

**SANYO**

No.3238

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

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

**Functions and Features**

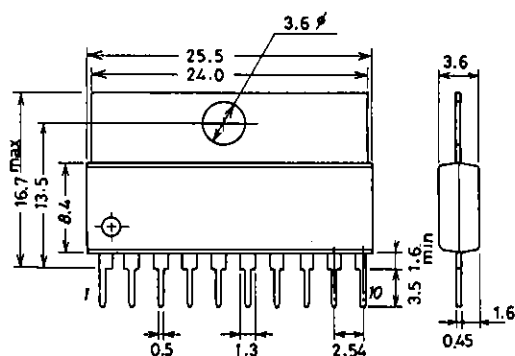
- Power output : 1.0A
- Analog output : 5.5V, 0.1A
- Digital output : 5.0V, 0.1A
- Low  $I_{CC}$  at power-OFF mode (APO = OFF) : 35 $\mu$ A typ

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

			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  $T_a = 25^\circ\text{C}$** 

			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

**Package Dimensions 3046A-S10FIC**  
(unit: mm)

SANYO: SEP10F

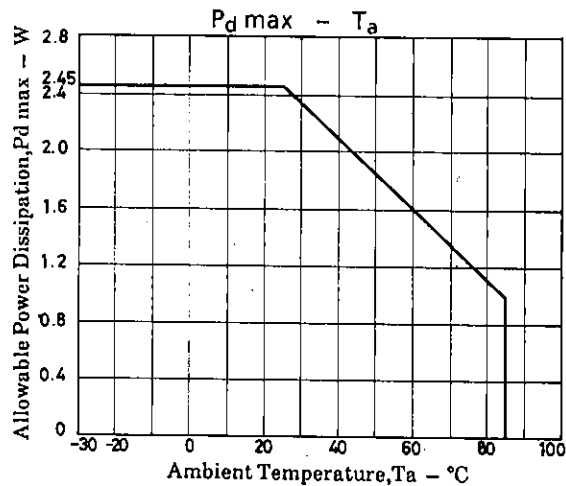
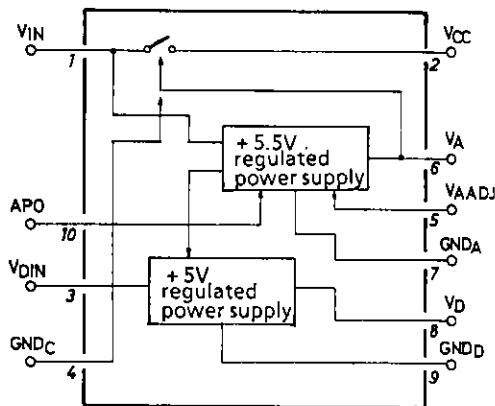
# LA5668

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

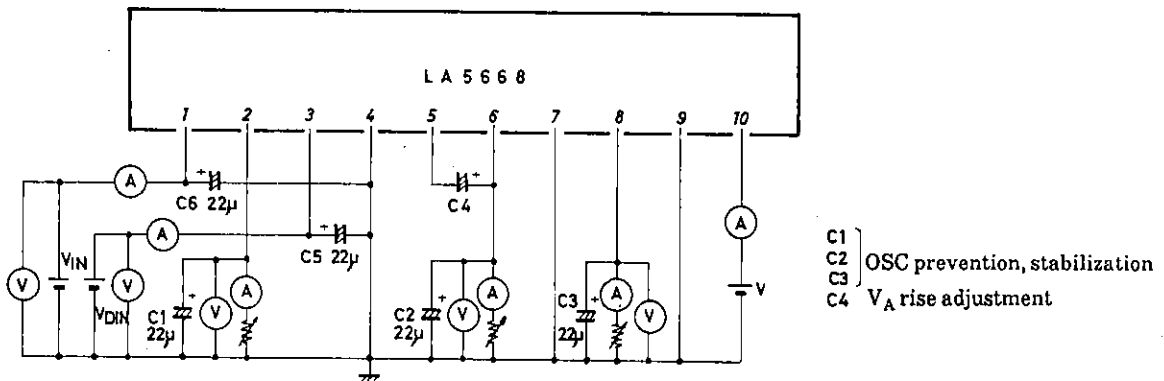
( $V_{IN} = V_{DIN} = V_{APO} = 9\text{V}$ ,  $C_1 = C_2 = C_3 = 22\mu\text{F}$  unless otherwise specified)

			min	typ	max	unit
Quiescent Current	$I_{CC1}$	$V_{APO} = 0\text{V}$		35	50	$\mu\text{A}$
	$I_{CC2}$	$V_{APO} = V_{IN}$		8.0	11.0	$\text{mA}$
Output Voltage	$V_{AO}$	$I_{AO} = 50\text{mA}$	5.05	5.5	5.95	V
	$V_{D10}$	$V_{APO} = 0\text{V}, I_{DO} = 5\text{mA}$	4.55	5.0	5.45	V
	$V_{D20}$	$V_{APO} = V_{IN}, I_{DO} = 50\text{mA}$	4.55	5.0	5.45	V
	$V_{AO}$ Line	$7.0 \leq V_{IN} \leq 13\text{V}, I_{AO} = 50\text{mA}$			50	mV
Line Regulation	$V_{D10}$ Line	$7.0 \leq V_{IN} \leq 13\text{V}, V_{APO} = 0\text{V}, I_{DO} = 5\text{mA}$			50	mV
	$V_{D20}$ Line	$7.0 \leq V_{IN} \leq 13\text{V}, V_{APO} = V_{IN}, I_{DO} = 50\text{mA}$			50	mV
	$V_{A1}$ Load	$1 \leq I_{A10} \leq 40\text{mA}$			50	mV
Load Regulation	$V_{A2}$ Load	$1 \leq I_{A20} \leq 80\text{mA}$			100	mV
	$V_{D10}$ Load	$1 \leq I_{D0} \leq 10\text{mA}, V_{APO} = 0\text{V}$			50	mV
	$V_{D20}$ Load	$1 \leq I_{D0} \leq 80\text{mA}, V_{APO} = V_{IN}$			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	
$V_{dD}$		$V_{IN} - V_O$ 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	$R_{rA}$	$f = 50\text{Hz}, 120\text{Hz}, I_{AO} = 100\text{mA}$		40		dB
	$R_{rD}$	$f = 50\text{Hz}, 120\text{Hz}, I_{DO} = 100\text{mA}$		45		dB
APO Input Current	$I_{APO}$	$V_{APO} = 5\text{V}$	66	86	123	$\mu\text{A}$
$V_C$ 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 $V_{CC} = 5.5\text{V}, 9\text{V}$	-0.3			V

## Block Diagram and Pin Assignment

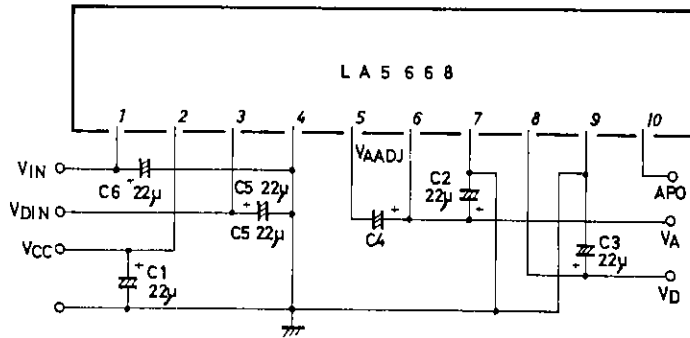


## Test Circuit



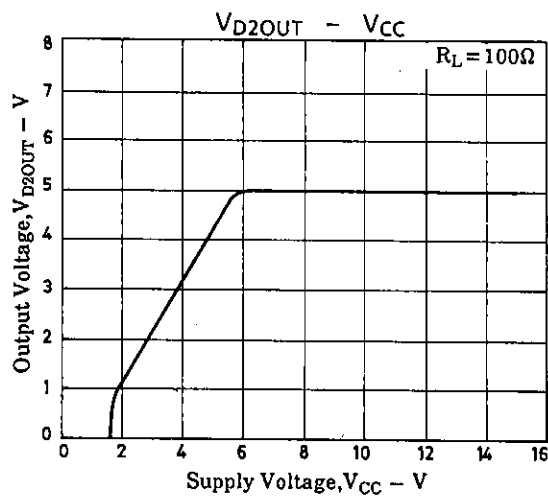
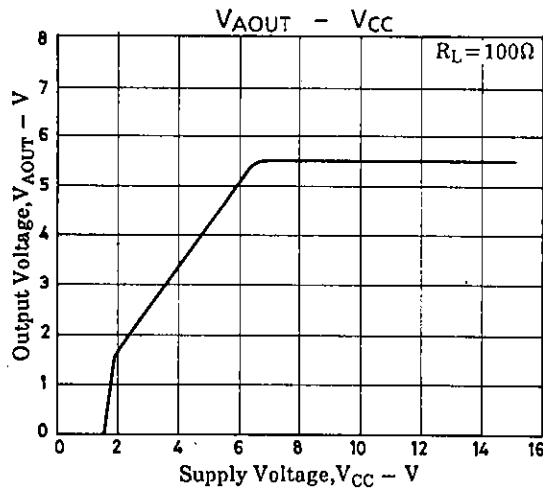
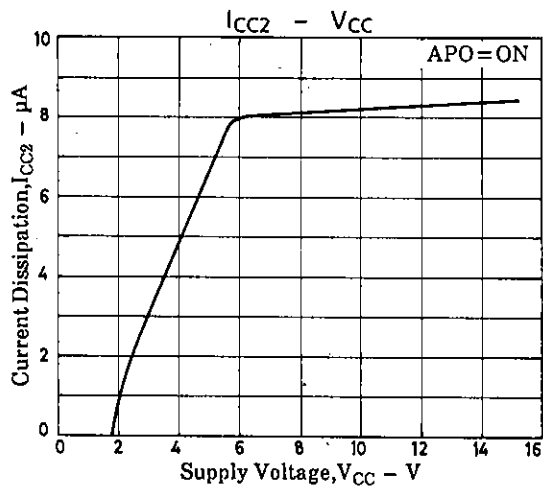
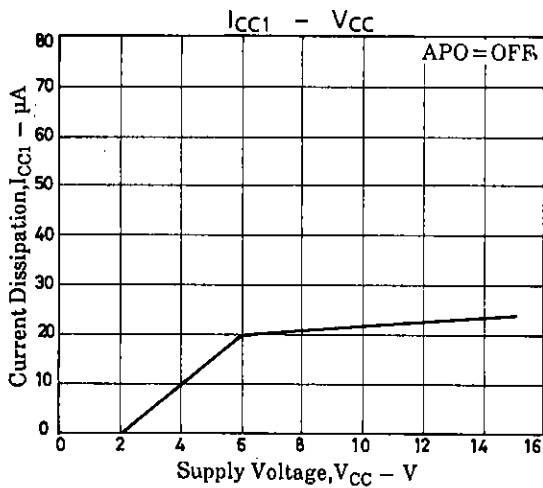
Unit (capacitance: F)

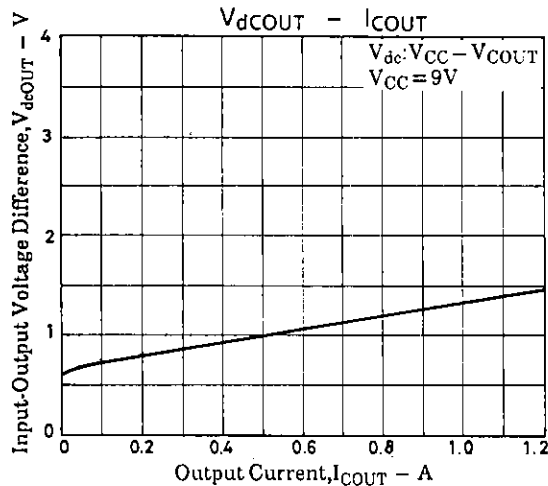
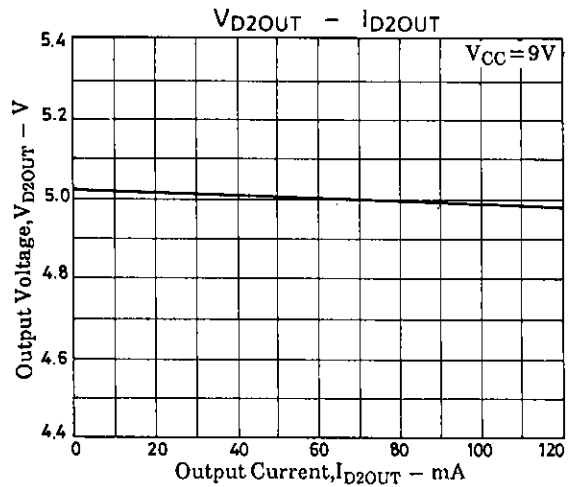
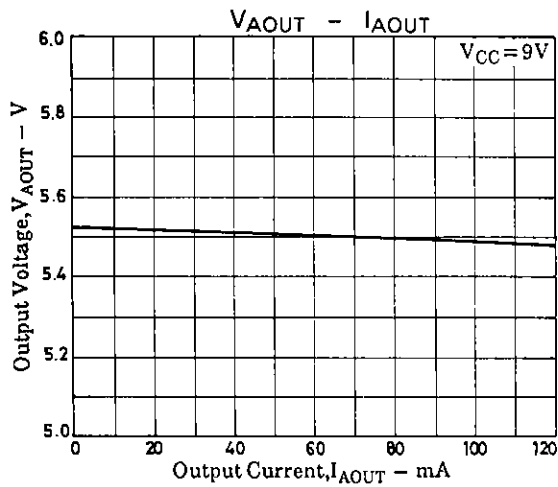
Sample Application Circuit



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

Unit (capacitance: F)





- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
  - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use;
  - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.