DS1834, DS1834A, DS1834D
Dual EconoReset with Pushbutton

Description

The DS1834 Dual EconoReset with Pushbutton is designed to monitor power and protect processing in dual-voltage systems. It operates from the higher of a 3-volt or 5-volt input, monitoring both for in-tolerance conditions. When safety thresholds are breached from either input, the DS1834 initiates reset. On power return, it automatically restarts the processor, maintaining reset for 350ms to allow stabilization. The DS1834 also monitors a pushbutton input to allow for external over-ride.

Using pin adjustments, voltage reset tolerances can be set in different combinations for the 5V and 3.V power supplies, respectively: 10% and 10% 10% and 20% and 5% and 10%. DS1834A NMOS outputs can be wire-AND'd to either the 5-volt or 3-volt level. The DS1834 and DS1834D have CMOS outputs for low-current operation.

The DS1834 is targeted for multi-voltage microprocessor systems and subsystems, or for buses that do not operate at the same voltage as the μP or core logic. By integrating monitoring functions required for a particular application, the DS1834 enhances processor reliability with considerable savings in space and cost.

Key Features

- Monitors both 3.3V and 5V power supplies
- 3.3V and 5V power-on and power transient resets
- Provides pushbutton switch for manual reset control
- Active low push-pull outputs (DS1834)
- Active low open-drain outputs (DS1834A)
- Active high push-pull outputs (DS1834D)
- Draws internal power from the higher of the two sources
- Uses precision temperature-compensated voltage reference and sensor
- Maintains active high reset for 350ms after power return
- Internal 5kΩ pull-up resistor
- Operating ranges:
  - 5V with 5% or 10% tolerance
  - 3.3V with 10% or 20% tolerance
  - -40°C to +85°C

Key Specifications: Supervisors (2 Monitored Voltages)									
Part Number	Interface	Reset Threshold Range (V)	Active-Low Reset Output	Min. Reset Timeout Range	Watchdog Feature	Supervisor Features	Reset Thresh. Acc. (% @+25° C)	Max. I_{CC} (µA)	
DS1834	Factory Fixed	2.5 to 3.3 3.3 to 5.5	Open Drain	85ms to 300ms	No Watchdog	Manual Reset Power Fail Comparator	2.5	50	
DS1834A			Open Drain						
DS1834D			-						
See All Supervisors (2 Monitored Voltages) (70)									

Notes:

**This pricing is BUDGETARY, for comparing similar parts. Prices are in U.S. dollars and subject to change. Quantity pricing may vary substantially and international prices may differ due to local duties, taxes, fees, and exchange rates. For volume-specific prices and delivery, please see the price and availability page or contact an authorized distributor.

Application Notes

Application Note 589: CPU Supervisors: Frequently Asked Questions - DS1834

Application Note 3316: Dallas Semiconductor Microprocessor Supervisor Selection Guide - DS1834, DS1834A, DS1834D

Evaluation Kits

Design Guides

Microprocessor Supervisory (PDF)

Reliability Reports

Reliability Report: DS1834.pdf

Request Reliability Report for:

Ordering Information

Notes:

1. Other options and links for purchasing parts are listed at:
2. Didn't Find What You Need? Ask our applications engineers. Expert assistance in finding parts, usually within one business day.
3. Part number suffixes: T or T&R = tape and reel; + = RoHS/lead-free; # = RoHS/lead-exempt. More: See Full Data Sheet or Part Naming Conventions.
4. * Some packages have variations, listed on the drawing. "PkgCode/Variation" tells which variation the product uses. Note that "+", "#", "-" in the part number suffix describes RoHS status. Package drawings may show a different suffix character.
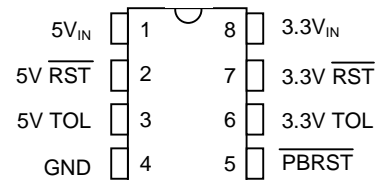
Devices: 1-31 of 31

DS1834	Notes	Free Sample	Buy	Package: TYPE PINS FOOTPRINT DRAWING CODE/VAR *	Temp	RoHS/Lead-Free? Materials Analysis
DS1834+				PDIP; 8 pin; Dwg: 21-0043 (PDF) Use pkgcode/variation: P8+6*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
DS1834	CMOS, Active Low			PDIP; 8 pin; Dwg: 21-0043 (PDF) Use pkgcode/variation: P8-6*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
DS1834S	CMOS, Active Low			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
DS1834S/T&R	CMOS Active Low 2500/Reel			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
DS1834S+T&R	CMOS, Active Low 2500/Reel			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8+2*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis

DS1834	Notes	Free Sample	Buy	Package	Temp	RoHS/Lead-Free? Materials Analysis
DS1834S+				SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8+2*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
DS1834U+				uMAX; 8 pin; Dwg: 21-0036 (PDF) Use pkgcode/variation: U8+1*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
DS1834U/T&R	CMOS Active Low 3000/Reel			uMAX; 8 pin; Dwg: 21-0036 (PDF) Use pkgcode/variation: U8-1*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
DS1834U+T&R	CMOS, Active Low 3000/Reel			uMAX; 8 pin; Dwg: 21-0036 (PDF) Use pkgcode/variation: U8+1*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
DS1834U	CMOS, Active Low			uMAX; 8 pin; Dwg: 21-0036 (PDF) Use pkgcode/variation: U8-1*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis

DS1834A	Notes	Free Sample	Buy	Package: TYPE PINS FOOTPRINT DRAWING CODE/VAR *	Temp	RoHS/Lead-Free? Materials Analysis
DS1834A+				PDIP; 8 pin; Dwg: 21-0043 (PDF) Use pkgcode/variation: P8+7*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
DS1834A	Open Drain Active Low			PDIP; 8 pin; Dwg: 21-0043 (PDF) Use pkgcode/variation: P8-7*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
DS1834AS/T&R/C02				SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
DS1834AS+				SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8+2*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
DS1834AS+T&R	Open Drain, Active Low, 2500/Reel			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8+2*	-40°C to +85°C	RoHS/Lead-Free: Lead Free Materials Analysis
DS1834AS/T&R	Open Drain Active Low 2500/Reel			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis
DS1834AS	Open Drain Active Low			SOIC; 8 pin; Dwg: 21-0041 (PDF) Use pkgcode/variation: S8-2*	-40°C to +85°C	RoHS/Lead-Free: No Materials Analysis

DALLAS SEMICONDUCTOR
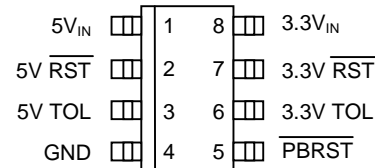
DS1834/A/D
Dual EconoReset with Pushbutton

FEATURES

- 5V power-on reset
- 3.3V power-on reset
- Internal power is drawn from higher of either the $5V_{IN}$ input or the $3.3V_{IN}$ input
- Excellent for systems designed to operate with dual power supplies
- Asserts resets during power transients
- Pushbutton reset input for system override
- Maintains reset for 350 ms after V_{CC} returns to an in-tolerance condition
- Reduces need for discrete components
- Precision temperature-compensated voltage reference and voltage sensor
- 8-pin DIP, 8-pin SOIC, and 8-pin μ-SOP available
- CMOS output for low current operation on the DS1834 and DS1834D
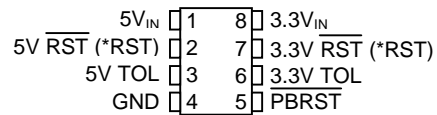- Operating temperature of -40°C to +85°C

PIN ASSIGNMENT

$5V_{IN}$	1	8	$3.3V_{IN}$
5V $\overline{RST}$	2	7	3.3V $\overline{RST}$
5V TOL	3	6	3.3V TOL
GND	4	5	$\overline{PBRST}$

DS1834 8-Pin DIP (300-mil)

$5V_{IN}$	1	8	$3.3V_{IN}$
5V $\overline{RST}$	2	7	3.3V $\overline{RST}$
5V TOL	3	6	3.3V TOL
GND	4	5	$\overline{PBRST}$

DS1834 8-Pin SOIC (150-mil)

$\overline{5V_{IN}}$	1	8	$3.3V_{IN}$
5V $\overline{RST}$ (*RST)	2	7	3.3V $\overline{RST}$ (*RST)
5V TOL	3	6	3.3V TOL
GND	4	5	PBRST

DS1834 8-Pin μ-SOP (118-mil)

PIN DESCRIPTION

$5V_{IN}$ - 5V Power Supply Input
5V $\overline{RST}$ (*RST) - 5V Reset Output
5V TOL - Selects 5V Input Tolerance
GND - Ground
$\overline{PBRST}$ - Pushbutton Reset
3.3V TOL - Selects 3.3V Input Tolerance
3.3V $\overline{RST}$ (*RST) - 3.3V Reset Output
$3.3V_{IN}$ - 3.3V Power Supply Input
*DS1834D Active High Reset

DESCRIPTION

The DS1834 Dual EconoResets monitors three vital system conditions: 5-volt supply, 3.3-volt supply, and an external override. First a precision temperature reference and comparator circuit monitor the status of the 5-volt supply and the 3.3-volt supply. When an out-of-tolerance condition is detected, an internal power-fail signal is generated which forces the reset of the affected supply to an active state.

Lastly, the DS1834 supports an external reset via an internally debounced pushbutton input. When the pushbutton is pulled low both resets will be asserted for approximately 350 ms after the pushbutton is released.

ABSOLUTE MAXIMUM RATINGS*

Voltage on V_{IN} Pin Relative to Ground	-0.5V to +7.0V
Voltage on RST (5V) Pin Relative to Ground	-0.5V to +0.5V_{IN} + 0.5V (DS1834 & DS1834D)
Voltage on RST (3.3V) Pin Relative to Ground	-0.5V to +3.3V_{IN} + 0.5V (DS1834 & DS1834D)
Voltage on $\overline{PBRST}$ & RST (DS1834A) Pin Relative to Ground	-0.5 to the greater of 0.5V_{IN} + 0.5V or 3V_{IN} + 0.5V
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +125°C
Soldering Temperature	260°C for 10 seconds

* This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operation sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods of time may affect reliability.

RECOMMENDED DC OPERATING CONDITIONS   (-40°C to +85°C)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	NOTES
5V_{IN} (Supply Voltage)	V_{IN}	1.2		5.5	V	1
3V_{IN} (Supply Voltage)	V_{IN}	1.2		5.5	V	1
$\overline{PBRST}$ Input High Level	V_{IH}	2 $V_{IN(MAX)}$ -0.4		$V_{IN(MAX)}$ +0.3	V V	1 1, 3
$\overline{PBRST}$ Input Low Level	V_{IL}	-0.3		0.5	V	1

DC ELECTRICAL CHARACTERISTICS   (-40°C to +85°C; V_{CC}=1.2V to 5.5V)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	NOTES
Output Voltage	V_{OH}		V_{IN} -0.1V		V	1
Input Leakage	I_{IL}	-1.0		+1.0	μA	4
Output Current @ 2.4V	I_{OH}		350		μA	5
Output Current @ 0.4V	I_{OL}	+10			mA	5
Operating Current @ $\leq$ 5.5V_{IN}	I_{CC}			50	μA	6
Operating Current @ $\leq$ 3.6V_{IN}	I_{CC}			35	μA	7
5V_{IN} Trip Point (TOL=GND)	V_{INTP}	4.50	4.63	4.75	V	1
5V_{IN} Trip Point (TOL=5V_{IN})	V_{INTP}	4.25	4.38	4.49	V	1
3.3V_{IN} Trip Point (TOL=GND)	V_{INTP}	2.80	2.88	2.97	V	1
3.3V_{IN} Trip Point (TOL=3.3V_{IN})	V_{INTP}	2.47	2.55	2.64	V	1
Output Capacitance	C_{OUT}			10	pF	

AC ELECTRICAL CHARACTERISTICS   (-40°C to +85°C; V_{CC}=1.2V to 5.5V)

| PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	NOTES
$\overline{PBRST} = V_{IL}$	t_{PB}	2			ms	
$\overline{PBRST}$ Stable Low to Reset Active	t_{PDLY}			2	ms	
Reset Active Time	t_{RST}	200	350	500	ms	
V_{CC} Detect to $\overline{RST}$ (or RST)	t_{RPD}			2	µs	8
V_{CC} Slew Rate ($V_{INTP(MAX)}$ to $V_{INTP(MIN)}$)	t_F	300			µs	
V_{CC} Slew Rate ($V_{INTP(MIN)}$ to $V_{INTP(MAX)}$)	t_R	0			ns	
V_{CC} Detect to $\overline{RST}$ (or RST)	t_{RPU}	200	350	500	ms	9

NOTES:

1. All voltages are referenced to ground.

2. Measured with both $3.3V_{IN}$ and $5V_{IN}$ 2.7V.

3. Measured with both $3.3V_{IN}$ and $5V_{IN} \leq 2.7V$.

4. $\overline{PBRST}$ is internally pulled up to $V_{IN(MAX)}$ input with an internal impedance of approximately 40 kΩ.

5. Measured with either $3.3V_{IN}$ or $5V_{IN}$ 2.7V (valid for DS1834 and DS1834D only).

6. Measured with outputs open and both $3.3V_{IN}$ and $5V_{IN} \leq 5.5V$.

7. Measured with outputs open and both $3.3V_{IN}$ and $5V_{IN} \leq 3.6V$.

8. Noise immunity - pulses < 2 µs @ V_{CCTP} minimum will not generate a reset.

9. t_R =5 µs.

MARKING:

	DS1834	DS1834A	DS1834D
8-pin DIP	DS1834	DS1834A	DS1834D
8-pin SOIC	DS1834	DS1834A	DS1834D
8-pin µ-SOP	834	834A	834D
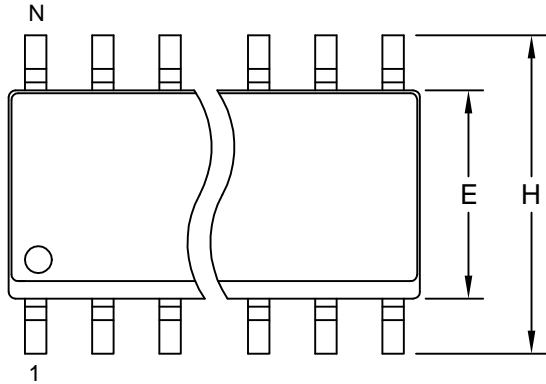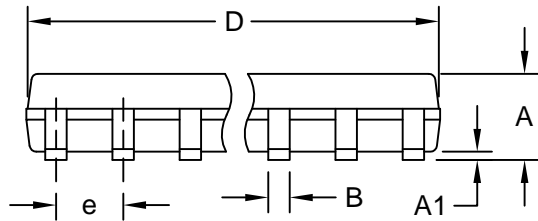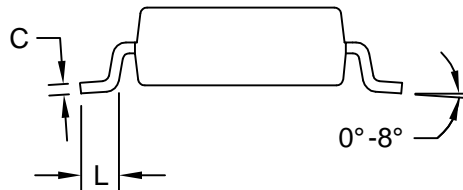
DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.053	0.069	1.35	1.75
A1	0.004	0.010	0.10	0.25
B	0.014	0.019	0.35	0.49
C	0.007	0.010	0.19	0.25
e	0.050 BSC		1.27 BSC	
E	0.150	0.157	3.80	4.00
H	0.228	0.244	5.80	6.20
L	0.016	0.050	0.40	1.27

VARIATIONS:

DIM	INCHES		MILLIMETERS		N	MS012
	MIN	MAX	MIN	MAX		
D	0.189	0.197	4.80	5.00	8	AA
D	0.337	0.344	8.55	8.75	14	AB
D	0.386	0.394	9.80	10.00	16	AC

N

E H

1

TOP VIEW

D

A

e   B   A1

FRONT VIEW

C

L

0°-8°

SIDE VIEW

NOTES:
1. D&E DO NOT INCLUDE MOLD FLASH.
2. MOLD FLASH OR PROTRUSIONS NOT TO EXCEED 0.15mm (.006").
3. LEADS TO BE COPLANAR WITHIN 0.10mm (.004").
4. CONTROLLING DIMENSION: MILLIMETERS.
5. MEETS JEDEC MS012.
6. N = NUMBER OF PINS.

DALLAS SEMICONDUCTOR **MAXIM**

TITLE:

PACKAGE OUTLINE, .150" SOIC

APPROVAL	DOCUMENT CONTROL NO.	REV.	1/1
	21-0041	B	