

LA5000 Series

2 to 5V 60mA Low Saturation Voltage Regulators

Overview

The LA5002, 5003, 5004, 5005 are voltage regulators having a small input-output voltage drop (0.2V typ). They are especially suited for use in battery-powered low voltage equipment and commercial or industrial equipment having a large voltage regulation.

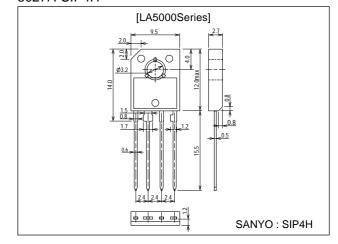
Features

- \bullet Small input-output voltage drop (0.2V/ $_{IOUT}$ =20mA typ).
- Minimum number of external parts required.
- Highly resistant against load short.
- Radio noise (radiation) control pin.

Package Dimensions

unit:mm

3027A-SIP4H



Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Input supply voltage	V _{IN} max		12	V
Output current	I _{OUT} max		60	mA
Allowable power dissipation	Pd max	Ta=80°C	560	mW
Operating temperature	Topr		-20 to +80	°C
Storage temperature	Tstg		-30 to +125	°C

$\begin{array}{c} \textbf{Electrical Characteristics} \ at \ Ta = 25 ^{\circ} C, \ C_{OUT} = 10 \mu F, \ I_{OUT} = 20 mA, \ V_{IN} = 3 V \ [LA5002], \ V_{IN} = 4 V \ [5003], \\ V_{IN} = 5 V \ [5004], \ V_{IN} = 6 V \ [LA5005] \end{array}$

Parameter	Symbol	Conditions		Ratings		
	Symbol		min	typ	max	Unit
Output voltage		LA5002	1.85	2.0	2.15	V
	\/ -	LA5003	2.8	3.0	3.2	V
	Vo	LA5004	3.75	4.0	4.25	V
		LA5005	4.75	5.0	5.25	V
Line regulation		LA5002 : 2.5V <v<sub>IN<8V</v<sub>			50	mV
	V _O line	LA5003: 3.5V <v<sub>IN<9V</v<sub>			50	mV
	A Quite	LA5004 : 4.5V <v<sub>IN<10V</v<sub>			50	mV
		LA5005 : 5.5V <v<sub>IN<11V</v<sub>			50	mV
Load regulation	V-load	1mA <i@=<40ma< td=""><td></td><td></td><td>20</td><td>mV</td></i@=<40ma<>			20	mV
	V _O load	1mA <lour<50ma< td=""><td></td><td></td><td>25</td><td>mV</td></lour<50ma<>			25	mV

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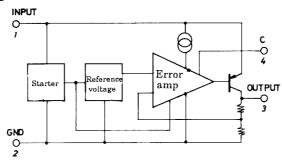
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LA5000Series

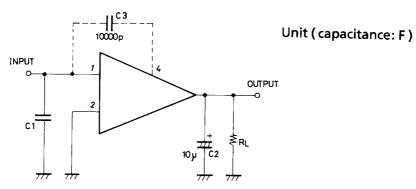
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Office
Quiescent current	Icco	LA5002		1.2	2.0	mA
		LA5003		1.4	2.0	mA
		LA5004		1.5	2.3	mA
		LA5005		1.7	2.5	mA
Ripple voltage	R _r	LA5002, LA5004, LA5005 : f=120Hz	40			dB
		LA5003 : f=120Hz	43			dB
Input/output voltage drop	V _{drop}			0.2	0.3	V
Temperature coefficient of output voltage	Κ∆ν ₀ /ΔΤ		-1		+1	mV/°C
Output noise voltage	٧N	10Hz <f<100khz< td=""><td></td><td>30</td><td></td><td>μV</td></f<100khz<>		30		μV

Equivalent Circuit Block Diagram

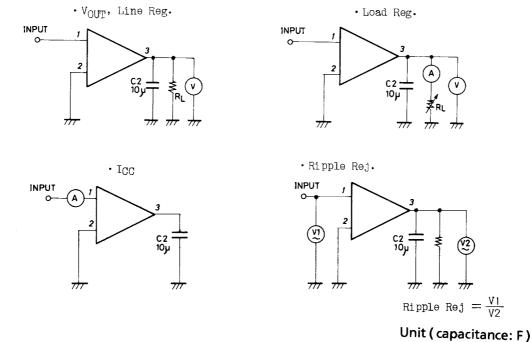


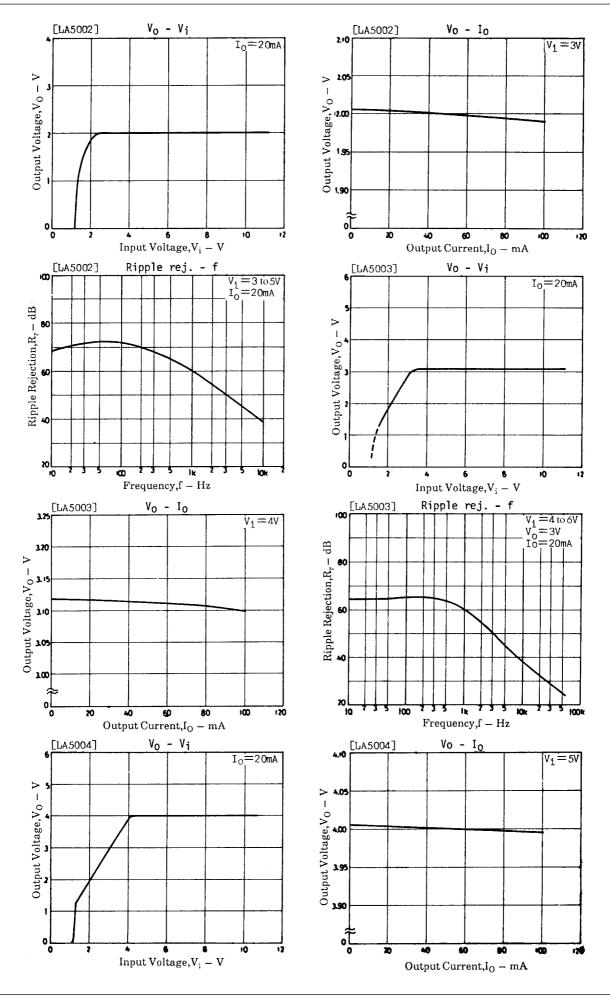
Sample Application Circuit



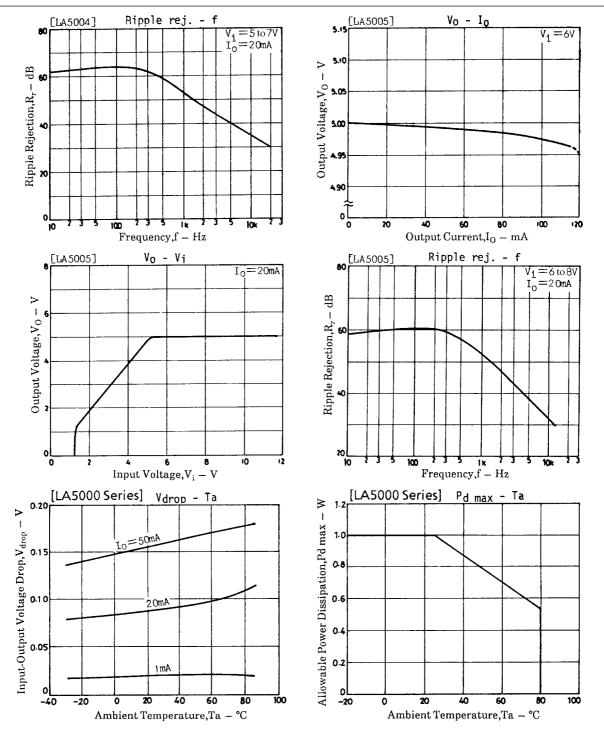
Note: Capacitor C3 is not required unless radio noise is a problem.

Test Circuits





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LA5000Series

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