

DS1810

5V EconoReset with Push-Pull Output

Description

The DS1810 EconoReset uses a precision temperature reference and comparator circuit to monitor the status of the power supply (V_{CC}). When an out-of-tolerance condition is detected, an internal power-fail signal is generated which forces reset to the active state. When V_{CC} returns to an in-tolerance condition, the reset signal is kept in the active state for approximately 150ms to allow the power supply and processor to stabilize.

Key Features

- Automatically restarts a microprocessor after power failure
- Maintains reset for 150ms after V_{CC} returns to an in-tolerance condition
- Reduces need for discrete components
- Precision temperature-compensated voltage reference and voltage sensor
- Low-cost TO-92 or space saving surface mount SOT-23 packages available
- Push-Pull output for low current operation
- Operating temperature -40°C to $+85^{\circ}\text{C}$

Key Specifications: Supervisors (1 Monitored Voltage)

Part Number	Reset Threshold Range (V)	Active-Low Reset Output	Min. Reset Timeout Range	Watchdog Feature	Reset Thresh. Acc. (% @ $+25^{\circ}\text{C}$)	Max. I_{CC} (μA)
DS1810	3.3 to 5.5	Push-Pull	85ms to 300ms	No Watchdog	2.5	40

[See All Supervisors \(1 Monitored Voltage\) \(268\)](#)

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 3316: Dallas Semiconductor Microprocessor Supervisor Selection Guide - DS1810

Evaluation Kits

none

Design Guides

Microprocessor Supervisory (PDF)

Reliability Reports

Reliability Report: DS1810.
pdf

Software/Models

none

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: 1-25 of 25

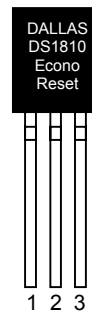
DS1810	Notes	Free Sample	Buy	Package: TYPE PINS FOOTPRINT DRAWING CODE/VAR *	Temp	RoHS/Lead-Free? Materials Analysis
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DS1810-10+T&R	5V-10%			TO92; 3 pin; Dwg: 21-0250 (PDF) Use pkgcode/variation: Q3+4*	-40°C to +85° C	RoHS/Lead-Free: Lead Free Materials Analysis
DS1810-15+T&R	5V-15%			TO92; 3 pin; Dwg: 21-0250 (PDF) Use pkgcode/variation: Q3+4*	-40°C to +85° C	RoHS/Lead-Free: Lead Free Materials Analysis
DS1810-5+T&R	5V-5%			TO92; 3 pin; Dwg: 21-0250 (PDF) Use pkgcode/variation: Q3+4*	-40°C to +85° C	RoHS/Lead-Free: Lead Free Materials Analysis
DS1810-15/T&R	5V-15%			TO92; 3 pin; Dwg: 21-0250 (PDF) Use pkgcode/variation: Q3-4*	-40°C to +85° C	RoHS/Lead-Free: No Materials Analysis
DS1810-10/T&R	5V-10%			TO92; 3 pin; Dwg: 21-0250 (PDF) Use pkgcode/variation: Q3-4*	-40°C to +85° C	RoHS/Lead-Free: No Materials Analysis
DS1810-5/T&R	5V-5%			TO92; 3 pin; Dwg: 21-0250 (PDF) Use pkgcode/variation: Q3-4*	-40°C to +85° C	RoHS/Lead-Free: No Materials Analysis
DS1810-15	5V-10% Monitor			TO92; 3 pin; Dwg: 21-0248 (PDF) Use pkgcode/variation: Q3-1*	-40°C to +85° C	RoHS/Lead-Free: No Materials Analysis
DS1810-10	5V-15% Monitor			TO92; 3 pin; Dwg: 21-0248 (PDF) Use pkgcode/variation: Q3-1*	-40°C to +85° C	RoHS/Lead-Free: No Materials Analysis
DS1810-5	5V-5% Monitor			TO92; 3 pin; Dwg: 21-0248 (PDF) Use pkgcode/variation: Q3-1*	-40°C to +85° C	RoHS/Lead-Free: No Materials Analysis
DS1810-15+				TO92; 3 pin; Dwg: 21-0248 (PDF) Use pkgcode/variation: Q3+1*	-40°C to +85° C	RoHS/Lead-Free: Lead Free Materials Analysis
DS1810-5+				TO92; 3 pin; Dwg: 21-0248 (PDF) Use pkgcode/variation: Q3+1*	-40°C to +85° C	RoHS/Lead-Free: Lead Free Materials Analysis
DS1810-10+				TO92; 3 pin; Dwg: 21-0248 (PDF) Use pkgcode/variation: Q3+1*	-40°C to +85° C	RoHS/Lead-Free: Lead Free Materials Analysis

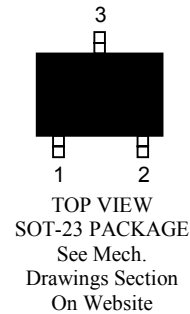
FEATURES

- Automatically restarts a microprocessor after power failure
- Maintains reset for 150 ms after V_{CC} returns to an in-tolerance condition
- Reduces need for discrete components
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- Low-cost TO-92 or space saving surface mount SOT-23 packages available
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PIN ASSIGNMENT



BOTTOM VIEW
TO-92 PACKAGE
See Mech.
Drawings Section
On Website



PIN DESCRIPTION

TO-92

1	$\overline{\text{RST}}$	Active Low Reset Output
2	V_{CC}	Power Supply
3	GND	Ground

SOT-23

1	$\overline{\text{RST}}$	Active Low Reset Output
2	V_{CC}	Power Supply
3	GND	Ground

DESCRIPTION

The DS1810 EconoReset uses a precision temperature reference and comparator circuit to monitor the status of the power supply (V_{CC}). When an out-of-tolerance condition is detected, an internal power-fail signal is generated which forces reset to the active state. When V_{CC} returns to an in-tolerance condition, the reset signal is kept in the active state for approximately 150 ms to allow the power supply and processor to stabilize.

ABSOLUTE MAXIMUM RATINGS*

Voltage on V_{CC} Pin Relative to Ground	-0.5V to +7.0V
Voltage on \overline{RST} Relative to Ground	-0.5V to $V_{CC} + 0.5V$
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
Supply Voltage	V_{CC}	1.2		5.5	V	1

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

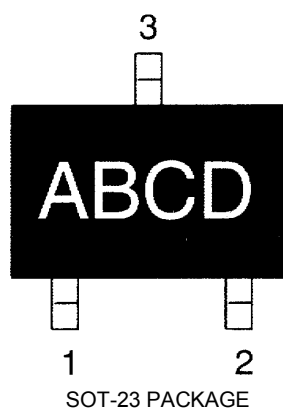
PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	NOTES
Output Voltage @ 0-500 μA	V_{OH}	$V_{CC}-0.5V$	$V_{CC}-0.1V$		V	1
Output Current @ 2.4V	I_{OH}		350		μA	2
Output Current @ 0.4V	I_{OL}	+10			mA	2
Operating Current $V_{CC} < 5.5$	I_{CC}		30	40	μA	3
V_{CC} Trip Point (DS1810-5)	V_{CCTP}	4.50	4.62	4.75	V	1
V_{CC} Trip Point (DS1810-10)	V_{CCTP}	4.25	4.37	4.49	V	1
V_{CC} Trip Point (DS1810-15)	V_{CCTP}	4.00	4.12	4.24	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
RESET Active Time	t_{RST}	100	150	300	ms	
V_{CC} Detect to \overline{RST}	t_{RPD}		2	5	μs	
V_{CC} Slew Rate (V_{CCTP} (MAX) to V_{CCTP} (MIN))	t_f	300			μs	
V_{CC} Slew Rate (V_{CCTP} (MIN) to V_{CCTP} (MAX))	t_r	0			ns	
V_{CC} Detect to \overline{RST}	t_{RPU}	100	150	300	ms	4

NOTES:

1. All voltages are referenced to ground.
2. Measured with $V_{CC} \geq 2.7$ volts.
3. Measured with \overline{RST} output open.
4. $t_R = 5 \mu s$.

PART MARKING CODES

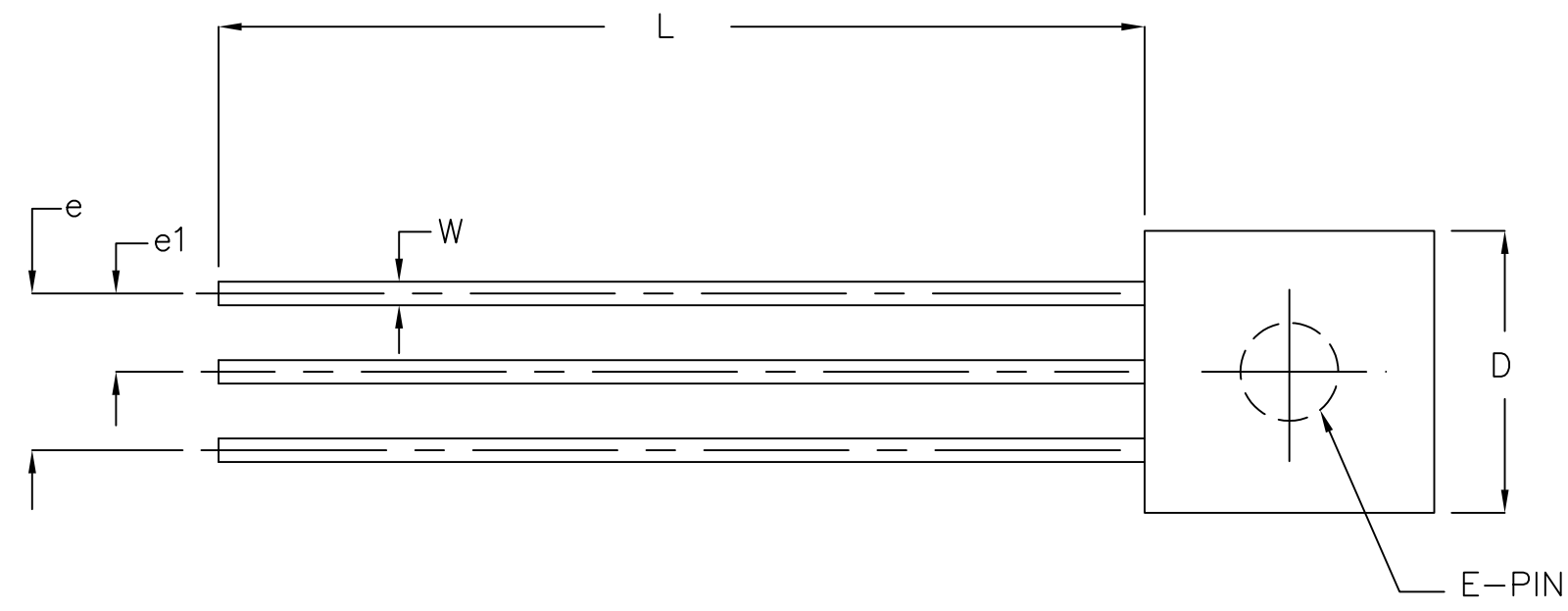
“A”, “B”, & “C” represent the device type.

810	-	DS1810
811	-	DS1811
812	-	DS1812
813	-	DS1813
815	-	DS1815
816	-	DS1816
817	-	DS1817
818	-	DS1818

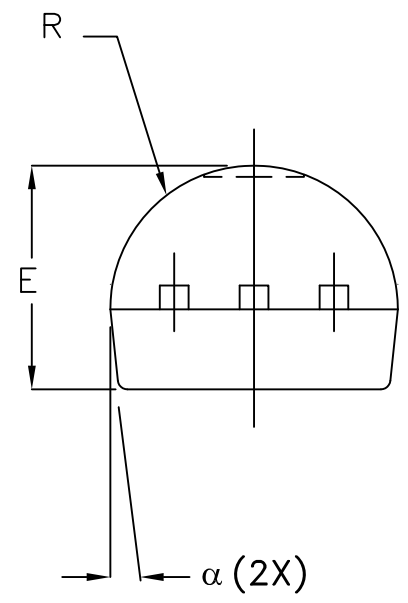
“D” represents the device tolerance.

A	-	5%
B	-	10%
C	-	15%
D	-	20%

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A			



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.170	.195	4.32	4.95
b	.014	.020	0.36	0.51
E	.130	.155	3.30	3.94
e	.095	.105	2.41	2.67
e1	.045	.055	1.14	1.40
L	.500	.610	12.70	15.49
R	.085	.095	2.16	2.41
S1	.045	.060	1.14	1.52
W	.016	.022	0.41	0.56
D	.175	.195	4.45	4.95
α	4°	6°	4°	6°



- NOTE:
1. PACKAGE OUTLINE EXCLUSIVE OF ANY MOLD FLASHES DIMENSION.
 2. PACKAGE OUTLINE EXCLUSIVE OF BURR DIMENSION.
 3. CONTROLLED DIMENSION IS INCH.
 4. MEETS JEDEC TO-226 AA.

SIGNATURE	DATE	MAXIM			
ASSY ENGR:					
PROD. ENGR:					
DES. ENGR:		MARKETING OUTLINE, TO-92, 3-PIN			
CHECK BY: TWM	12/01	SIZE D	FSCM NO	DWG NO 21-0248	REV A
DRAWN BY: JFD	12/01	SCALE N/A			SHEET 1 OF 1