Monolithic Linear IC



LA5623M

Combination System Reset IC

Overview

The LA5623M is a combination reset IC that provides two reset functions. The first, reset 1, detects the input voltage and applies a reset to the CPU system and other logic systems. The second, reset 2, detects the power supply voltage when the power is turned on or off, and applies a reset to the CPU system and other logic systems. This latter function allows the reset time to be adjusted from two external pins.

Features

- Reset circuit (output 1) that detects the input voltage and provides a delay time of 200 µs.
- System reset circuit (output 2) that provides a switchable delay time of 25, 50, 100, or 200 ms.
- Low operating limit voltage
- Both reset 1 and reset 2 have hysteresis characteristics.

Specifications Maximum Ratings at Ta = 25°C

Package Dimensions

unit: mm

3032B-MFP8



Parameter	Symbol	Conditions	Ratings	
Supply voltage	V _{CC}		-0.3 to +12	V
Output 1 sink current	I _{SINK} 1		8	mA
Output 2 sink current	I _{SINK} 2		8	mA
Output voltage	Vo		-0.3 to +10	V
Manual input voltage	V _{RES}		-0.3 to +10	V
Input voltage range	V _{IN} 1		-0.3 to +10	V
Ct0, Ct1 voltage	Vct		0 to +10	V
Allowable power dissipation	Pd max		250	mW
Operating temperature	Topr		-20 to +75	°C
Storage temperature	Tstg		-40 to +125	°C

Operating Conditions at $Ta = 25^{\circ}C$

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V _{CC}		2 to 10	V
Input voltage range	V _{IN}	For pulse widths of up to 20 ns	–2 to V _{CC} + 1	V
Input high-level voltage	V _{RESH}	For pulse widths of up to 20 ns	V _{CC} + 1	V
Input low-level voltage	V _{RESL}	For pulse widths of up to 20 ns	-2	V

Operating Characteristics at Ta = 25°C, V_{CC} = 5 V

Parameter	Cumbal	Conditions		Ratings			
Parameter	Symbol Conditions		min	typ	max	- Unit	
[Reset Circuit 1, 2 Common]			I				
Current drain when off	I _{CC} 1		-	1.4	2.0	mA	
Current drain when on	I _{CC} 2	When reset 1 and 2 are both on	-	2	3	mA	
Detection voltage temperature coefficient	VS/AT		-	0.01		%/°C	
Output high-level voltage	V _{OH}	I _{OH} = -40 μA	0.9 V _{CC}	-	-	V	
Low-level signal propagation delay	tPHL	C _L = 100 pF	-	10	-	μs	
Operating limit voltage *1	N	$R_L = 2.2 \text{ k}\Omega, \text{ V(sat)} \le 0.4 \text{ V}$	-	0.67	0.80	V	
	V _{OPL}	$R_L = 100 \text{ k}\Omega, \text{ V(sat)} \le 0.4 \text{ V}$	-	0.55	0.70	V	
Internal pull-up resistance	R		5	10	15	kΩ	
[Reset Circuit 1]							
Sense voltage 1	VS1		1.20	1.25	1.30	V	
Hysteresis voltage 1	۵VS1		9	15	23	mV	
High-level signal propagation delay 1	tPLH1	C _L = 100 pF	80	200	500	μs	
Output low voltage 1	V _{OL} 1	V _{IN} < 1.2 V, I _{OL} = 5 mA	-	0.2	0.4	V	
Input voltage range	V _{IN} 1		-0.3	-	+10	V	
Input current	I _{IN} 1	V _{IN} = 1.25 V	-	100	500	nA	
[Reset Circuit 2]	•			•			
Sense voltage 2	VS2		4.0	4.2	4.4	V	
Hysteresis voltage 2	۵VS2		30	50	100	mV	
	tPLH2	Ct0 = "L", Ct1 = "H" : CL = 100pF	15	25	35	ms	
High-level signal propagation delay 2		Ct0 = "H", Ct1 = "L" : CL = 100pF	30	50	70	ms	
		Ct0 = "H", Ct1 = "H" : CL = 100pF	60	100	140	ms	
		Ct0 = "L", Ct1 = "L" : CL = 100pF	120	200	280	ms	
Output low-level voltage 2	V _{OL} 2	V_{CC} < 4.0 V, I_{OL} = 5 mA	-	0.2	0.4	V	
Input high-level voltage *2	V _{RESH} 2		2	-	10	V	
Input high-level current *2	I _{RESH} 2	V _{RES} = 2 V	-	-	80	μA	
Input low-level voltage *2	V _{RESL} 2		-0.3	-	+0.8	V	

Notes: 1. The minimum supply voltage such that a low-level output can be maintained.

2. Manual reset.

A high level applied to the manual reset pin sets the output 2 pin low, and a low level sets the output 2 pin high.

Pin Assignment



Block Diagram



Operating Waveforms



RESET2 Truth Table

Ct0	Ct1	RESET2 delay time
L	Н	25 ms
Н	L	50 ms
H or OPEN	H or OPEN	100 ms
L	L	200 ms



MANUAL RESET Truth Table

MANUAL RESET	OUT2
Н	L
L	Н

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