

SANYO 	No.1415C	LA5000M Series Monolithic Linear IC 2 to 10V 60mA Low Saturation Voltage Regulators
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The LA5002M, 5003M, 5004M, 5005M, 5006M, 5008M, 5009M, 5010M 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/ $I_{OUT}=20mA$ typ.)
- Minimum number of external parts required
- Highly resistant against load short
- Radio noise (radiation) control pin

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

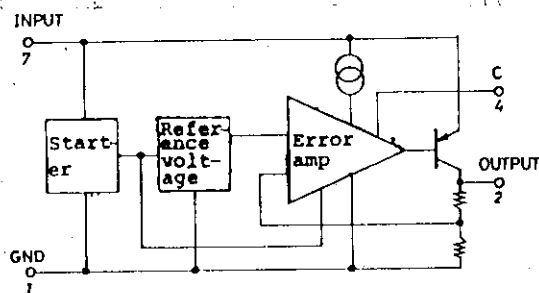
			unit
Input Supply Voltage	V_{INmax}	LA5002M, 5003M, 5004M, 5005M	12 V
		LA5006M, 5008M, 5009M, 5010M	16 V
Output Current	I_{OUTmax}		60 mA
Allowable Power Dissipation	P_{dmax}		300 mW
Operating Temperature	Topg		-20 to +80 $^{\circ}C$
Storage Temperature	Tstg		-30 to +125 $^{\circ}C$

Operating Characteristics at $T_a=25^{\circ}C$, $C_{OUT}=10\mu F$, $I_{OUT}=20mA$, $V_{IN}=3V$ [LA5002M], $V_{IN}=4V$ [LA5003M], $V_{IN}=5V$ [LA5004M], $V_{IN}=6V$ [LA5005M], $V_{IN}=7V$ [LA5006M], $V_{IN}=9V$ [LA5008M], $V_{IN}=10V$ [LA5009M], $V_{IN}=11V$ [LA5010M]

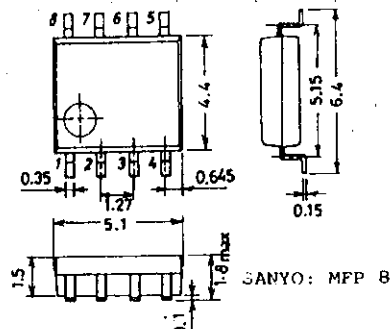
Output Voltage	V_o		min	typ	max	unit
Output Voltage	V_o	LA5002M	1.85	2.0	2.15	V
		LA5003M	2.8	3.0	3.2	V
		LA5004M	3.75	4.0	4.25	V
		LA5005M	4.75	5.0	5.25	V
		LA5006M	5.7	6.0	6.3	V
		LA5008M	7.6	8.0	8.4	V
		LA5009M	8.55	9.0	9.45	V
		LA5010M	9.4	10.0	10.6	V
Line Regulation	V_o line	LA5002M	2.5V	$V_{IN}<8V$	50	mV
		LA5003M	3.5V	$V_{IN}<9V$	50	mV
		LA5004M	4.5V	$V_{IN}<10V$	50	mV
		LA5005M	5.5V	$V_{IN}<11V$	50	mV

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Equivalent Circuit Block Diagram



Case Outline 3032B-M8IC (unit:mm)



Specifications and information herein are subject to change without notice.

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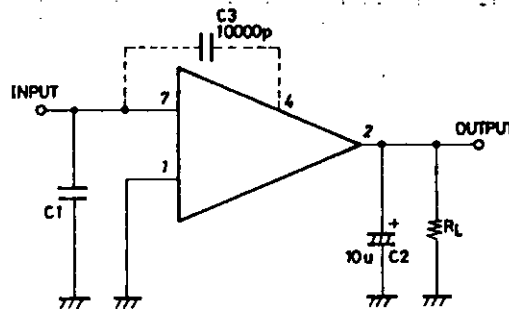
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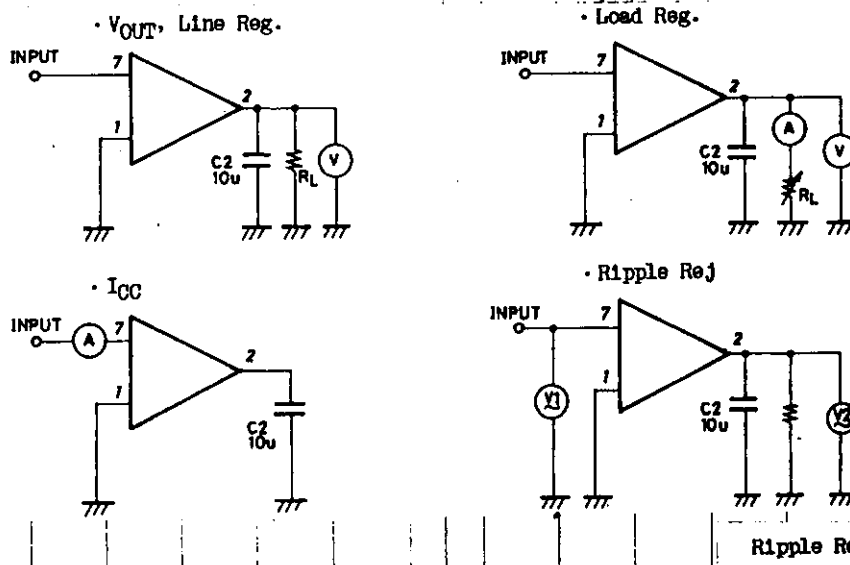
			min	typ	max	unit
Line Regulation		LA5006M $6.5V < V_{IN} < 12V$			50	mV
		LA5008M $9V < V_{IN} < 14V$			50	mV
		LA5009M $10V < V_{IN} < 15V$			50	mV
		LA5010M $11V < V_{IN} < 16V$			50	mV
					50	mV
Load Regulation	V_o load	$1mA < I_{OUT} < 40mA$			20	mV
		$1mA < I_{OUT} < 50mA$			25	mV
					25	mV
Quiescent Current Dissipation	I_{CCO}	LA5002M	1.2	2.0		mA
		LA5003M	1.4	2.0		mA
		LA5004M	1.5	2.3		mA
		LA5005M, 5006M, 5008M, 5009M, 5010M	1.7	2.5		mA
Ripple Rejection	R_r	LA5002M, 5004M, 5005M $f=120Hz$	40			dB
		LA5003M $f=120Hz$	43			dB
		LA5006M, 5008M, 5009M, 5010M $f=120Hz$	35			dB
Input-Output Voltage Drop	V_{drop}		0.2	0.3		V
Temperature Coefficient of Output Voltage	$k\Delta V_o/\Delta T$	LA5002M, 5003M, 5004M, 5005M	-1		1	mV/°C
		LA5006M	-2		2	mV/°C
		LA5008M	-3		3	mV/°C
		LA5009M	-4		4	mV/°C
		LA5010M	-5		5	mV/°C
Output Noise Voltage	V_N	$10Hz < f < 100kHz$		30		uV

Sample Application Circuit



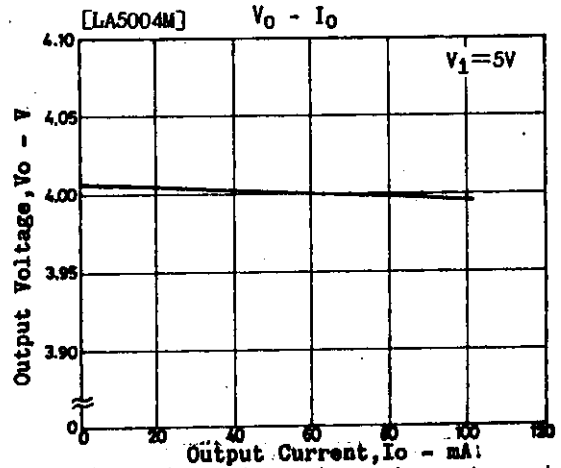
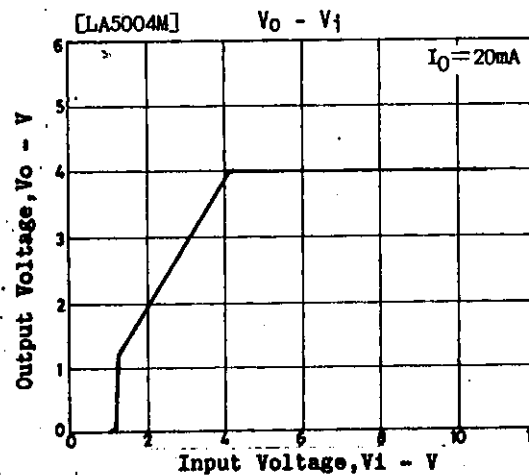
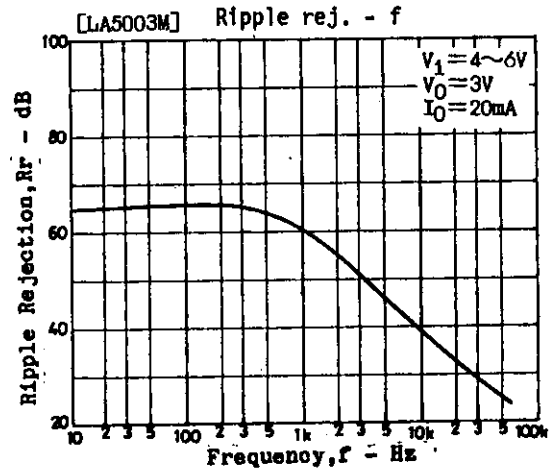
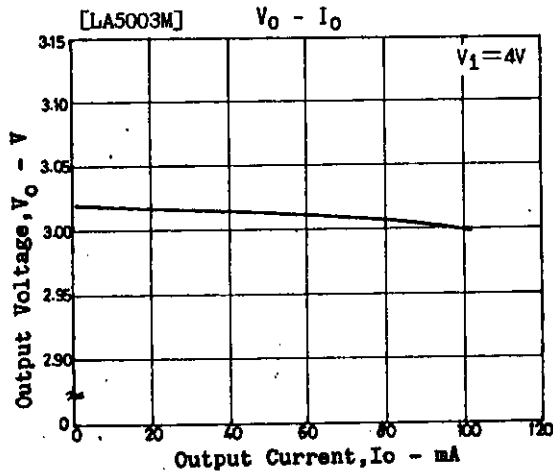
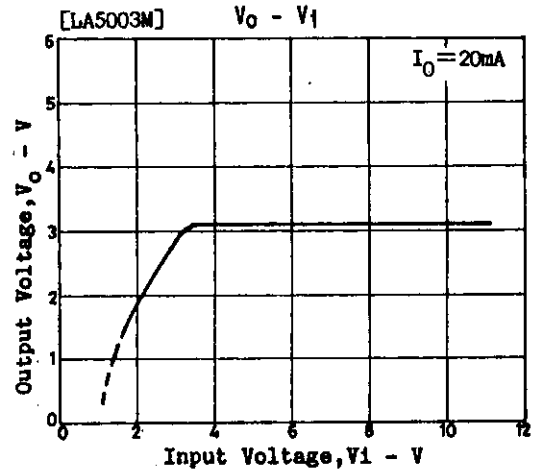
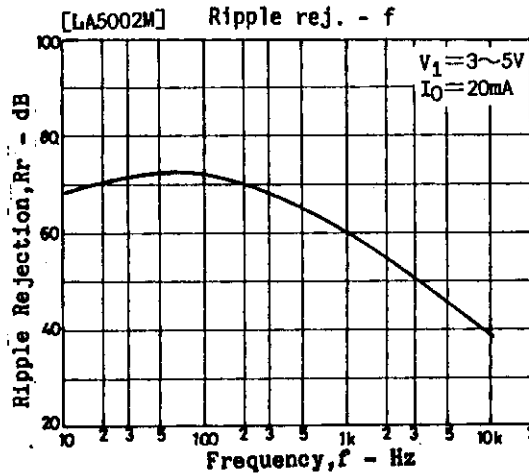
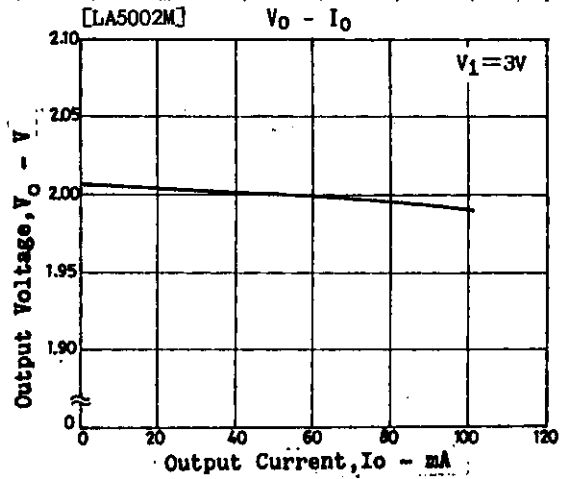
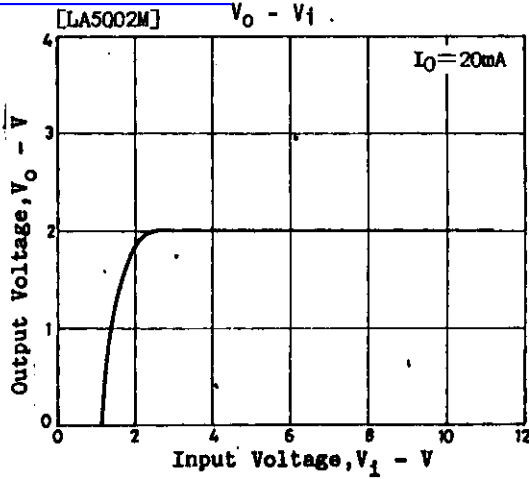
Note: Capacitor C3 is not required unless radio noise is a problem.

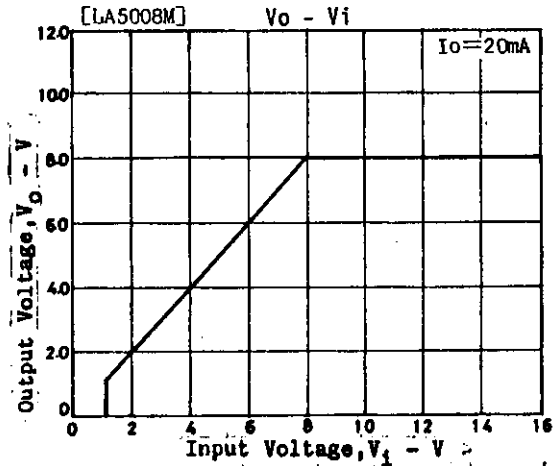
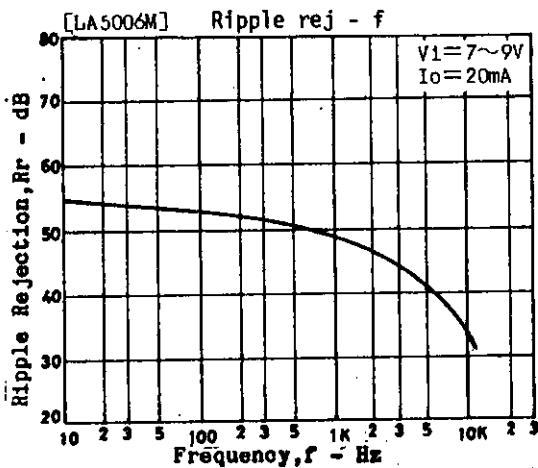
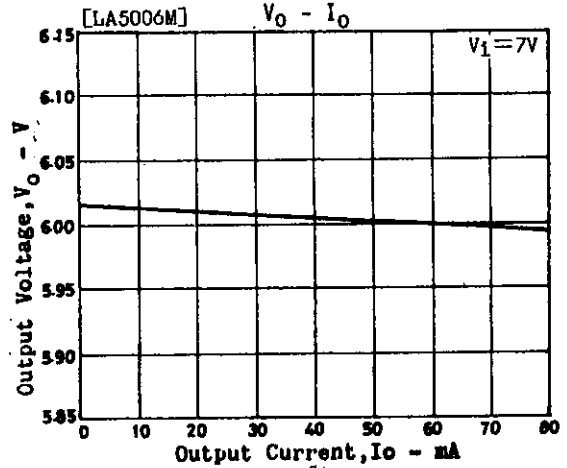
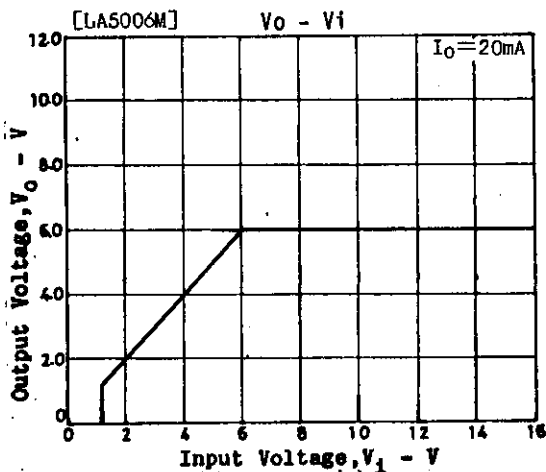
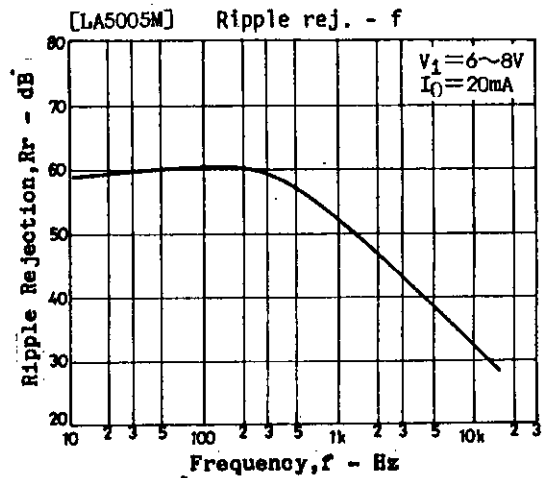
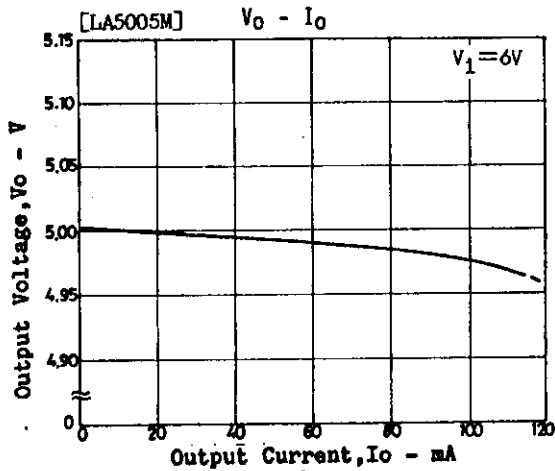
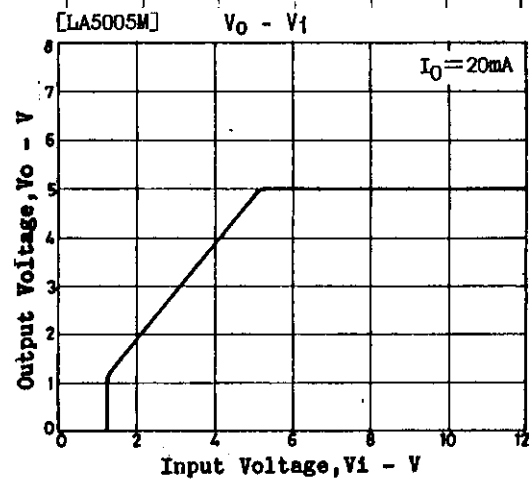
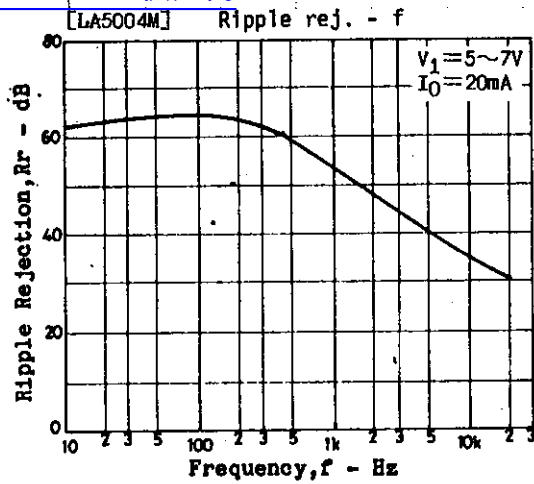
Test Circuits



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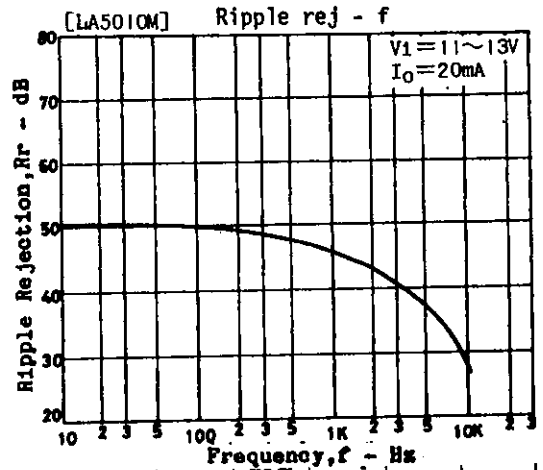
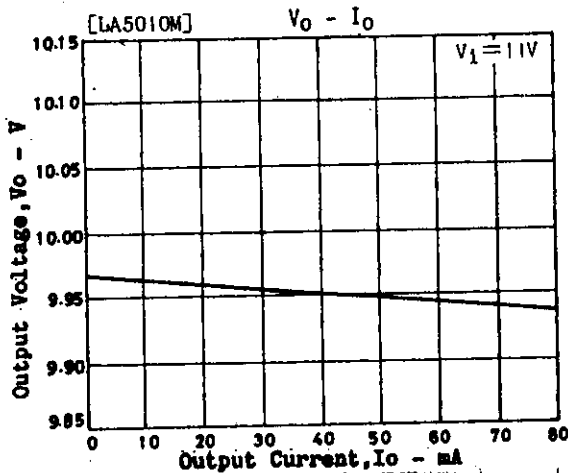
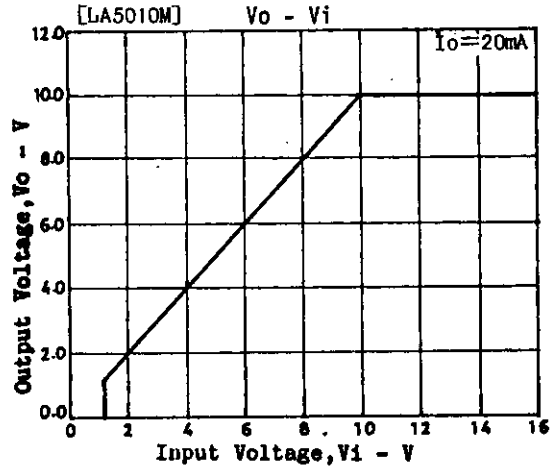
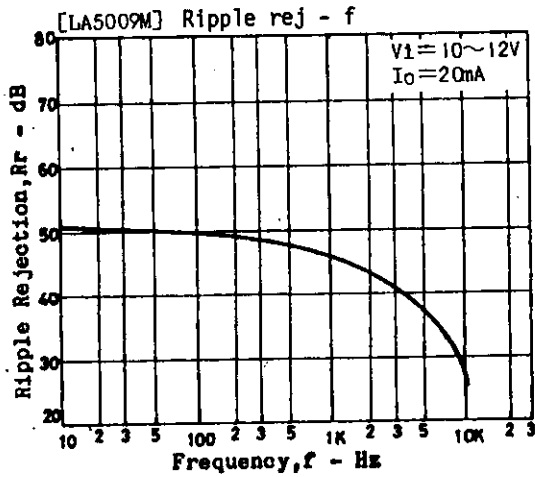
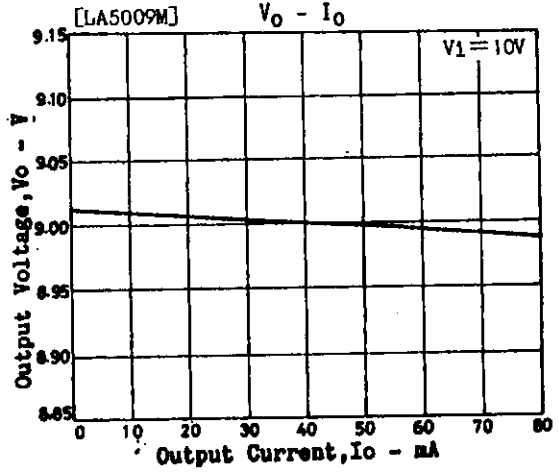
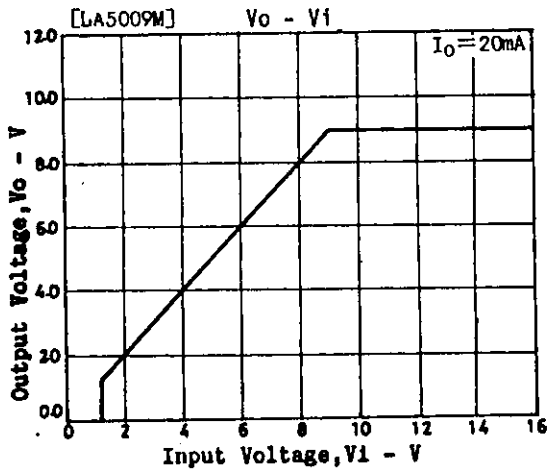
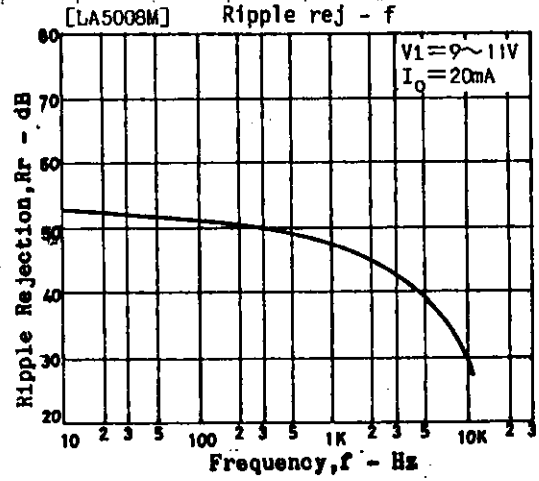
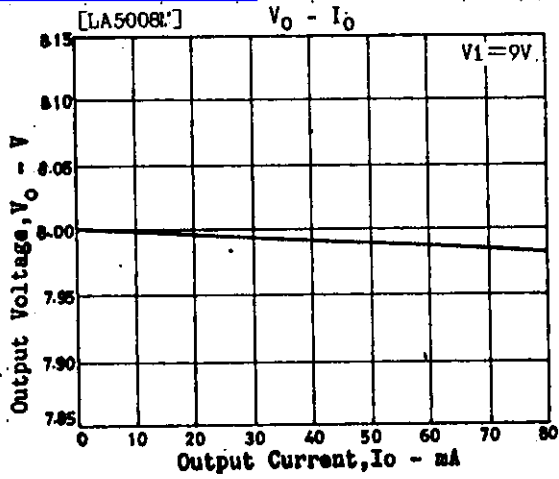
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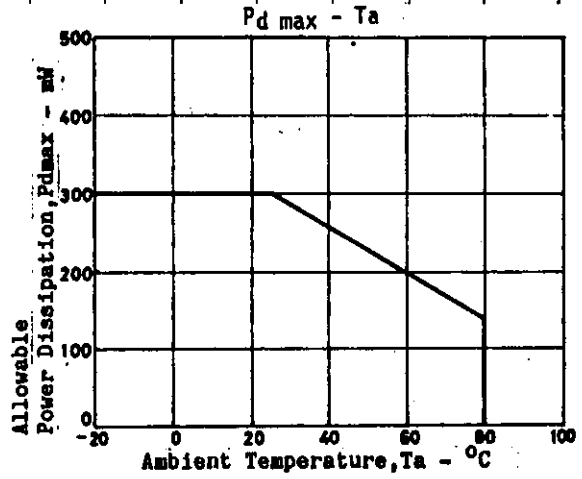
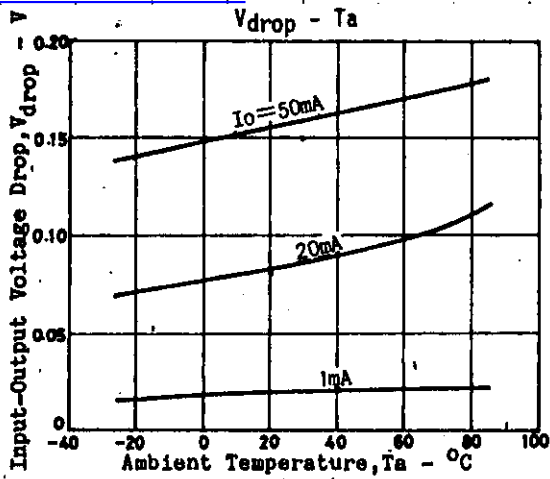
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