

Ordering number : ENN5672A

Monolithic Linear IC



LA5618

Multi-System Power Supply for Audio Equipment

Overview

The LA5618 is a multi-system power supply IC with a built-in on/off control function. It is optimal for use as the power supply IC in CD players, mini-component stereo systems, and other microcontroller controlled audio equipment.

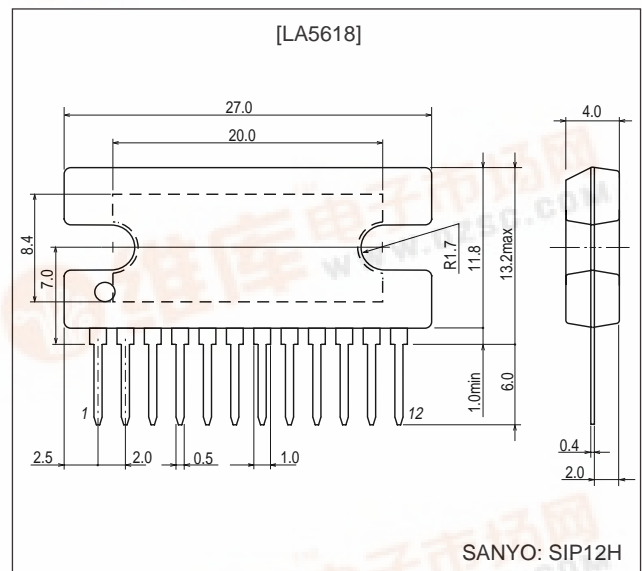
Functions

- Power supply IC with ± 7.5 V outputs (± 1.5 A) and an on/off control function.
- The LA5618 is pin compatible with the LA5617.

Package Dimensions

unit: mm

3049B-SIP12H



Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Input voltage	V_{CC}/V_{EE} max		± 18	V
Allowable power dissipation	P_d max	With no heat sink	2.4	W
Operating temperature	T_{opr}		-20 to $+85$	$^\circ\text{C}$
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}/V_{EE}		± 9.5 to ± 16	V
Output current	I_{OUT1}		0 to 1.5	A
	I_{OUT2}		-1.5 to 0	A

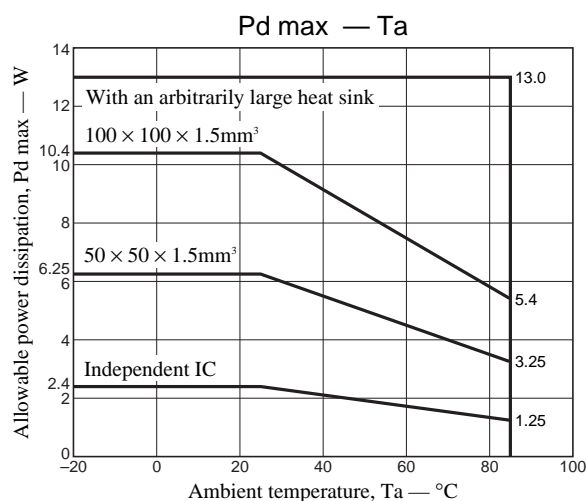
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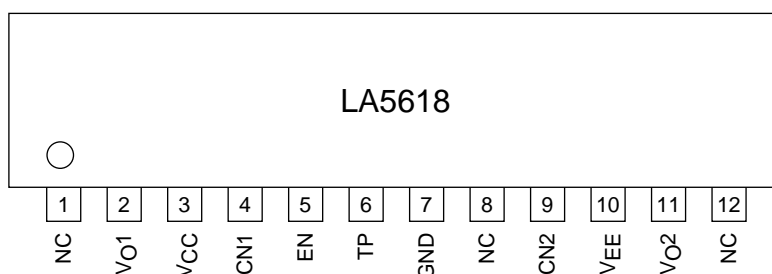
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Operating Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC}/V_{EE} = \pm 9.5\text{ V}$, in the specified test circuit.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[+7.5 V Power Supply Block] $I_{OUT1} = 500\text{ mA}$, $C_{OUT1} = 100\ \mu\text{F}$						
Output voltage	V_{O1}		7.0	7.5	8.0	V
Dropout voltage	V_{DRO1-1}			1.5	2.0	V
	V_{DRO1-2}	$I_{OUT1} = 300\text{ mA}$		1.0	1.5	V
Line regulation	ΔV_{OLN1}	$9\text{ V} \leq V_{CC} \leq 16\text{ V}$		20	100	mV
Load regulation	ΔV_{OLD1}	$5\text{ mA} \leq I_{OUT1} \leq 1\text{ A}$		80	200	mV
Peak output current	I_{OP1}	$V_{CC}/V_{EE} = \pm 12\text{ V}$	1.5	1.8		A
Output short current	I_{OSC1}			1.0		A
Output off voltage	V_{O1OFF}	$V_{EN} = 0.4\text{ V}$			0.3	V
Ripple rejection	R_{rej1}	$f = 120\text{ Hz}$, $8.5\text{ V} \leq V_{CC} \leq 16\text{ V}$, $C_{N1} = 1\ \mu\text{F}$		65		dB
[-7.5 V Power Supply Block] $I_{OUT2} = 500\text{ mA}$, $C_{OUT2} = 100\ \mu\text{F}$						
Output voltage	V_{O2}		-8.0	-7.5	-7.0	V
Dropout voltage	V_{DRO2-1}			1.5	2.0	V
	V_{DRO2-2}	$I_{OUT2} = -300\text{ mA}$		1.0	1.5	V
Line regulation	ΔV_{OLN2}	$-16\text{ V} \leq V_{EE} \leq -9\text{ V}$		200	300	mV
Load regulation	ΔV_{OLD2}	$-1\text{ A} \leq I_{OUT2} \leq -5\text{ mA}$		80	200	mV
Peak output current	I_{OP2}	$V_{CC}/V_{EE} = \pm 12\text{ V}$		-1.8	-1.5	A
Output short current	I_{OSC2}			-1.0		A
Output off voltage	V_{O2OFF}	$V_{EN} = 0.4\text{ V}$	-0.3			V
Ripple rejection	R_{rej2}	$f = 120\text{ Hz}$, $16\text{ V} \leq V_{EE} \leq -8.5\text{ V}$, $C_{N2} = 1\ \mu\text{F}$		50		dB
[Common Circuit Block] $C_{OUT1} = 100\ \mu\text{F}$, $C_{OUT2} = 100\ \mu\text{F}$						
Output off control voltage	V_{ENL}	$V_{O1}, V_{O2}: \text{Off}$			0.4	V
Current drain (positive voltage power supply block)	I_{QP1}	$I_{OUT1} = 0, I_{OUT2} = 0$		5.0		mA
	I_{QP2}	$I_{OUT1} = 1.5\text{ A}, I_{OUT2} = 0$		7.0		mA
Current drain (negative voltage power supply block)	I_{QM1}	$I_{OUT1} = 0, I_{OUT2} = 0$		-5.0		mA
	I_{QM2}	$I_{OUT1} = 0, I_{OUT2} = -1.5\text{ A}$		-12.0		mA



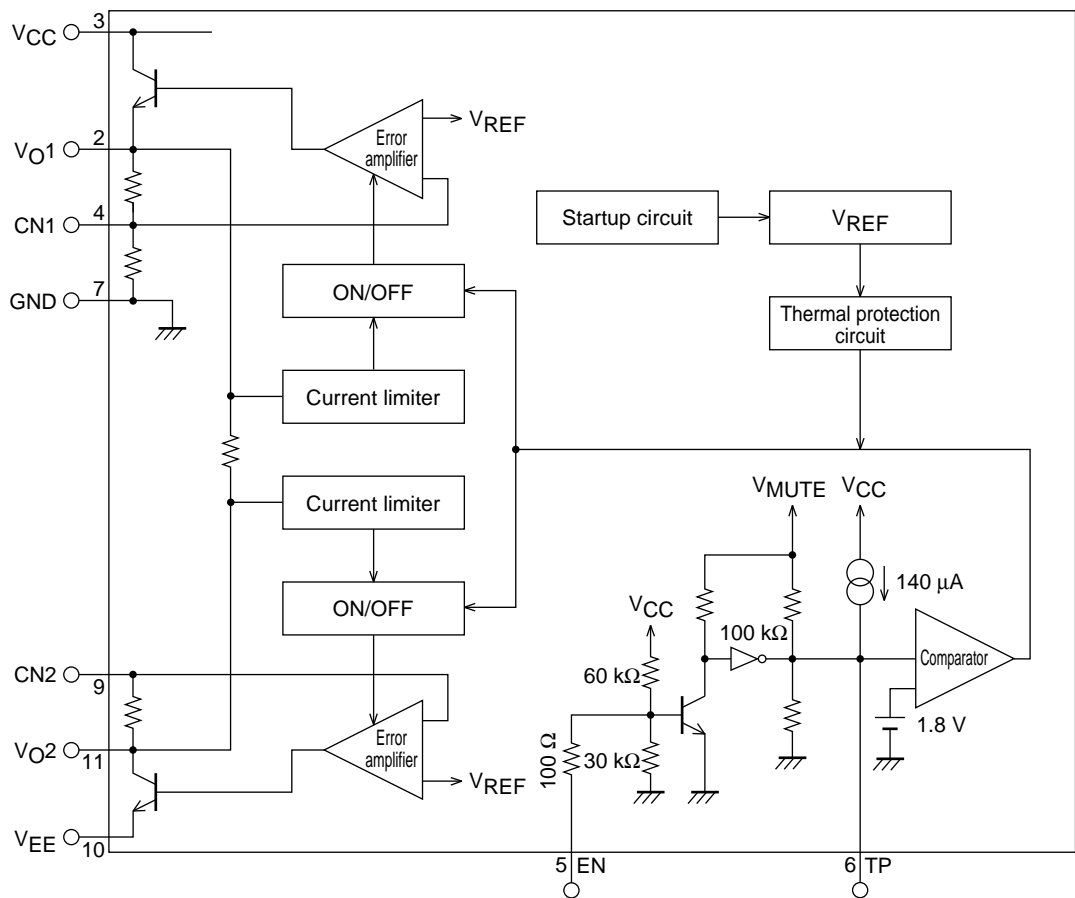
Pin Assignment



Top view

Note: The TP pin is used for IC testing. It must be left open during normal operation.
The NC pins must also be left open during normal operation.

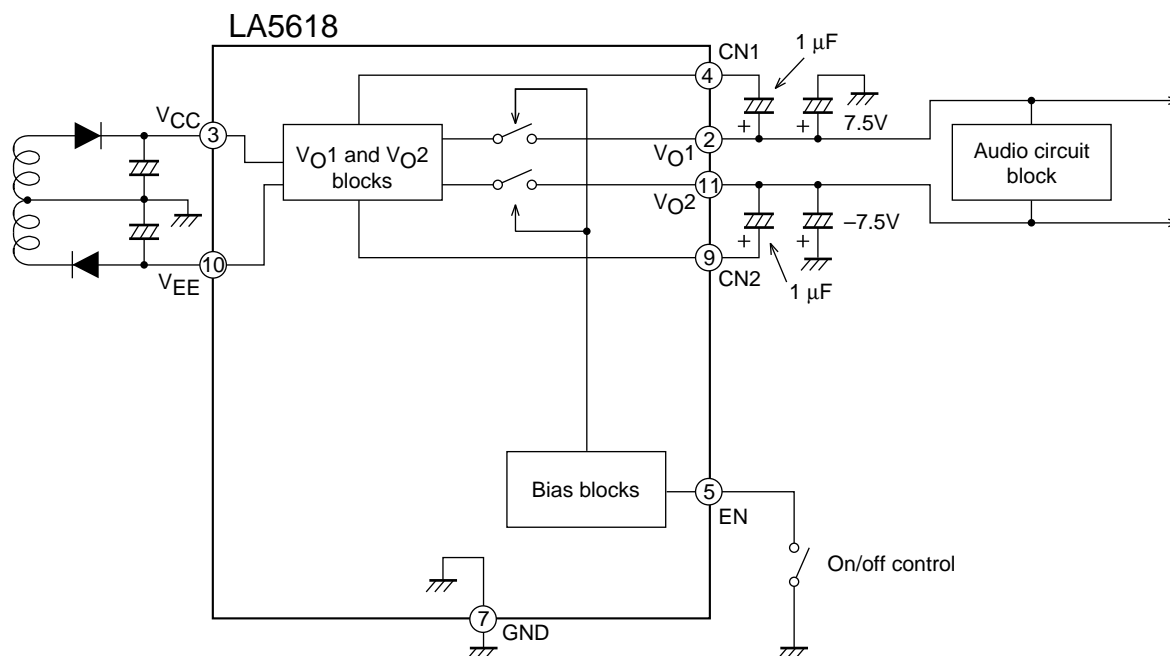
Equivalent Circuit Block Diagram



Note: The TP pin is used for IC testing.
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Sample Application Circuit: Mini-component stereo system power supply



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- Notes: 1. The V_{O1} and V_{O2} output capacitors must have values of at least $100 \mu\text{F}$ and capacitors with low temperature coefficients must be used to prevent oscillation at low temperatures.
2. External noise can be suppressed and ripple rejection improved by adding capacitors between CN1 and V_{O1} and between CN2 and V_{O2} .

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