

**LA5668****Multifunctional Voltage Regulator****Overview**

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

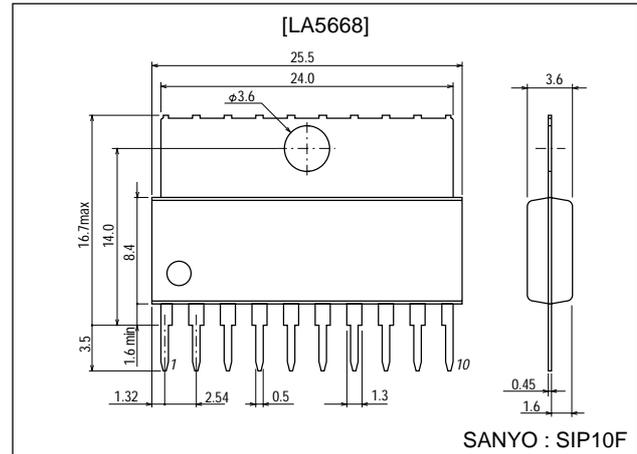
Functions and Features

- 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) : 35 μ A typ

Package Dimensions

unit:mm

3046B-SIP10F

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

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	P_d max		2.45	W
Operating temperature	T_{opr}		-30 to +85	$^\circ\text{C}$
Storage temperature	T_{stg}		-40 to +125	$^\circ\text{C}$

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

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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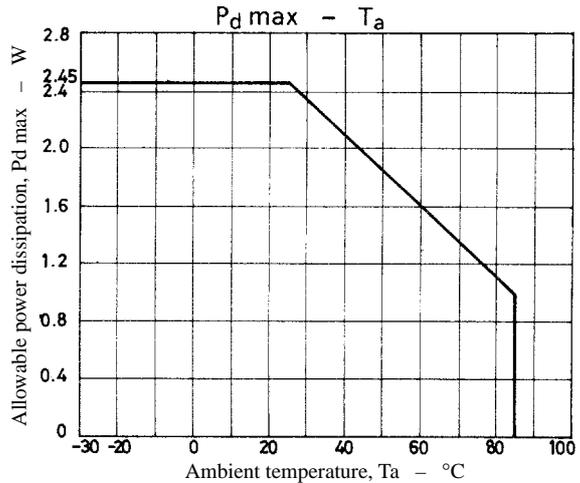
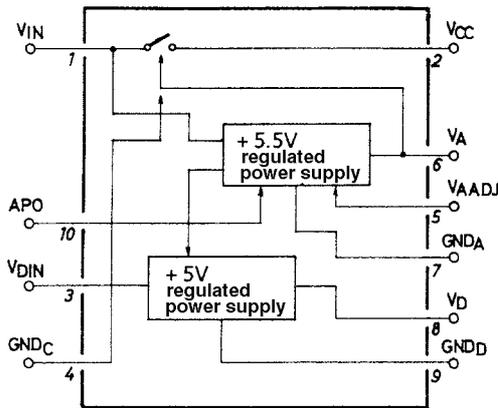
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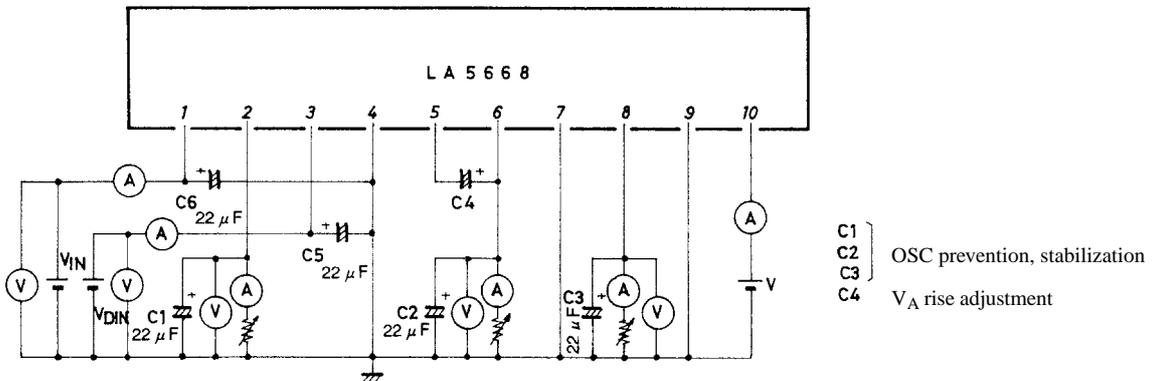
Operating Characteristics at $T_a = 25^\circ\text{C}$ ($V_{IN}=V_{DIN}=V_{APO}=9\text{V}$, $C1=C2=C3=22\mu\text{F}$ unless otherwise specified)

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

Block Diagram and Pin Assignment

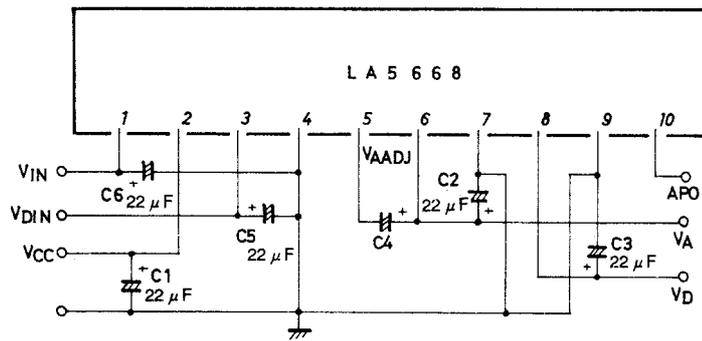


Test Circuit

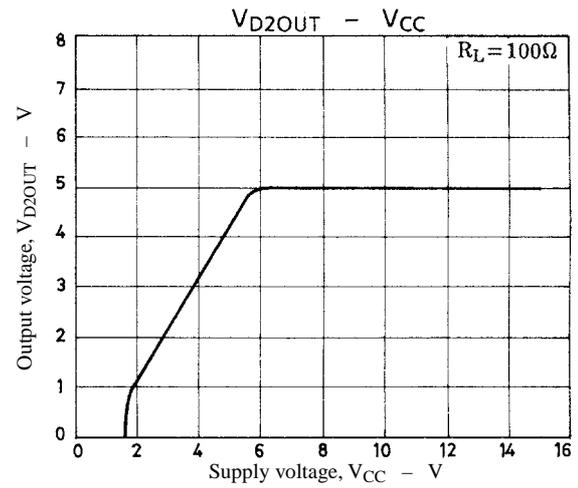
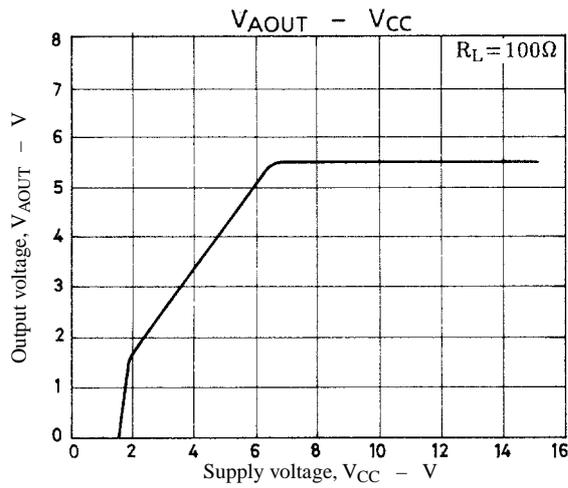
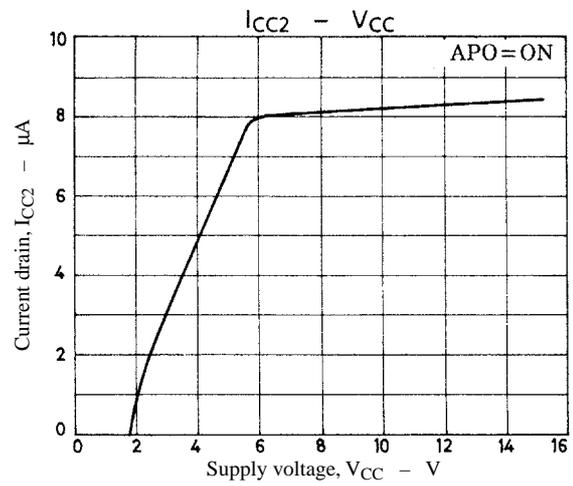
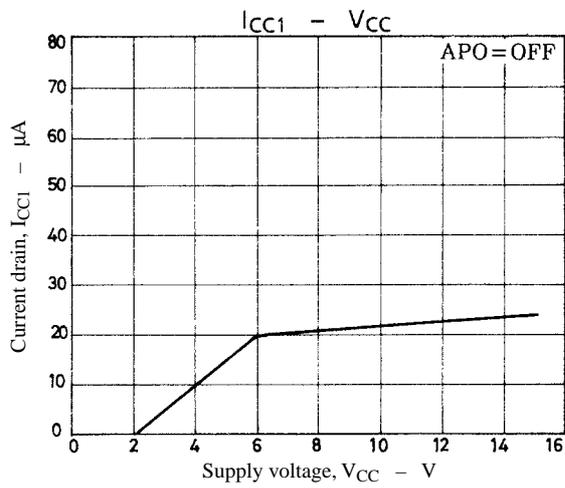


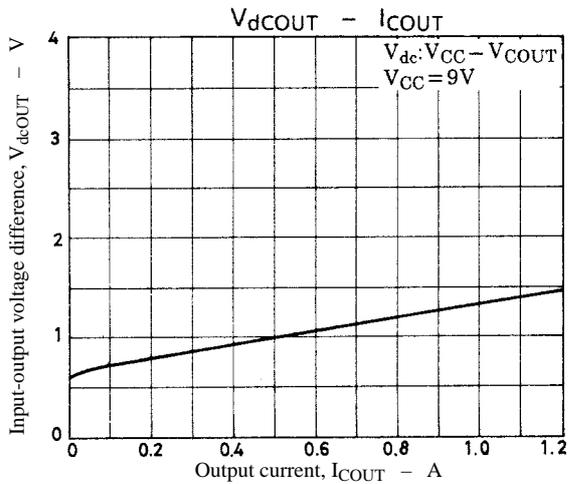
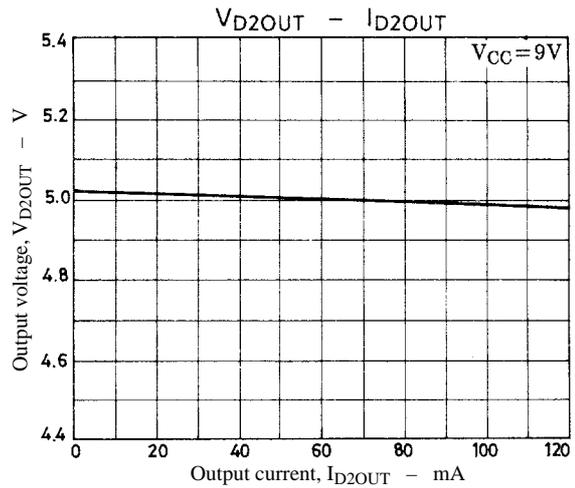
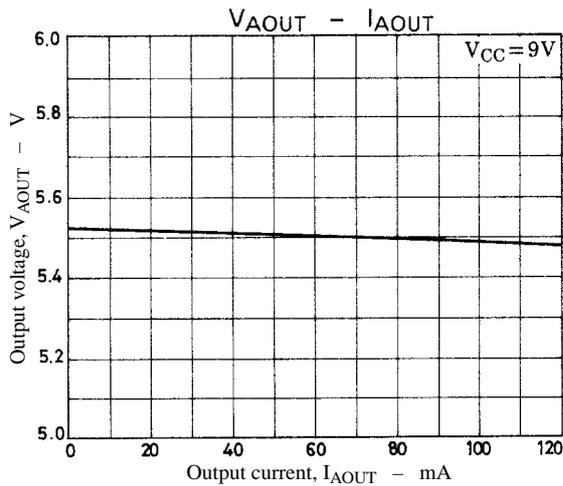
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Sample Application Circuit



- C1 } OSC prevention, stabilization
- C2 } OSC prevention, stabilization
- C3 } OSC prevention, stabilization
- C4 } V_A rise adjustment





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