Ordering number: EN 2605B

Monolithic Linear IC

SANYO No.2605B

L79M00T Series

−5 to −12V 0.5A 3-Pin Voltage Regulators

Features

- Output voltage: L79M05T: −5V, L79M06T: −6V, L79M08T: −8V, L79M09T: −9V, L79M10T: −10V, L79M12T: −12V
- 500mA output
- Small-sized power package TP-3H permitting the equipment to be made compact
- The allowable power dissipation can be increased by being surface-mounted on the board.
- Capable of being mounted in a variety of methods because of various lead forming versions available
- On-chip protectors (overcurrent limiter, ASO protector, thermal protector)
- Can meet tape-used automatic mounting requirements.

[Common to L79M00T series]

Maximum Ratings at Ta = 25°C

				unit
Maximum Supply Voltage	V_{CC} max	−5 to −12V output	−35	V
Allowable Power Dissipation	Pd max		1.0	W
Operating Temperature	**Topr**		−30 to +80	°C
Storage Temperature	Tstg		−40 to +150	°C

[L79M05T]

Recommended Operating Conditions at Ta = 25°C

			unit
Input Voltage	V_{IN}	−20 to −7.5	V
Output Current	I_{OUT}	5 to 500	mA

Operating Characteristics at Ta = 25°C, V_{IN} = −10V, I_{OUT} = 350mA, C_{IN} = 2μF, C_{OUT} = 1μF

			min	typ	max	unit
Output Voltage	V_{OUT}	Tj = 25°C	−5.2	−5.0	−4.8	V
Line Regulation	ΔV_{oline}	Tj = 25°C, −25V ≦ V_{IN} ≦ −7V		7.0	50	mV
		Tj = 25°C, −18V ≦ V_{IN} ≦ −8V		3.0	30	mV
Load Regulation	ΔV_{oload}	Tj = 25°C, 5mA ≦ I_{OUT} ≦ 500mA		10	100	mV
		Tj = 25°C, 5mA ≦ I_{OUT} ≦ 350mA		5		mV

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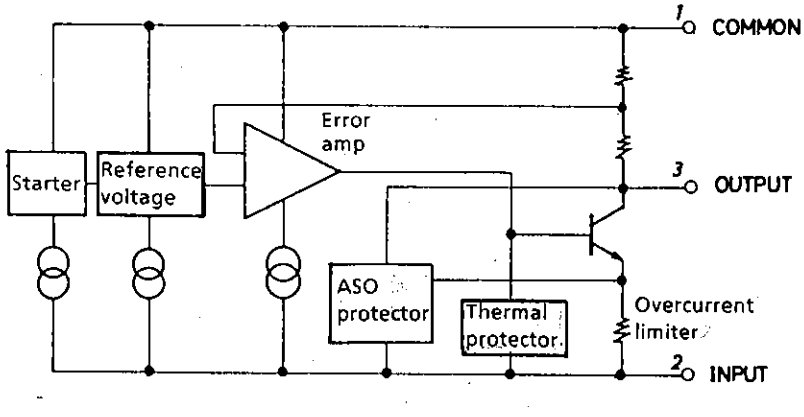
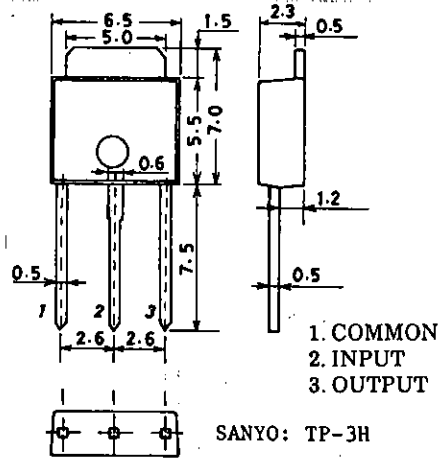
Equivalent Circuit



Package Dimensions (unit: mm) 3110-S3HIC



1. COMMON
2. INPUT
3. OUTPUT

SANYO: TP-3H

Continued from preceding page.

			min	typ	max	unit
Output Voltage	V_{OUT}	$-25V \leqq V_{IN} \leqq -7V$, $5mA \leqq I_{OUT} \leqq 350mA$	−5.25		−4.75	V
Current Dissipation	I_{CC}	Tj=25°C		1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$-25V \leqq V_{IN} \leqq -8V$			1.0	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5mA \leqq I_{OUT} \leqq 350mA$			0.4	mA
Output Noise Voltage	V_{NO}	$10Hz \leqq f \leqq 100kHz$		125		μV
Ripple Rejection	R_{rej}	f=120Hz, I_{OUT}=100mA	50			dB
		$-18V \leqq V_{IN} \leqq -8V$, I_{OUT}=300mA, Tj=25°C	50	65		dB
Minimum Input-Output Voltage Drop	V_{drop}	Tj=25°C, I_{OUT}=350mA		1.1		V
Short Current	I_{OS}	Tj=25°C, V_{IN}=−30V		130		mA
Peak Output Current	Iop			800		mA

[L79M06T]

Recommended Operating Conditions at Ta=25°C

			unit
Input Voltage	V_{IN}	−21 to −8.5	V
Output Current	I_{OUT}	5 to 500	mA

Operating Characteristics at Ta=25°C, V_{IN}=−11V, I_{OUT}=350mA, C_{IN}=2μF, C_{OUT}=1μF

			min	typ	max	unit
Output Voltage	V_{OUT}	Tj=25°C	−6.25	−6.0	−5.75	V
Line Regulation	ΔV_{oline}	Tj=25°C, $-25V \leqq V_{IN} \leqq -8V$		7.0	60	mV
		Tj=25°C, $-19V \leqq V_{IN} \leqq -9V$		3.0	40	mV
Load Regulation	ΔV_{oload}	Tj=25°C, $5mA \leqq I_{OUT} \leqq 500mA$		10	120	mV
		Tj=25°C, $5mA \leqq I_{OUT} \leqq 350mA$		5		mV
Output Voltage	V_{OUT}	$-25V \leqq V_{IN} \leqq -8V$, $5mA \leqq I_{OUT} \leqq 350mA$	−6.3		−5.7	V
Current Dissipation	I_{CC}	Tj=25°C		1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$-25V \leqq V_{IN} \leqq -9V$			1.0	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5mA \leqq I_{OUT} \leqq 350mA$			0.4	mA
Output Noise Voltage	V_{NO}	$10Hz \leqq f \leqq 100kHz$		150		μV
Ripple Rejection	R_{rej}	f=120Hz, I_{OUT}=100mA	50			dB
		$-19V \leqq V_{IN} \leqq -9V$, I_{OUT}=300mA, Tj=25°C	50	65		dB
Minimum Input-Output Voltage Drop	V_{drop}	Tj=25°C, I_{OUT}=350mA		1.1		V
Short Current	I_{OS}	Tj=25°C, V_{IN}=−30V		130		mA
Peak Output Current	Iop			800		mA

[L79M08T]

Recommended Operating Conditions at Ta=25°C

			unit
Input Voltage	V_{IN}	−23 to −11	V
Output Current	I_{OUT}	5 to 500	mA

Operating Characteristics at Ta = 25°C, V_{IN} = −14V, I_{OUT} = 350mA, C_{IN} = 2μF, C_{OUT} = 1μF

				min	typ	max	unit
Output Voltage	V_{OUT}	Tj = 25°C		−8.3	−8.0	−7.7	V
Line Regulation	ΔV_{oline}	Tj = 25°C, −25V ≦ V_{IN} ≦ −10.5V			8.0	80	mV
		Tj = 25°C, −21V ≦ V_{IN} ≦ −11V			4.0	50	mV
Load Regulation	ΔV_{oload}	Tj = 25°C, 5mA ≦ I_{OUT} ≦ 500mA			11	160	mV
		Tj = 25°C, 5mA ≦ I_{OUT} ≦ 350mA			6		mV
Output Voltage	V_{OUT}	−25V ≦ V_{IN} ≦ −10.5V, 5mA ≦ I_{OUT} ≦ 350mA		−8.4		−7.6	V
Current Dissipation	I_{CC}	Tj = 25°C			1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	−25V ≦ V_{IN} ≦ −10.5V				1.0	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	5mA ≦ I_{OUT} ≦ 350mA				0.4	mA
Output Noise Voltage	V_{NO}	10Hz ≦ f ≦ 100kHz			200		μV
Ripple Rejection	R_{rej}	f = 120Hz	I_{OUT} = 100mA	50			dB
		−21.5V ≦ V_{IN} ≦ −11.5V, Tj = 25°C	I_{OUT} = 300mA	50	64		dB
Minimum Input-Output Voltage Drop	V_{drop}	Tj = 25°C, I_{OUT} = 350mA			1.1		V
Short Current	I_{OS}	Tj = 25°C, V_{IN} = −30V			130		mA
Peak Output Current	Iop				800		mA

[L79M09T]

Recommended Operating Conditions at Ta = 25°C

			unit
Input Voltage	V_{IN}	−25 to −12	V
Output Current	I_{OUT}	5 to 500	mA

Operating Characteristics at Ta = 25°C, V_{IN} = −16V, I_{OUT} = 350mA, C_{IN} = 2μF, C_{OUT} = 1μF

				min	typ	max	unit
Output Voltage	V_{OUT}	Tj = 25°C		−9.4	−9.0	−8.6	V
Line Regulation	ΔV_{oline}	Tj = 25°C, −25V ≦ V_{IN} ≦ −11.5V			8.0	80	mV
		Tj = 25°C, −20V ≦ V_{IN} ≦ −12V			4.0	50	mV
Load Regulation	ΔV_{oload}	Tj = 25°C, 5mA ≦ I_{OUT} ≦ 500mA			12	200	mV
		Tj = 25°C, 5mA ≦ I_{OUT} ≦ 350mA			7		mV
Output Voltage	V_{OUT}	−25V ≦ V_{IN} ≦ −11.5V, 5mA ≦ I_{OUT} ≦ 350mA		−9.5		−8.5	V
Current Dissipation	I_{CC}	Tj = 25°C			1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	−25V ≦ V_{IN} ≦ −11.5V				1.0	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	5mA ≦ I_{OUT} ≦ 350mA				0.4	mA
Output Noise Voltage	V_{NO}	10Hz ≦ f ≦ 100kHz			225		μV
Ripple Rejection	R_{rej}	f = 120Hz	I_{OUT} = 100mA	50			dB
		−22.5V ≦ V_{IN} ≦ −12.5V, Tj = 25°C	I_{OUT} = 300mA	50	63		dB
Minimum Input-Output Voltage Drop	V_{drop}	Tj = 25°C, I_{OUT} = 350mA			1.1		V
Short Current	I_{OS}	Tj = 25°C, V_{IN} = −30V			130		mA
Peak Output Current	Iop				800		mA

[L79M10T]

Recommended Operating Conditions at Ta = 25°C

			unit
Input Voltage	V_{IN}	−25 to −13	V
Output Current	I_{OUT}	5 to 500	mA

Operating Characteristics at Ta = 25°C, V_{IN} = −17V, I_{OUT} = 350mA, C_{IN} = 2μF, C_{OUT} = 1μF

				min	typ	max	unit
Output Voltage	V_{OUT}	Tj = 25°C		−10.4	−10	−9.6	V
Line Regulation	ΔV_{oline}	Tj = 25°C, −25V ≦ V_{IN} ≦ −12.5V			9.0	80	mV
		Tj = 25°C, −22V ≦ V_{IN} ≦ −13V			5.0	50	mV
Load Regulation	ΔV_{oload}	Tj = 25°C, 5mA ≦ I_{OUT} ≦ 500mA			12	200	mV
		Tj = 25°C, 5mA ≦ I_{OUT} ≦ 350mA			7		mV
Output Voltage	V_{OUT}	−25V ≦ V_{IN} ≦ −12.5V, 5mA ≦ I_{OUT} ≦ 350mA		−10.5		−9.5	V
Current Dissipation	I_{CC}	Tj = 25°C			1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	−25V ≦ V_{IN} ≦ −12.5V				1.0	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	5mA ≦ I_{OUT} ≦ 350mA				0.4	mA
Output Noise Voltage	V_{NO}	10Hz ≦ f ≦ 100kHz			250		μV
Ripple Rejection	R_{rej}	f = 120Hz	I_{OUT} = 100mA	50			dB
		−23.5V ≦ V_{IN} ≦ −13.5V, Tj = 25°C	I_{OUT} = 300mA	50	63		dB
Minimum Input-Output Voltage Drop	V_{drop}	Tj = 25°C, I_{OUT} = 350mA			1.1		V
Short Current	I_{OS}	Tj = 25°C, V_{IN} = −30V			130		mA
Peak Output Current	Iop				800		mA

[L79M12T]

Recommended Operating Conditions at Ta = 25°C

			unit
Input Voltage	V_{IN}	−25 to −15	V
Output Current	I_{OUT}	5 to 500	mA

Operating Characteristics at Ta = 25°C, V_{IN} = −19V, I_{OUT} = 350mA, C_{IN} = 2μF, C_{OUT} = 1μF

				min	typ	max	unit
Output Voltage	V_{OUT}	Tj = 25°C		−12.5	−12	−11.5	V
Line Regulation	ΔV_{oline}	Tj = 25°C, −30V ≦ V_{IN} ≦ −14.5V			9.0	80	mV
		Tj = 25°C, −25V ≦ V_{IN} ≦ −15V			5.0	50	mV
Load Regulation	ΔV_{oload}	Tj = 25°C, 5mA ≦ I_{OUT} ≦ 500mA			9	240	mV
		Tj = 25°C, 5mA ≦ I_{OUT} ≦ 350mA			6		mV
Output Voltage	V_{OUT}	−30V ≦ V_{IN} ≦ −14.5V, 5mA ≦ I_{OUT} ≦ 350mA		−12.6		−11.4	V
Current Dissipation	I_{CC}	Tj = 25°C			1.6	3.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	−30V ≦ V_{IN} ≦ −14.5V				1.0	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	5mA ≦ I_{OUT} ≦ 350mA				0.4	mA
Output Noise Voltage	V_{NO}	10Hz ≦ f ≦ 100kHz			300		μV
Ripple Rejection	R_{rej}	f = 120Hz	I_{OUT} = 100mA	50			dB
		−25V ≦ V_{IN} ≦ −15V, Tj = 25°C	I_{OUT} = 300mA	50	72		dB
Minimum Input-Output Voltage Drop	V_{drop}	Tj = 25°C, I_{OUT} = 350mA			1.1		V
Short Current	I_{OS}	Tj = 25°C, V_{IN} = −30V			130		mA
Peak Output Current	Iop				800		mA

Ordering number: EN 3238

Monolithic Linear IC

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) : 35μA typ

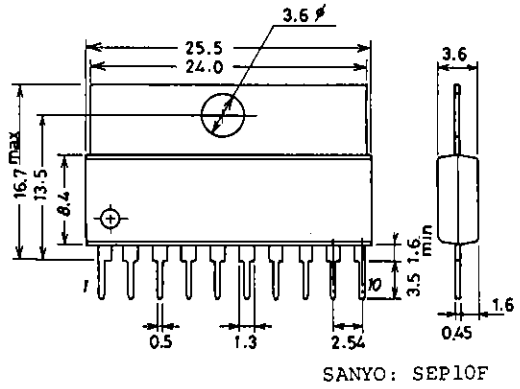
Maximum Ratings at Ta = 25°C

			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	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

			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)



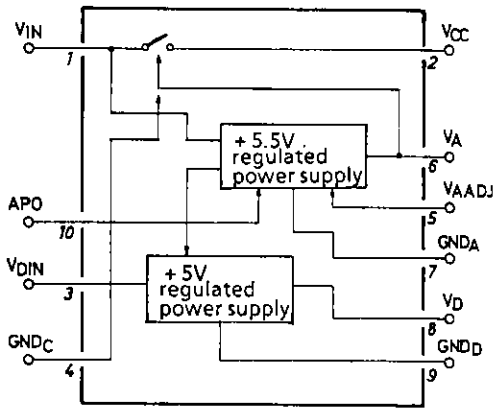
SANYO: SEP10F

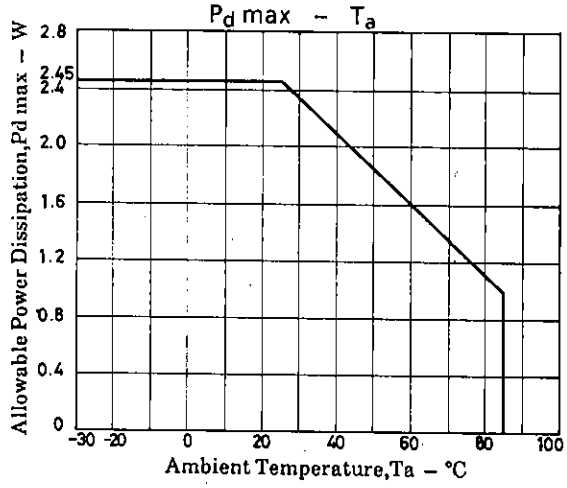
Operating Characteristics at Ta = 25°C

($V_{IN} = V_{DIN} = V_{APO} = 9V$, C1 = C2 = C3 = 22µF unless otherwise specified)

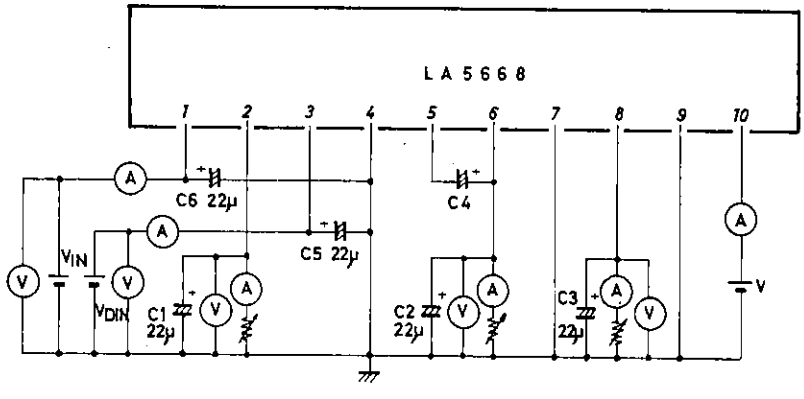
			min	typ	max	unit
Quiescent Current	I_{CC1}	$V_{APO} = 0V$		35	50	µA
	I_{CC2}	$V_{APO} = V_{IN}$		8.0	11.0	mA
Output Voltage	V_{AO}	$I_{AO} = 50mA$	5.05	5.5	5.95	V
	V_{D1O}	$V_{APO} = 0V, I_{DO} = 5mA$	4.55	5.0	5.45	V
	V_{D2O}	$V_{APO} = V_{IN}, I_{DO} = 50mA$	4.55	5.0	5.45	V
Line Regulation	V_{AO} Line	$7.0 \leqq V_{IN} \leqq 13V, I_{AO} = 50mA$			50	mV
	V_{D1O} Line	$7.0 \leqq V_{IN} \leqq 13V, V_{APO} = 0V, I_{DO} = 5mA$			50	mV
	V_{D2O} Line	$7.0 \leqq V_{IN} \leqq 13V, V_{APO} = V_{IN}, I_{DO} = 50mA$			50	mV
Load Regulation	V_{A1} Load	$1 \leqq I_{A1O} \leqq 40mA$			50	mV
	V_{A2} Load	$1 \leqq I_{A2O} \leqq 80mA$			100	mV
	V_{D1O} Load	$1 \leqq I_{DO} \leqq 10mA, V_{APO} = 0V$			50	mV
	V_{D2O} Load	$1 \leqq I_{DO} \leqq 80mA, V_{APO} = V_{IN}$			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

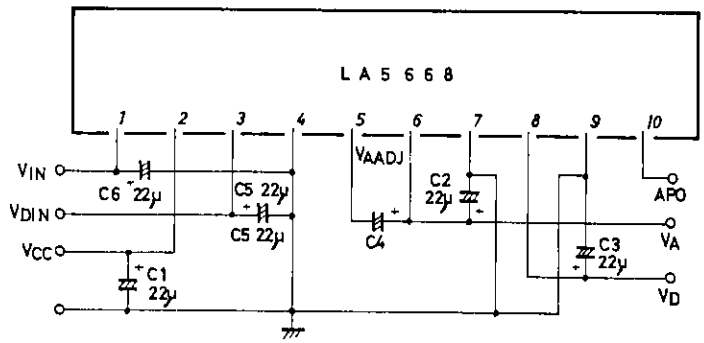


C1, C2, C3: OSC prevention, stabilization

C4: V_A rise adjustment

Unit (capacitance: F)

Sample Application Circuit



C1, C2, C3: OSC prevention, stabilization
C4: V_A rise adjustment

Unit (capacitance: F)