

Ordering number : EN5639

Monolithic Linear IC



LA5620

Regulator for Multiple Power Supply Systems

Overview

The LA5620 is a multi-system power supply regulator IC that includes four regulator circuits on chip: two 3.3-V regulator circuits and two 5-V regulator circuits. The LA5620 is optimal for use in audio and video systems that use a microcontroller, such as MD players and stereo components.

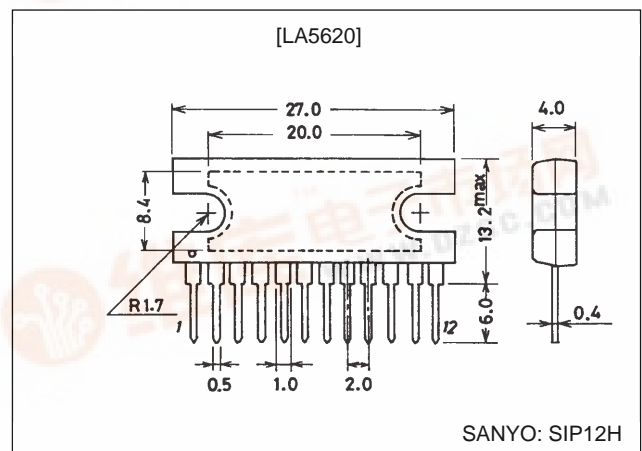
Functions and Features

- Two 3.3-V regulator circuits ($I_O = 40\text{ mA}, 150\text{ mA}$)
- Two 5-V regulator circuits ($I_O = 1000\text{ mA}, 100\text{ mA}$)
- Power on/off detection circuit
- Reset circuit

Package Dimensions

unit: mm

3049A-SIP12H



Specifications

Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Input voltage	$V_{CC\text{ max}}$		14	V
AC input voltage	AC max		2	V
Allowable power dissipation	$P_d\text{ max}$	Independent IC	2.3	W
Operating temperature	T_{opr}		-20 to +80	$^\circ\text{C}$
Storage temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings	Unit
Input voltage	V_{CC}		6.25 to 12	V
PH5 output current	I_{PH5}		0 to 1000	mA
B.BAK output current	$I_{B,BAK}$		0 to 40	mA
ANA5 output current	I_{ANA5}		0 to 100	mA
SYS3.3 output current	$I_{SYS3.3}$		0 to 150	mA
S.RESET sink current	$I_{SINK\ S}$		0 to 1	mA
P.DOWN sink current	$I_{SINK\ P}$		0 to 1	mA
AC input current	I_{AC}		0 to 1	mA

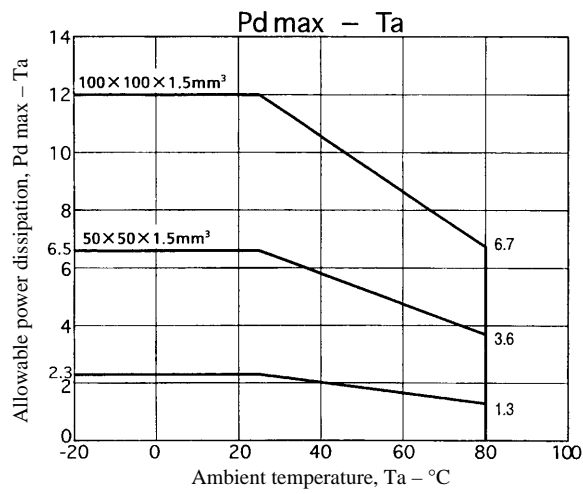


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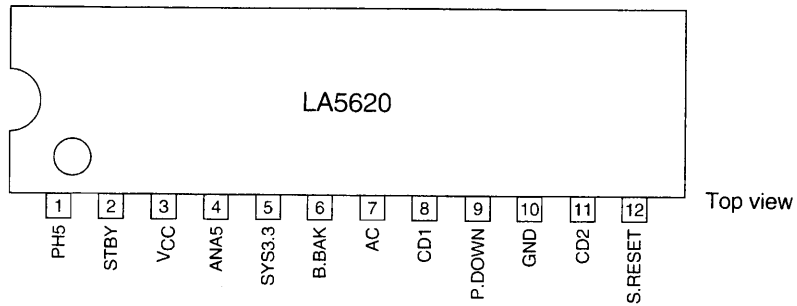
Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[PH5 Regulator Block] V _{CC} = 10 V, I _{PH5} = 1 A						
Output voltage	V _{O PH5}		4.75	5	5.25	V
Dropout voltage	V _{DROP PH5}		–	0.5	1	V
Line regulation	ΔV _{OLN PH5}	V _{CC} = 6.25 to 12 V	–	–	200	mV
Load regulation	ΔV _{OLD PH5}	I _{PH5} = 0.5 to 1 A	–	–	200	mV
Peak output current	I _{OP}		1.0	1.4	–	A
Output shorted current	I _{OSC PH5}		–	400	1000	mA
Current drain	I _{Q PH5}		–	70	112	mA
[SYS3.3 Regulator Block] V _{CC} = 10 V, I _{SYS3.3} = 150 mA						
Output voltage	V _{O SYS3.3}		3.13	3.3	3.47	V
Dropout voltage	V _{DROP SYS3.3}		–	2	2.5	V
Line regulation	ΔV _{OLN SYS3.3}	V _{CC} = 6.25 to 12 V	–	–	200	mV
Load regulation	ΔV _{OLD SYS3.3}	I _{SYS3.3} = 5 to 150 mA	–	–	200	mV
Peak output current	I _{OP SYS3.3}		150	210	–	mA
Output shorted current	I _{OSC SYS3.3}		–	200	450	mA
Current drain	I _{Q SYS3.3}		–	17.5	28	mA
[ANA5 Regulator Block] V _{CC} = 10 V, I _{ANA5} = 100 mA						
Output voltage	V _{O ANA5}		4.75	5	5.25	V
Dropout voltage	V _{DROP ANA5}		–	0.5	1	V
Line regulation	ΔV _{OLN ANA5}	V _{CC} = 6.25 to 12 V	–	–	200	mV
Load regulation	ΔV _{OLD ANA5}	I _{ANA5} = 5 to 100 mA	–	–	200	mV
Peak output current	I _{OP ANA5}		100	140	–	mA
Output shorted current	I _{OSC ANA5}		–	40	100	mA
Current drain	I _{Q ANA5}		–	17.5	28	mA
[B.BAK Regulator Block] V _{CC} = 10 V, I _{BAK} = 40 mA						
Output voltage	V _{O BAK}		3.13	3.3	3.47	V
Dropout voltage	V _{DROP BAK}		–	2	2.5	V
Line regulation	ΔV _{OLN BAK}	V _{CC} = 6.25 to 12 V	–	–	200	mV
Load regulation	ΔV _{OLD BAK}	I _{BAK} = 5 to 40 mA	–	–	200	mV
Peak output current	I _{OP BAK}		40	56	–	mA
Output shorted current	I _{OSC BAK}		–	40	120	mA
Current drain	I _{Q BAK}		–	15	24	mA
BAK pin input current	I _{IN BAK}	V _{CC} = 0 V, V _{BAK} = 3.3 V	–	–	100	nA
[P.DOWN Detection Circuit] V _{CC} = 10 V						
P.DOWN threshold voltage	V _{TH P.DOWN}		3.0	3.16	3.32	V
P.DOWN residual voltage	V _{sat P.DOWN}	cd1 pin = shorted, P.DOWN pin = 1 mA	–	–	200	mV
P.DOWN delay time	Td1	cd1 = 1 μF	75	100	125	ms
[S.RESET Detection Circuit] V _{CC} = 10 V						
S.RESET residual voltage	V _{TH S.RESET}	cd1 pin = shorted, S.RESET pin = 1 mA	–	–	200	mV
S.RESET delay time	Td2	cd2 = 1 μF	75	100	125	ms
[AC Detection Circuit] V _{CC} = 10 V						
AC threshold voltage	V _{TH AC}		0.5	0.7	0.9	V
[STBY Detection Circuit] V _{CC} = 10 V						
STBY threshold voltage	V _{TH STBY}		1.3	1.8	2.3	V

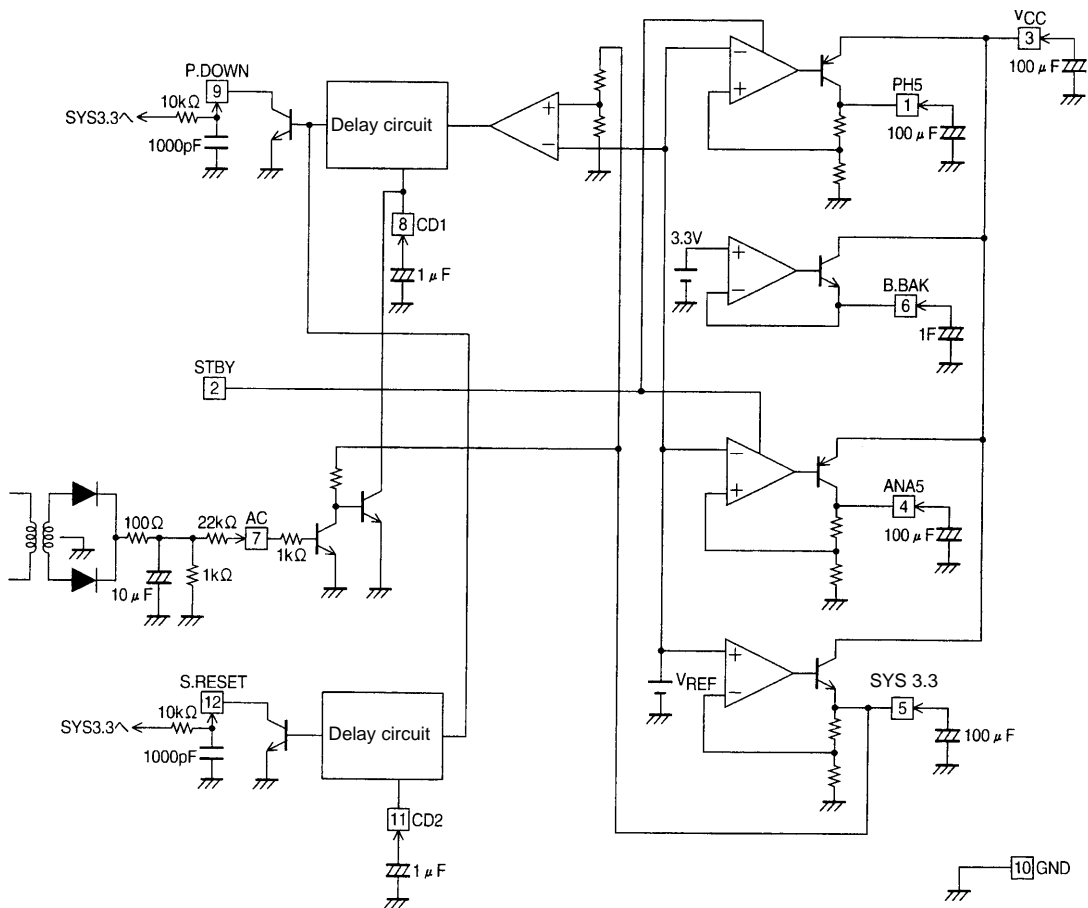
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Pin Assignment



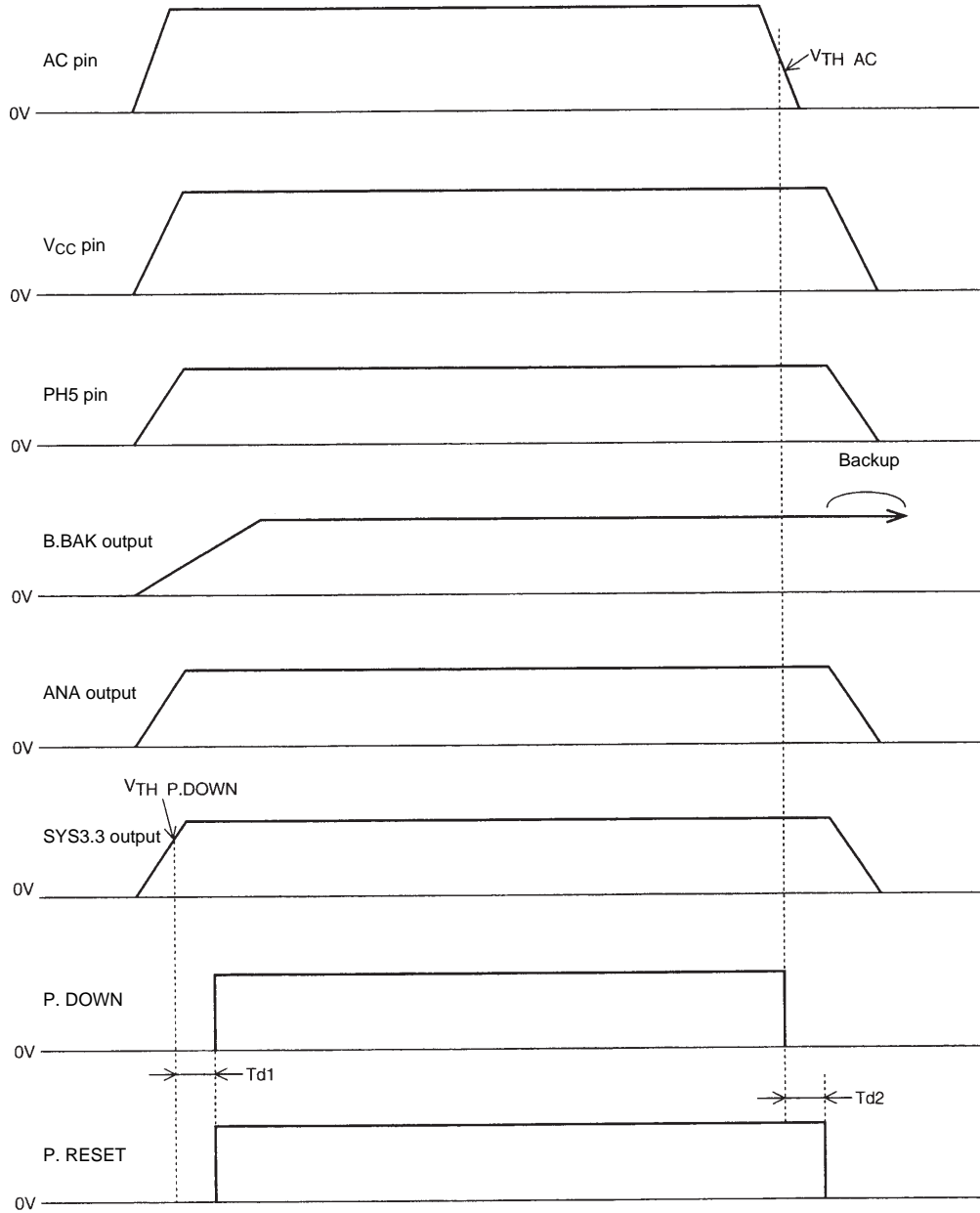
Block Diagram



Note: Use capacitors with minimal temperature variations for all capacitors in application circuits.

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Timing Chart



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