

钍地半导体
Tudi Semiconductor

Product Specification

TUDI-ADM1232A

Microprocessor Supervisory Circuit

网址 www.sztdbdt.com

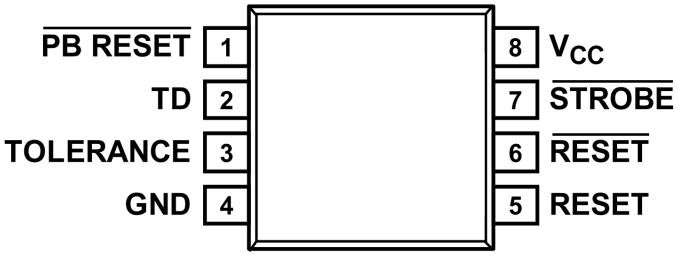
用芯智造·卓越品质

semiconductor device manufacturer

- Design
- research and development
- production
- and sales

FEATURES

- Precision 5 V voltage monitor with 5% or 10% tolerance options
- Adjustable STROBE monitor with 150 ms, 600 ms, 1.2 sec options
- Fast (20 ns) STROBE pulse width
- No external components required
- Packaged in 8-Lead SOIC
- Specified from -40°C to +85°C



SOP8 Pin Configuration

APPLICATIONS

- Microprocessor systems
- Portable equipment
- Computers
- Controllers
- Intelligent instruments
- Automotive systems
- Protection against damage caused bymicroprocessor failure

DESCRIPTION

The ADM1232A is pin-compatible to the MAX1232, DS1232LP, and DS1232. The ADM1232A can detect strobe pulse widths as narrow as 20 ns, making it compatible with high speed microprocessors. The Analog Devices, Inc., ADM1232A is a microprocessor monitoring circuit that monitors micro-processor supply voltage. It can also detect if a microprocessor has locked up or an external interrupt has been issued. The ADM1232A is available in an 8-lead narrow body SOIC and is specified over the _40°C to +85°C temperature range.

Table 1. Pin Function Descriptions

Pin No.	Mnemonic	Description
1	PB RESET	Push Button Reset Input.This debounced input ignores pulses of less than 1 ms and is guaranteed to respondto pulses greater than 20 ms.
2	TD	Time Delay Set.This pin allows the user to select the maximum amount of time the ADM1232A allows the STROBE input to remain inactive (that is, STROBE is not receiving any high-to-low transitions),without forcing the ADM1232A to generate a RESET pulse.
3	TOLERANCE	Tolerance Input.This input determines how much the supply voltage will be allowed to decrease(as apercen tagetolerance)before a RESET is asserted. Connect to V_{cc} for 10%tolerance and GND for 5% tolerance.
4	GND	0V ground reference for all signals.
5	RESET	Active High Logic Output.This pin is asserted when V_{cc} decreases below the amount specified by theT OLERANCE input,or PB RESET is forced low,or if there are no high-to-low transitions within the limits set by TD at STROBE,or during power-up.
6	RESET	Open Drain,Active Low Logic Output.The inverse of RESET.
7	STROBE	The STROBE input is used to monitor the activity of a microprocessor.If there are no high-to-low transitions within the time specified by TD,a reset is asserted.
8	V_{cc}	Power Supply Input+5V.

ABSOLUTE MAXIMUM RATINGS

Table 2.

T_A= 25°C, unless otherwisenoted.

Parameter	Rating
V_{CC}	5.5V
Logic Inputs	-0.3 Vto V_{CC}+0.3V
Storage Temperature Range	-65℃ to+150℃
Lead Temperature(Soldering,10 sec)	300℃
Vapor Phase (60 sec)	215℃
Infrared(15 sec)	220℃
Power Dissipation	900 μW
Derate by 12mW/℃ Above 25℃	
θ_{JA}ThermalImpedance (Still Air)	153℃/W

Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only; functional operation of the device at these or any other conditions above those indicated in the operational section of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

SPECIFICATIONS

Table 3.

V_{CC}= full operating range, T_A= $T_{MIN}$to T_{MAX}, unless otherwisenoted.

Parameter	Min	Typ	Max	Unit	Test Conditions/Comments
TEMPERATURE RANGE	-40		+85	℃	TA=T_{MIN} to T_{MAX}.
POWER SUPPLY					
Voltage	4.5	5.0	5.5	V	
Current		20	50	μA	V_{IL},V_{IH}=CMOS levels.
		200	500	μA	V_{IL},V_{IH}=TTLlevels.
STROBE AND PB RESET INPUTS					
Input High Level	2.0		Vcc+0.3	V	
Input Low Level	-0.3		+0.8	V	
INPUT LEAKAGE CURRENT					
(STROBE,TOLERANCE)	-1.0		+1.0	μA	
TD		1.6		μA	
OUTPUT CURRENT					
RESET	8	10		mA	When Vccis at 4.5Vto 5.5V.
RESET,RESET	-8	-12		mA	When Vcc is at 4.5Vto 5.5V.
OUTPUT VOLTAGE					
RESET/RESET	Vcc -0.5	Vcc -0.1		V	While sourcing less than 500μA,RESET remains within0.5 V of Vcc on power-down until Vcc drops below 2.0V.While sinking less than 500 μA,RESET remains within 0.5Vof GND on power-down until Vcc drops below 2.0V.
RESET/RESET High Level			0.4	V	
RESET/RESET Low Level	2.4			V	
1V OPERATION					
RESET Output Voltage		Vcc -0.1		V	While sourcing less than 50μA.
RESET Output Voltage		0.1		V	While sinking less than 50μA.
Vcc TRIP POINT					
5%	4.5	4.62	4.74	V	TOLERANCE=GND.
10%	4.25	4.37	4.49	V	TOLERANCE=Vcc.

Table 3. (Continued)

V_{CC}= full operating range, T_A= $T_{MIN}$to T_{MAX}, unless otherwisenoted.

Parameter	Min	Typ	Max	Unit	Test Conditions/Comments
CAPACITANCE					
Input (STROBE, TOLERANCE)			5	pF	TA=25℃.
Output(RESET,RESET)			7	pF	TA=25℃.
PB RESET					
Time	20			ms	PBRESET must be held low for a minimum of 20 ms to
Delay	1	4	20	ms	guarantee a reset.
RESET ACTIVE TIME	250	610	1000	ms	
STROBE					
Pulse Width	20			ns	
Timeout Period	62.5	150	250	ms	TD=0V.
	250	600	1000	ms	TD=floating.
	500	1200	2000	ms	TD=Vcc.
Vcc					
Fall Time	10			μ s	Guaranteed by design.
Rise Time	0			μs	Guaranteed by design.
Vcc FAILDETECTTO RESET					
OUTPUT DELAY					
RESET and RESET AreLogically Correct			50	μs	After Vc falls below the set tolerance voltage (see Figure 6).
	250	610	1000	ms	After Vcc rises above the set tolerance voltage.

CIRCUIT INFORMATION

PB RESET: The PB RESET input makes it possible to manually reset a system using either a standard push-button switch or a logic low input. An internal debounce circuit provides glitch immunity when used with a switch, reducing the effects of glitches on the line. The debounce circuit is guaranteed to cause the ADM1232A to assert a reset if PB RESET is brought low for more than 20 ms and is guaranteed to ignore low inputs of less than 1 ms.

STROBE TIMEOUT SELECTION:TD or time delay set is used to set the strobe timeout period. The strobe timeout period is defined as being the maximum time between high-to-low transitions that STROBE accepts before a reset is asserted (see Figure 5). The strobe timeout settings are listed in Table 4.

TOLERANCE : The TOLERANCE input is used to determine the level VCC can vary below 5 V without the ADM1232A asserting a reset. Connecting TOLERANCE to ground selects a 5% tolerance level and causes the ADM1232A to generate a reset if VCC falls below 4.75 V. If TOLERANCE is connected to VCC, a 10% tolerance level is selected and causes the ADM1232A to generate a reset if VCC falls below 4.5 V. Check the parameters for the VCC trip point in the Specifications section for more information.

RESET AND RESET OUTPUTS: While RESET is capable of sourcing and sinking current, RESET is an open drain MOSFET which sinks current only. Therefore, it is necessary to pull RESET output high.

Table 4. Strobe Timeout Settings

Condition	Min	Typ	Max	Unit
TD=0V	62.5	150	250	ms
TD=floating	250	600	1000	ms
TD=Vcc	500	1200	2000	ms

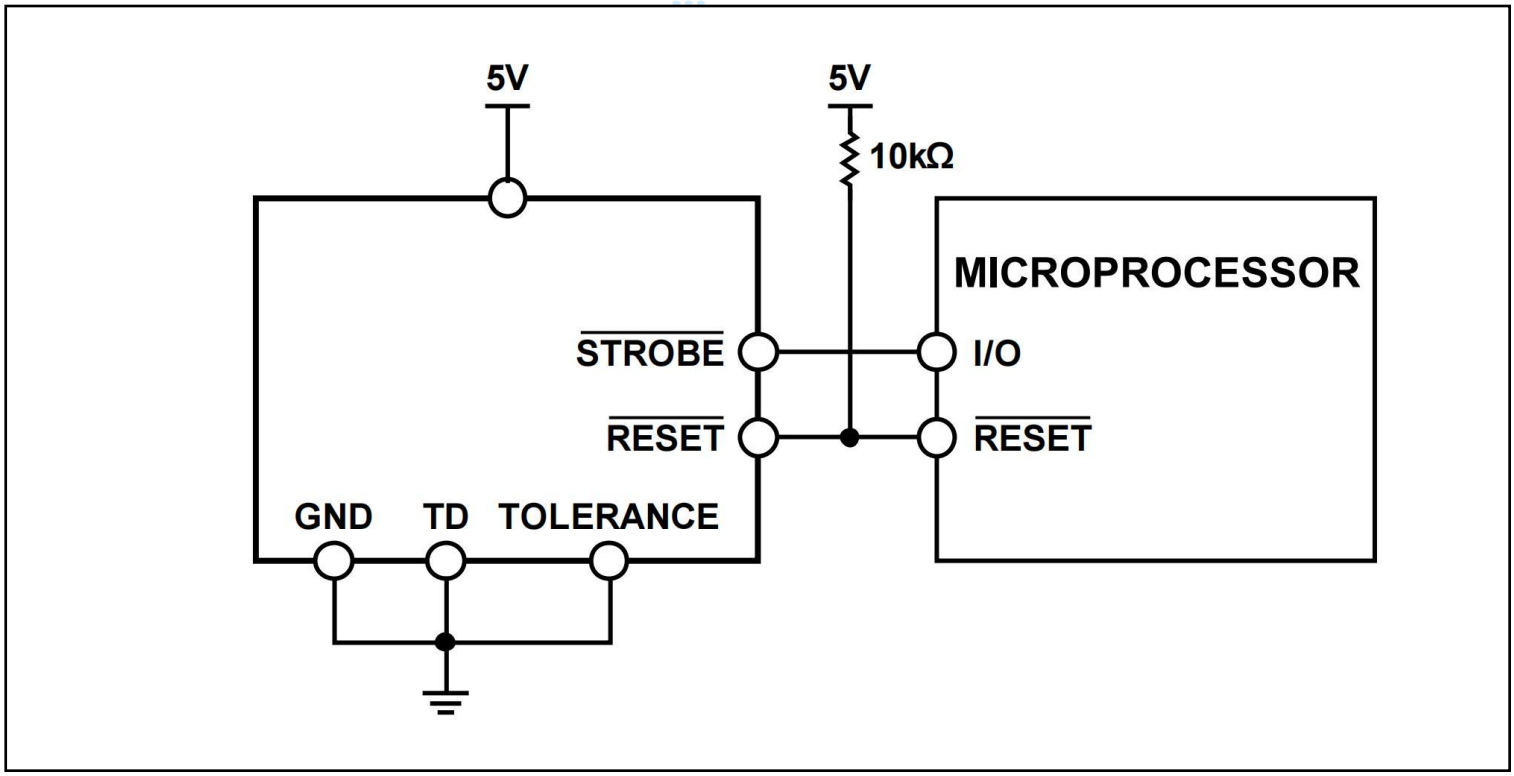


Figure 1. Typical Supply Monitoring Application

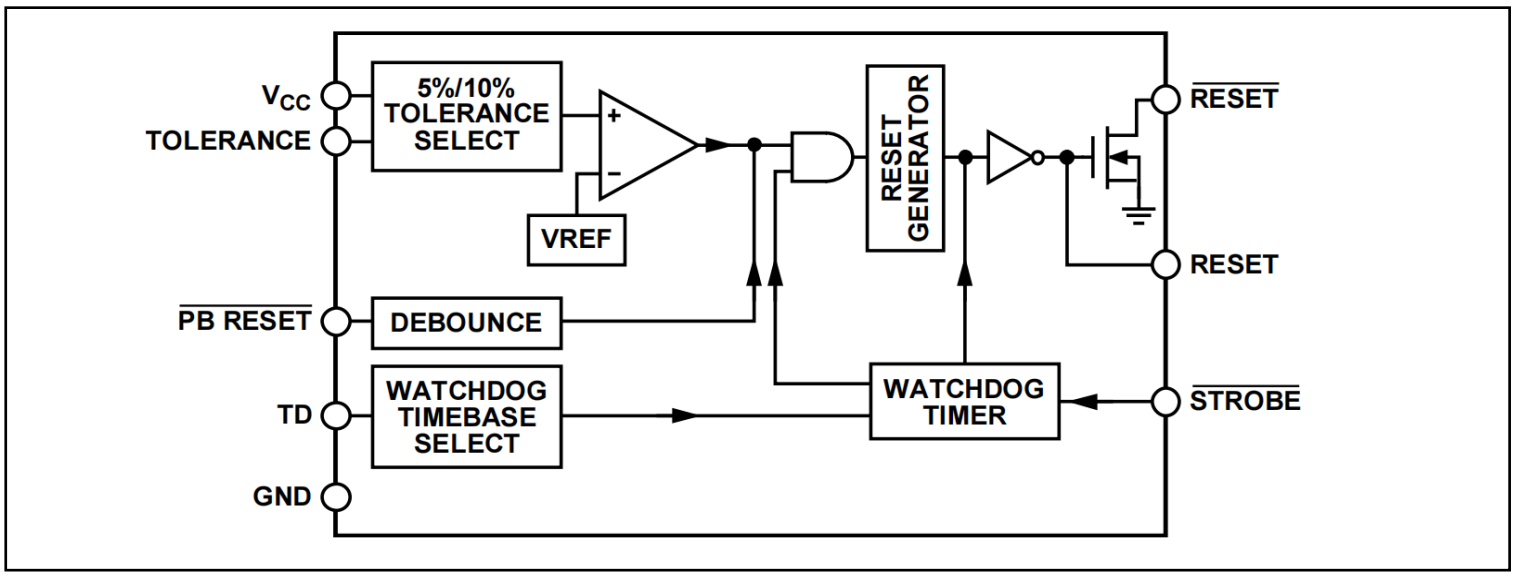


Figure 2.FUNCTIONAL BLOCK DIAGRAM

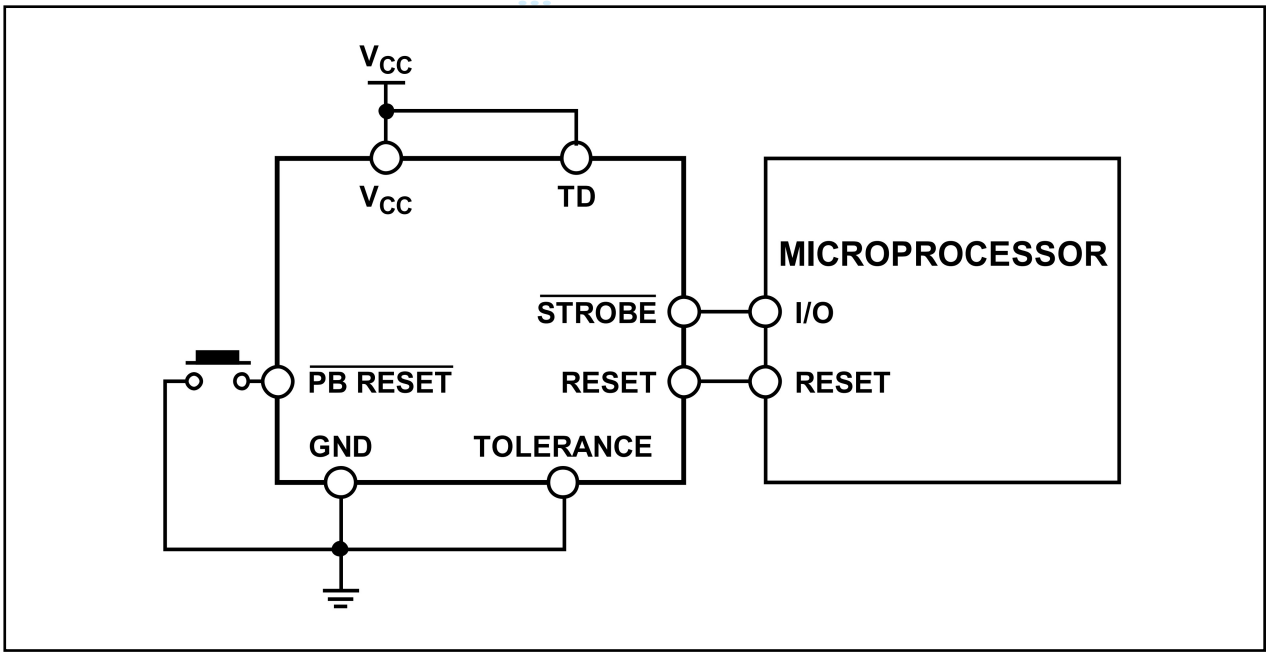


Figure 3. Typical Push-Button Reset Application

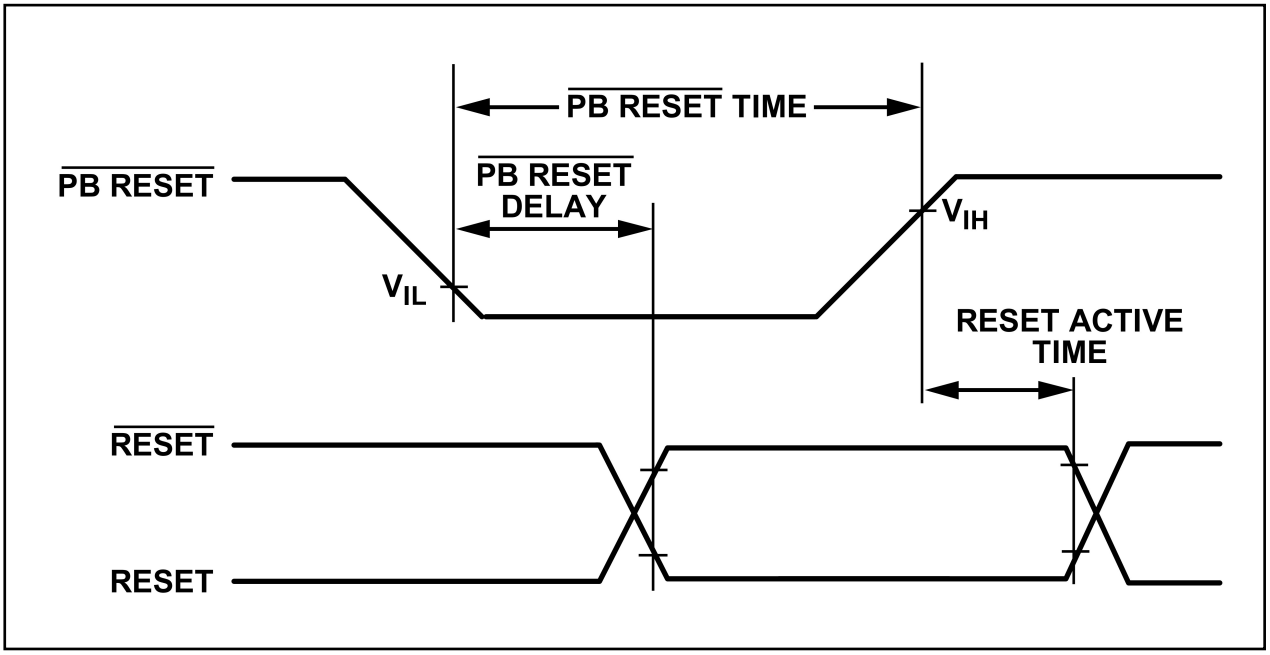


Figure 4. PB RESET

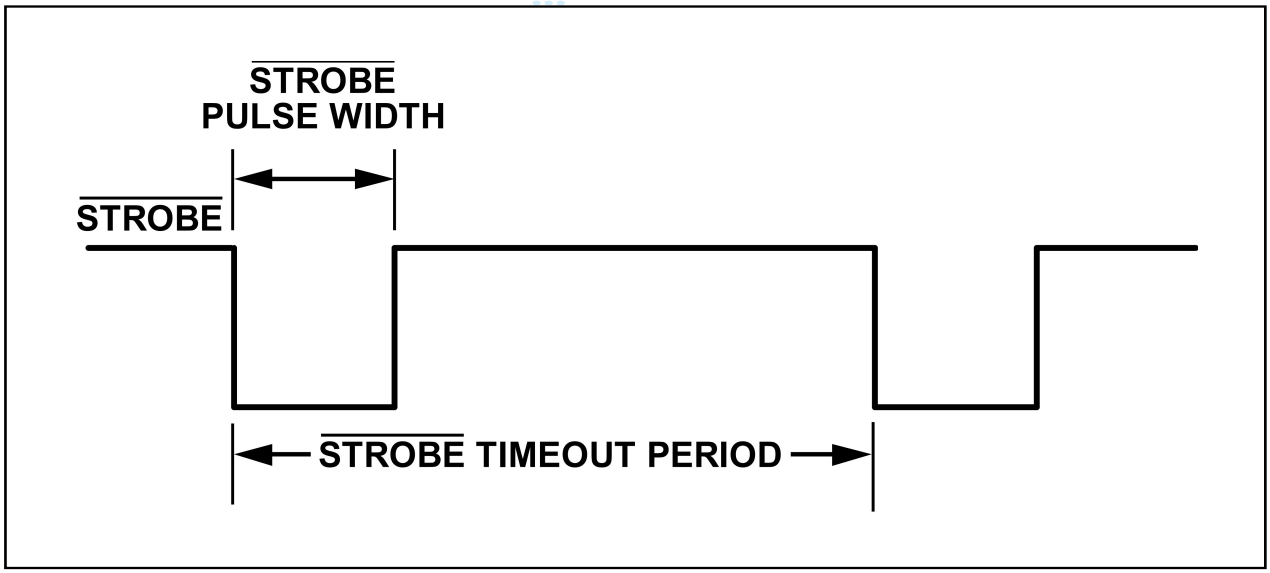


Figure 5. STROBE Parameters

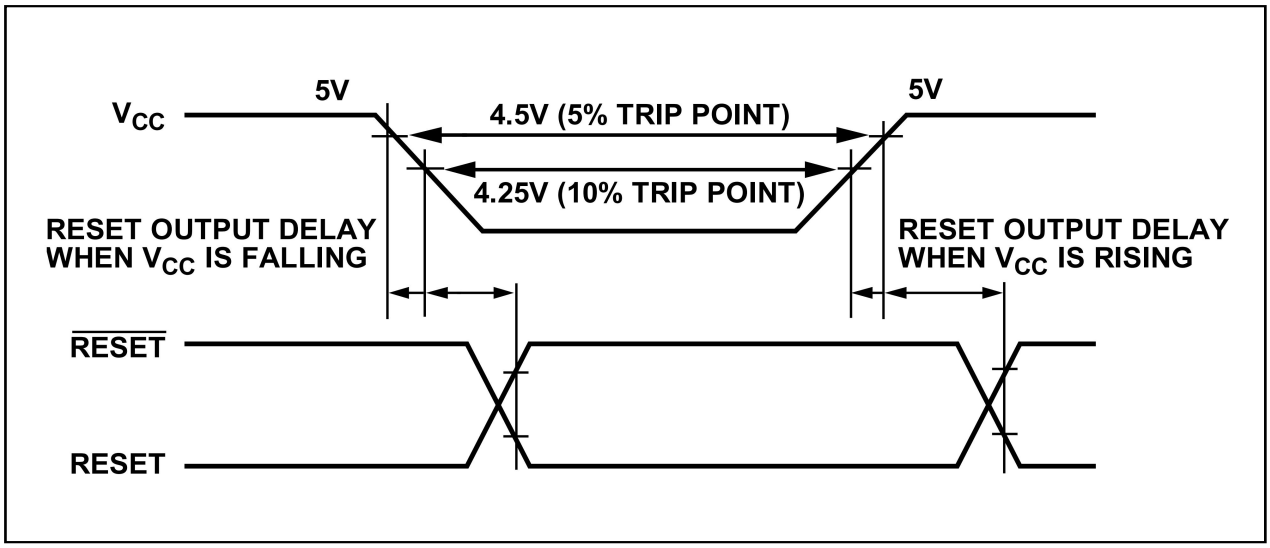
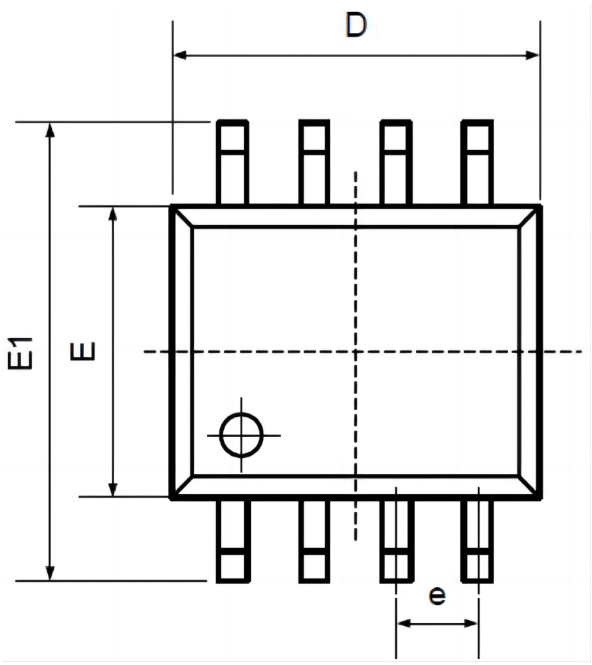


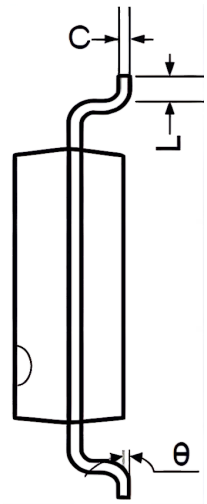
Figure 6. Reset Output Delay

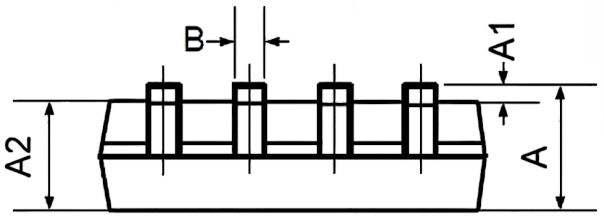
Order information

Order Number	Package	Package Quantity	Marking On The park	Temperature
ADM1232AARNZ-REEL-TUDI	SOP8	Tape,Reel,4000	ADM1232AR	−40°C to +85°C

Package SOP8







Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
B	0.330	0.510	0.013	0.020
C	0.190	0.250	0.007	0.010
D	4.780	5.000	0.188	0.197
E	3.800	4.000	0.150	0.157
E1	5.800	6.300	0.228	0.248
e	1.270TYP		0.050TYP	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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