

**SANYO**

No.1187E

**LA5000 Series**2 to 5V 60mA  
Low Saturation Voltage Regulators

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**

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

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

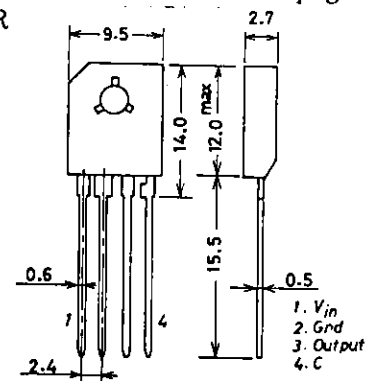
			unit
Input Supply Voltage	$V_{IN}$ max	12	V
Output Current	$I_{OUT}$ max	60	mA
Allowable Power Dissipation	$P_d$ max	560	mW
Operating Temperature	$T_{opr}$	-20 to +80	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-30 to +125	$^\circ\text{C}$

Electrical Characteristics at  $T_a=25^\circ\text{C}$ ,  $C_{OUT}=10\mu\text{F}$ ,  $I_{OUT}=20\text{mA}$ ,  $V_{IN}=3\text{V}$  [LA5002],  $V_{IN}=4\text{V}$  [5003],  $V_{IN}=5\text{V}$  [LA5004],  $V_{IN}=6\text{V}$  [LA5005]

			min	typ	max	unit
Output Voltage	$V_O$	LA5002	1.85	2.0	2.15	V
		LA5003	2.8	3.0	3.2	V
		LA5004	3.75	4.0	4.25	V
		LA5005	4.75	5.0	5.25	V
Line Regulation	$V_O$ line	LA5002: $2.5\text{V} < V_{IN} < 8\text{V}$			50	mV
		LA5003: $3.5\text{V} < V_{IN} < 9\text{V}$			50	mV
		LA5004: $4.5\text{V} < V_{IN} < 10\text{V}$			50	mV
		LA5005: $5.5\text{V} < V_{IN} < 11\text{V}$			50	mV
Load Regulation	$V_O$ load	$1\text{mA} < I_{OUT} < 40\text{mA}$			20	mV
		$1\text{mA} < I_{OUT} < 50\text{mA}$			25	mV
Quiescent Current	$I_{CCO}$	LA5002	1.2	2.0		mA
		LA5003	1.4	2.0		mA
		LA5004	1.5	2.3		mA
		LA5005	1.7	2.5		mA

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**Package Dimensions** 3027A-S4HTR  
(unit: mm)



SANYO: SEP4H

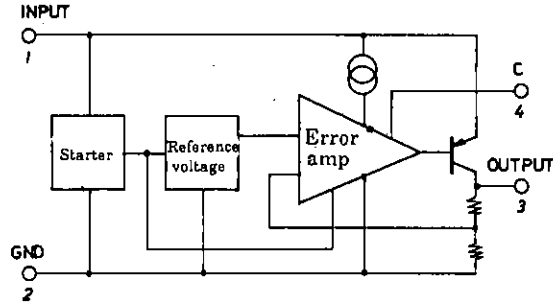
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TOKYO OFFICE, Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

# LA5000 Series

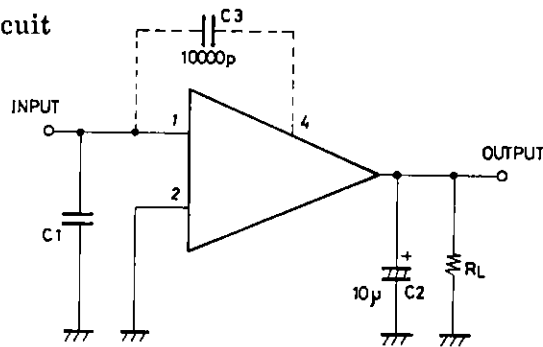
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			min	typ	max	unit
Ripple Voltage	$R_T$	LA5002, LA5004, LA5005: $f = 120\text{Hz}$	40			dB
		LA5003: $f = 120\text{Hz}$	43			dB
Input/Output Voltage Drop	$V_{\text{drop}}$			0.2	0.3	V
Coefficient of Output Voltage	$K\Delta V_o/\Delta T$		-1		+1	mV/°C
	$V_N$	$10\text{Hz} < f < 100\text{kHz}$		30		$\mu\text{V}$

## Equivalent Circuit Block Diagram



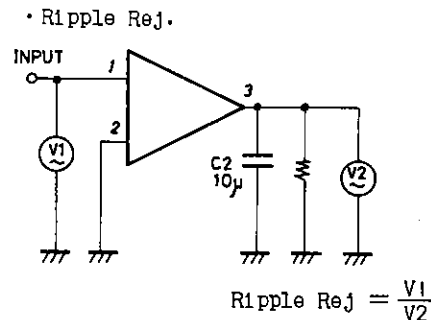
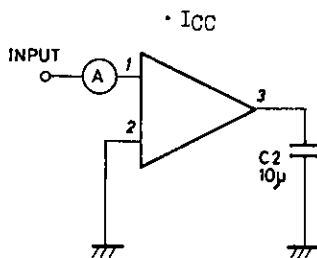
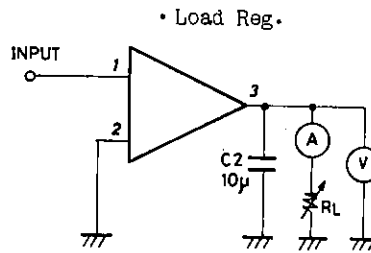
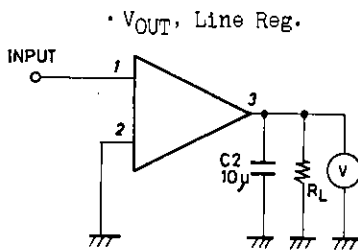
## Sample Application Circuit



Unit (capacitance: F)

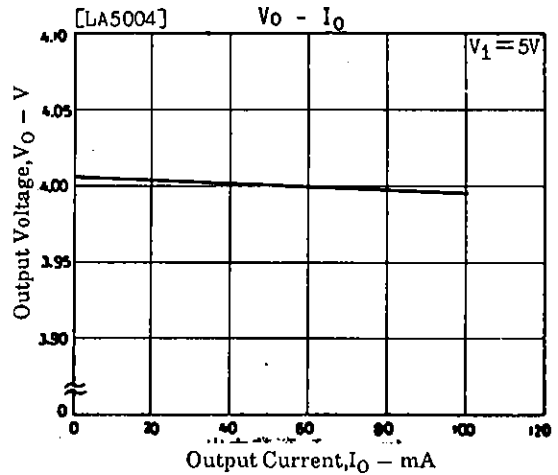
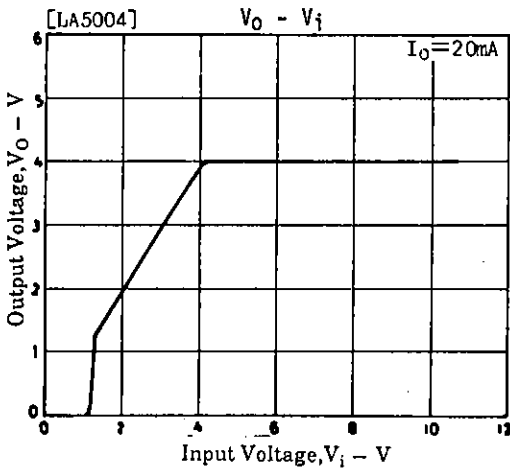
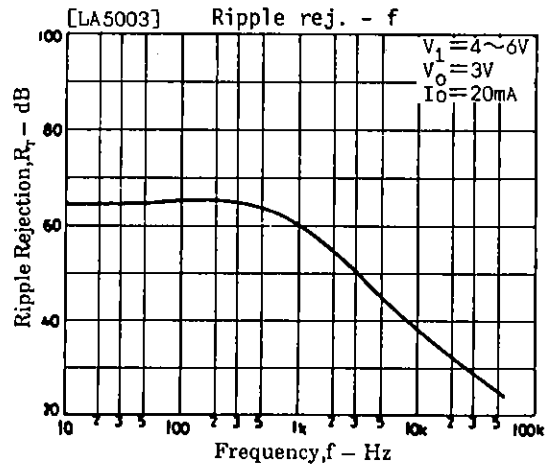
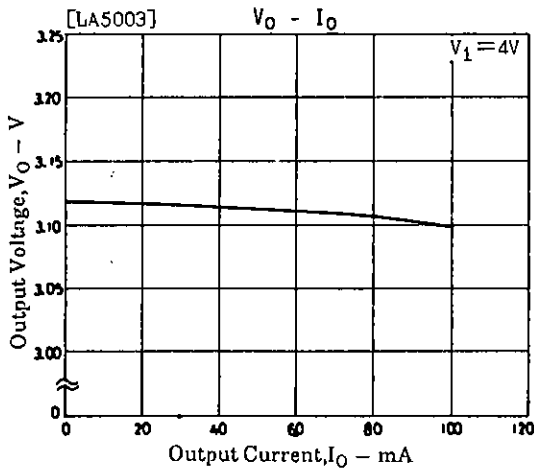
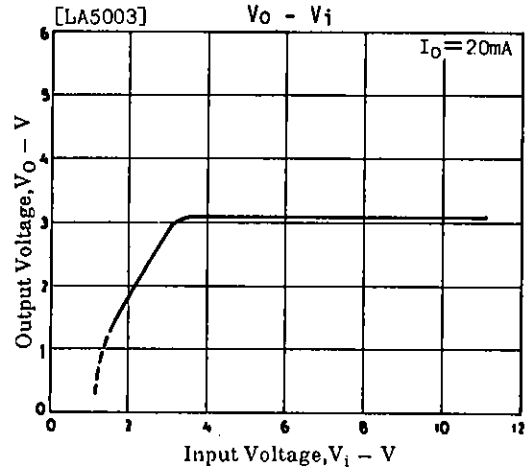
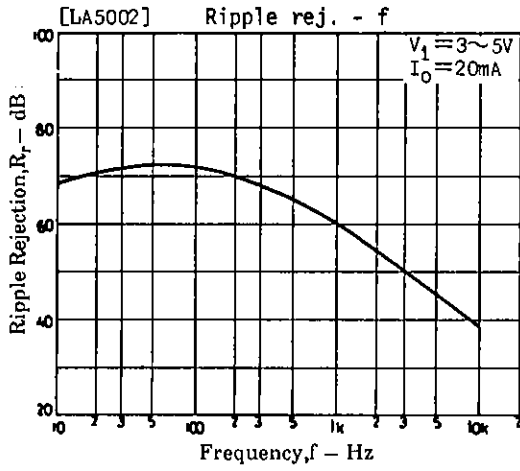
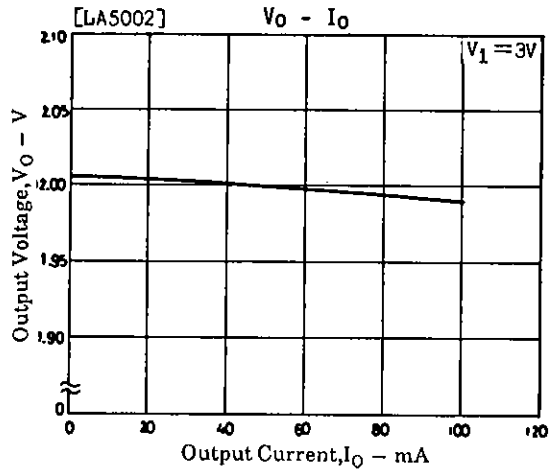
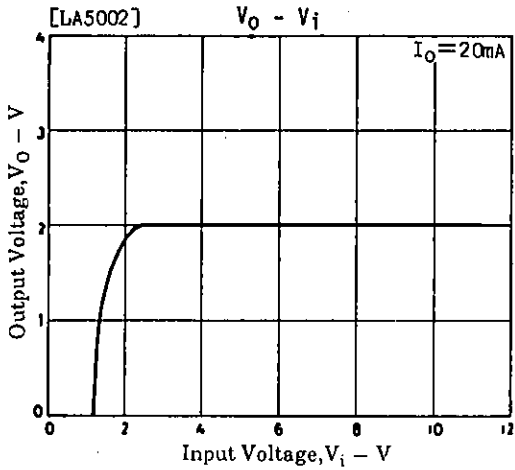
Note: Capacitor C3 is not required unless radio noise is a problem.

## Test Circuits

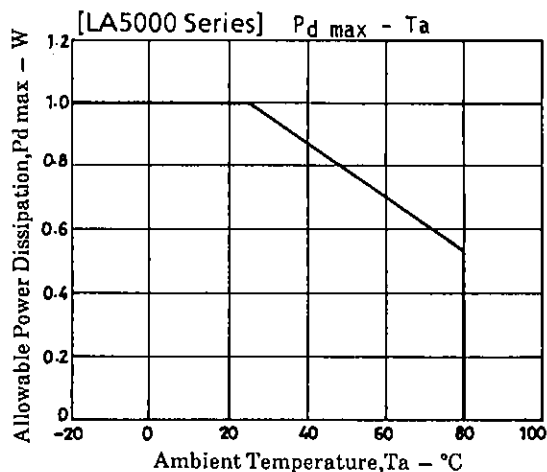
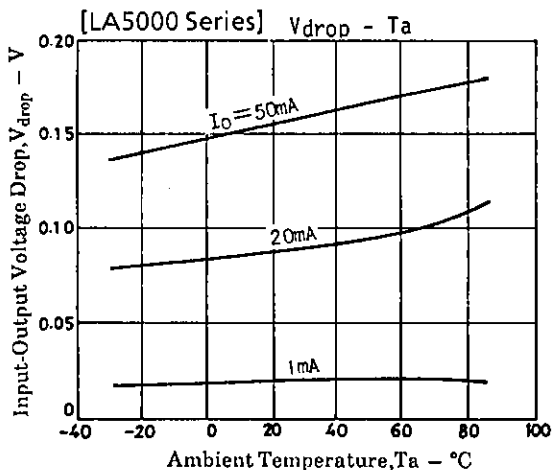
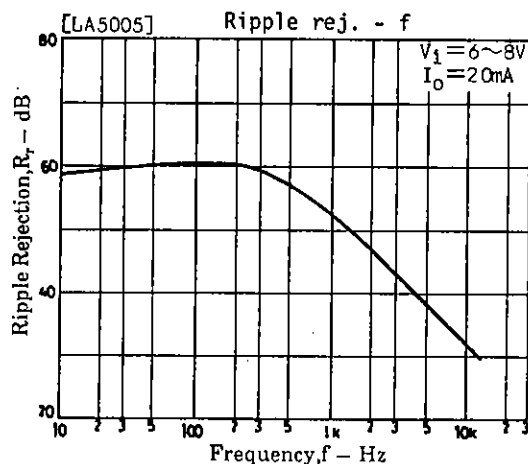
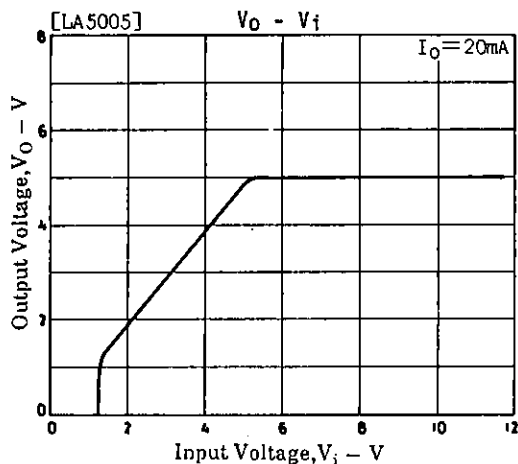
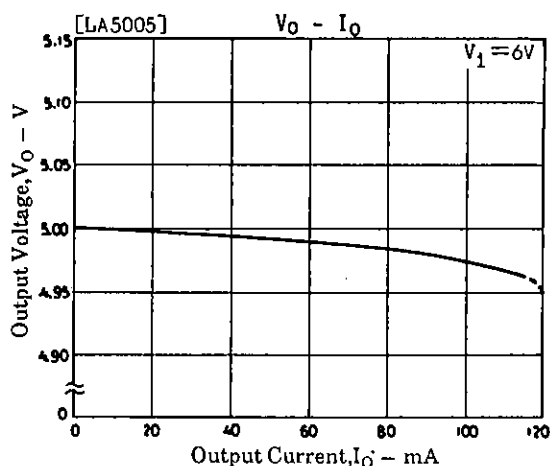
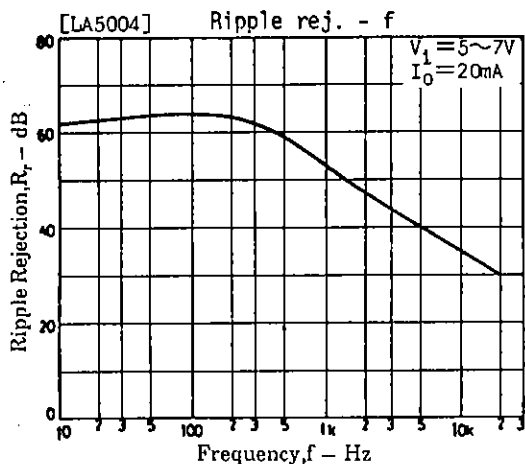


Unit (capacitance: F)

LA5000 Series



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