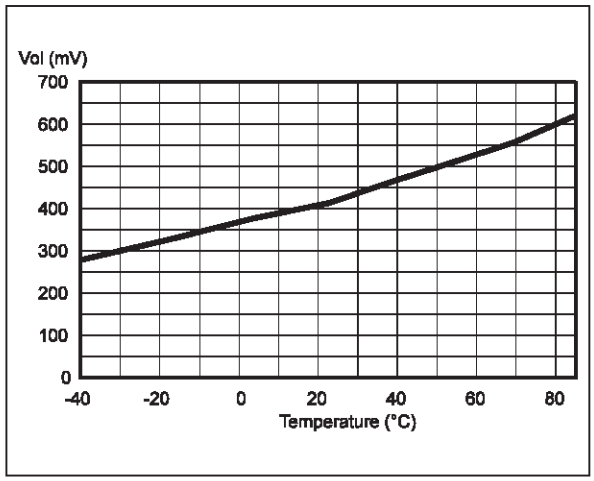
Current Consumption vs Temperature



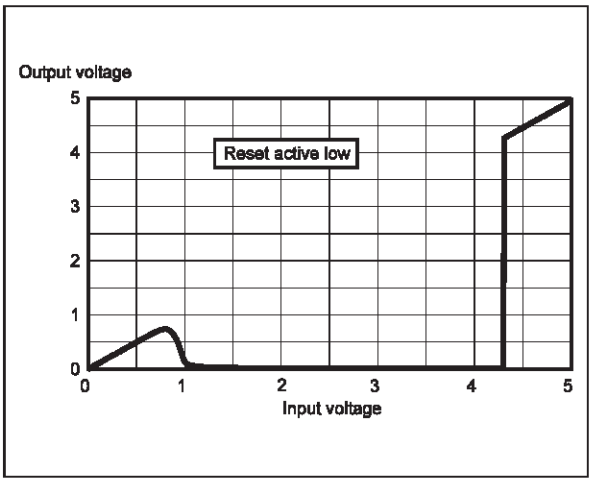
Timer Period (trst) vs Temperature



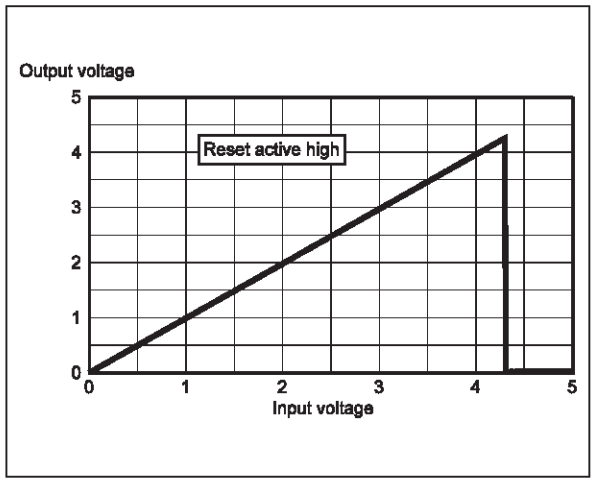
Vol vs Temperature



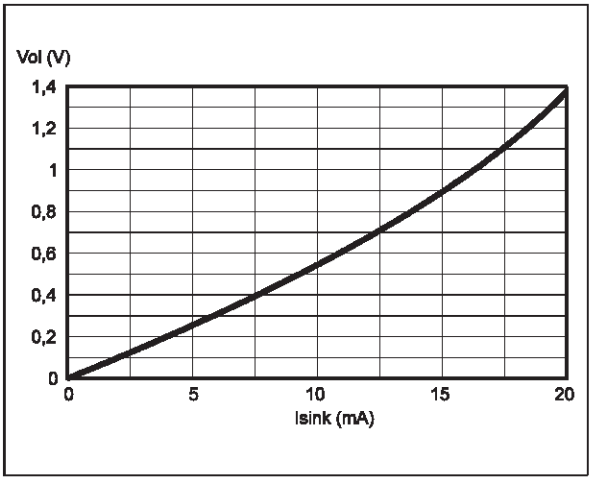
Output Voltage vs Input



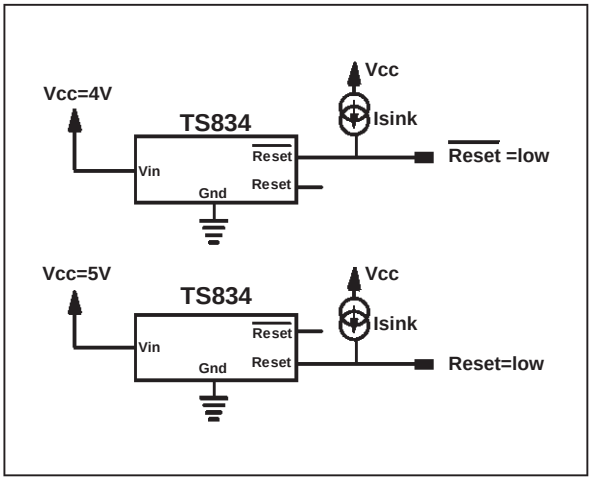
Output Voltage vs Input



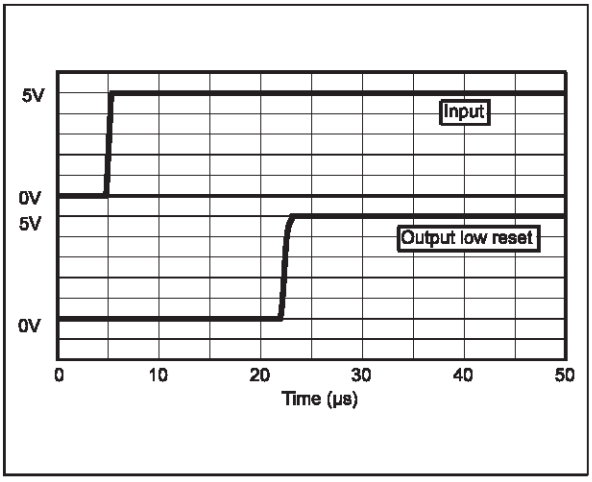
Vol vs Isink



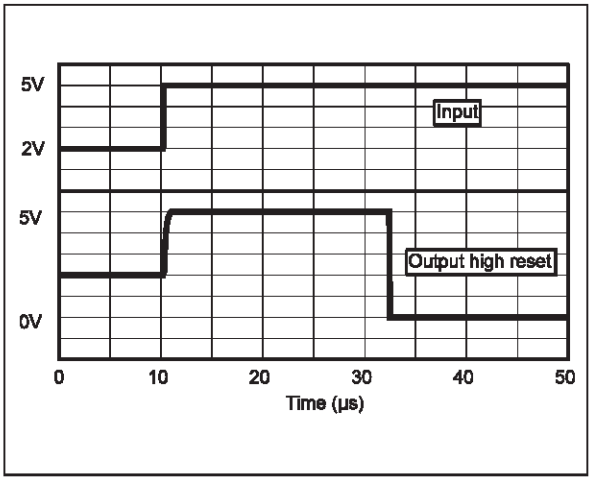
Schematic to Measure Vol vs Isink



Reset Low After a Vcc Transition (timer disabled)

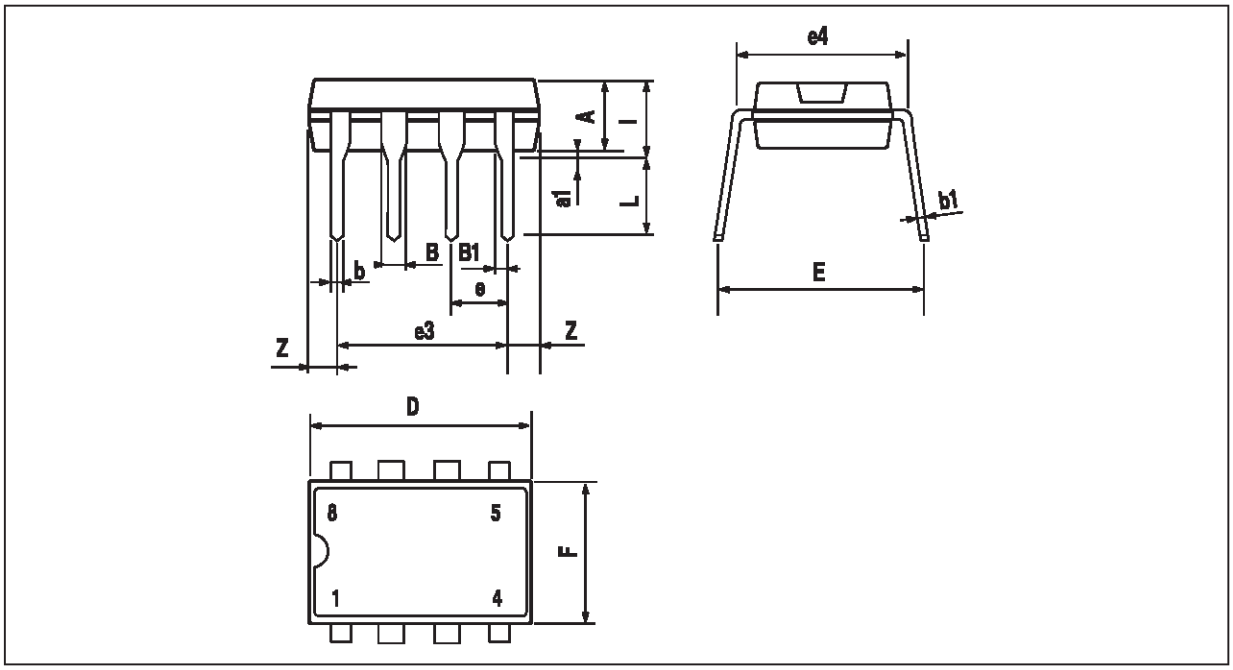


Reset High After Vcc Transition (timer disabled)



PACKAGE MECHANICAL DATA

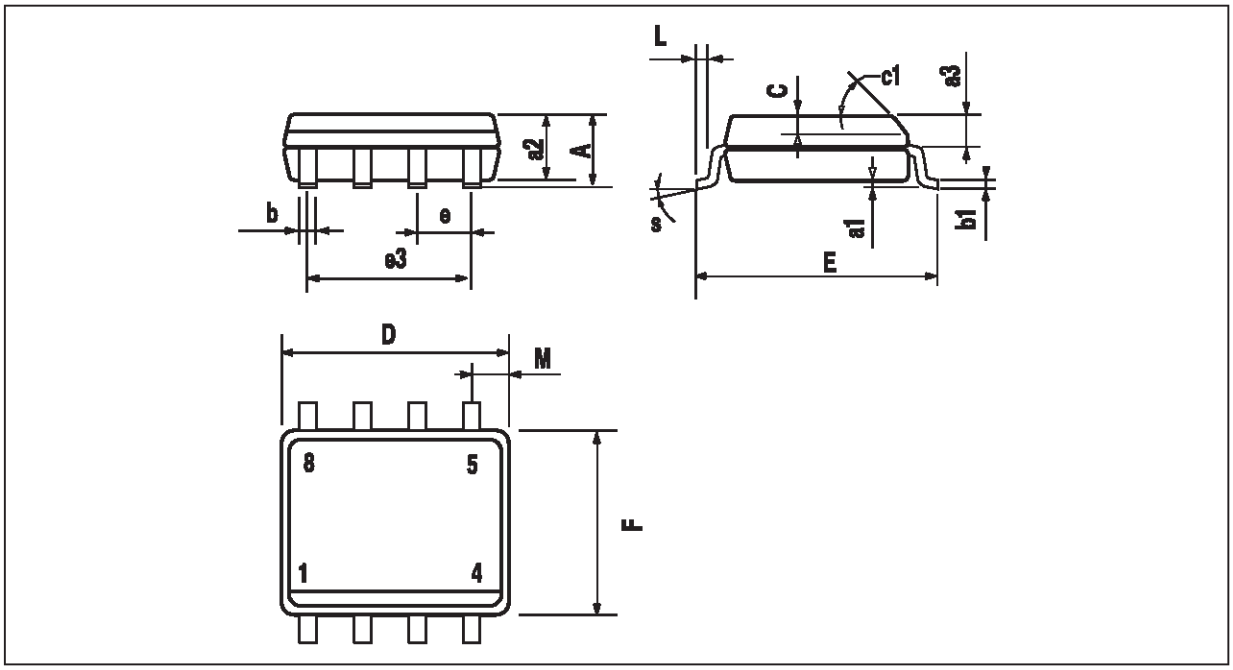
8 PINS - PLASTIC PACKAGE



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 - PLASTIC MICROPACKAGE (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.)					