Ordering number:ENN3238A

Monolithic Linear IC

LA5668

Multifunctional Voltage Regulator

Overview

The LA5668 is a multifunctional voltage regulator IC especially suited for use in portable musical instrument applications.

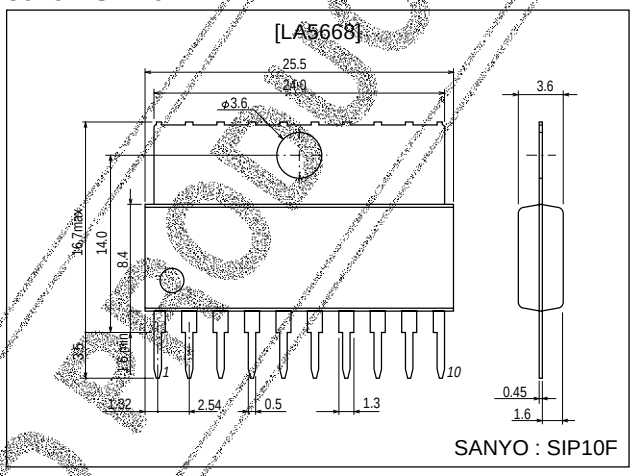
Functions and Features

- Power output : 1.0A
- Analog output : 5.5V, 0.1A
- Digital output : 5.0V, 0.1A
- Low I_{CC} at power-OFF mode (APO=OFF) : 35μA typ

Package Dimensions

unit:mm

3046B-SIP10F



Specifications

Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Input voltage	V_{IN} max		18	V
	V_{DIN} max		18	V
Output current	I_{CO} max		1.0	A
	I_{AO} max		100	mA
	I_{DO} max		100	mA
Allowable power dissipation	Pd max		2.45	W
Operating temperature	Topr		–30 to +85	˚C
Storage temperature	Tstg		–40 to +125	˚C

Operating Conditions at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Input voltage	V_{IN}		7.0 to 15	V
	V_{DIN}		7.0 to 15	V
APO pin on-state voltage	$V_{APO\ ON}$		2 to V_{IN}	V
APO pin off-state voltage	$V_{APO\ OFF}$		–0.3 to +0.3	V

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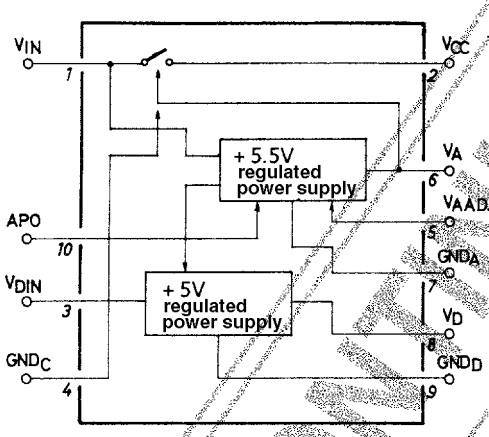
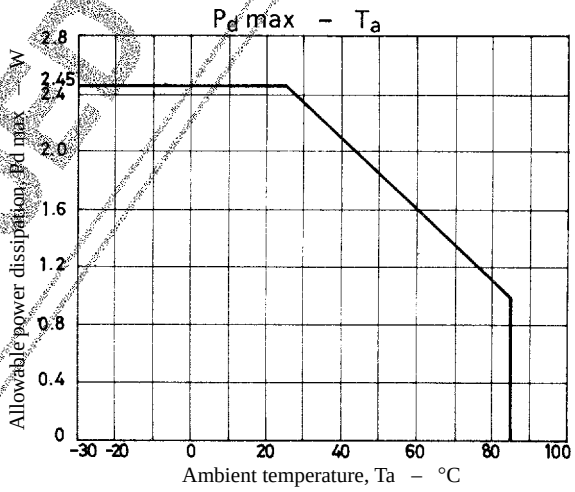
Operating Characteristics at Ta = 25˚C (V_{IN}=V_{DIN}=V_{APO}=9V, C1=C2=C3=22µF unless otherwise specified)

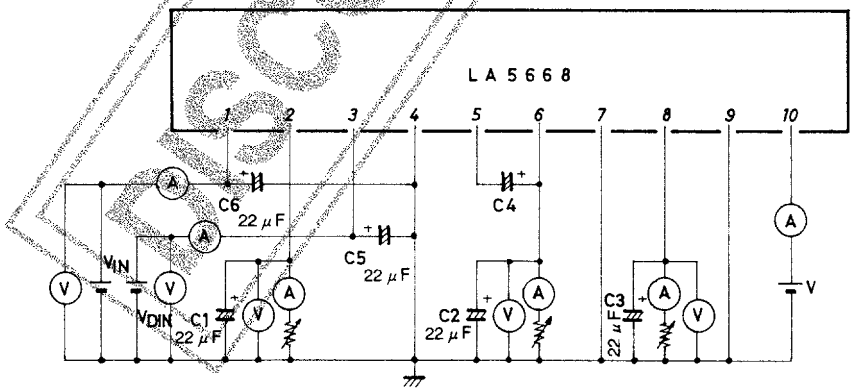
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	I_{CC1}	V_{APO}=0V		35	50	µA
	I_{CC2}	V_{APO}=V_{IN}		8.0	11.0	mA
Output voltage	V_{AO}	I_{AO}=50mA	5.05	5.5	5.95	V
	V_{D1O}	V_{APO}=0V, I_{DO}=5mA	4.55	5.0	5.45	V
	V_{D2O}	V_{APO}=V_{IN}, I_{DO}=50mA	4.55	5.0	5.45	V
Line regulation	V_{AO} Line	7.0≤V_{IN}≤13V, I_{AO}=50mA			50	mV
	V_{D1O} Line	7.0≤V_{IN}≤13V, V_{APO}=0V, I_{DO}=5mA			50	mV
	V_{D2O} Line	7.0≤V_{IN}≤13V, V_{APO}=V_{IN}, I_{DO}=50mA			50	mV
Load regulation	V_{A1} Load	1≤I_{A1O}≤40mA			50	mV
	V_{A2} Load	1≤I_{A2O}≤80mA			100	mV
	V_{D1O} Load	1≤I_{DO}≤10mA, V_{APO}=0V			50	mV
	V_{D2O} Load	1≤I_{DO}≤80mA, V_{APO}=V_{IN}			50	mV
Input-output voltage difference	V_{dA}	V_{IN}-V_O at V_d : V_O 5% OFF, I_{AO}=50mA		0.9	1.2	V
	V_{dD}	V_{IN}-V_O at V_d : V_O 5% OFF, I_{DO}=50mA		0.9	1.2	V
	V_{dOC}	I_{CD}=500mA, V_{IN}-V_D at V_{IN}=9V		1.1	1.6	V
Ripple rejection	R_{rA}	f=50Hz, 120Hz, I_{AO}=100mA		40		dB
	R_{rD}	f=50Hz, 120Hz, I_{DO}=100mA		45		dB
APO input current	I_{APO}	V_{APO}=5V	66	86	123	µA
V_C on-state voltage	V_C ON	V_A voltage at V_{APO}=0V	1.5			V
V_C off-state voltage	V_C OFF	V_A voltage at V_{APO}=0V			0.5	V
V_A-V_D voltage	V_A-V_D	I_{AO}=25mA, I_{DO}=15mA at V_{CC}=5.5V, 9V	–0.3			V

Block Diagram and Pin Assignment





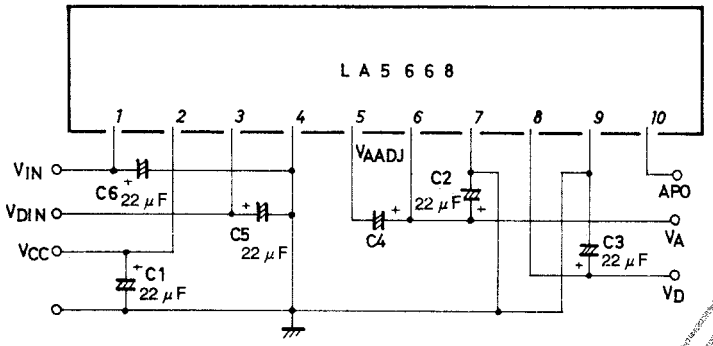
Test Circuit



C1, C2, C3: OSC prevention, stabilization

C4: V_A rise adjustment

Sample Application Circuit



C1, C2, C3: OSC prevention, stabilization
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