

<b>SANYO</b>	No.3245A	<b>LA5317M</b>
		Monolithic Linear IC Variable Divided Voltage Generator for LCD Use

**Overview**

The LA5317M is a variable divided voltage generator IC for multiple drive of LCD matrix.

**Features**

- Power supply for variable bias LCD drive (1/5 to 1/20 bias available by on-chip resistances)
- 5 OP amps to deliver 5 voltage outputs
- Low current dissipation (1.6mA typ)
- Miniflat package

**Maximum Ratings at Ta = 25°C**

Maximum Supply Voltage	V <sub>EE</sub> max	V <sub>CC</sub> -V <sub>EE</sub>	-38 to 0	V
Maximum Output Current	I <sub>OUT</sub> max	V <sub>1</sub> to V <sub>5</sub>	*±25	mA
Allowable Power Dissipation	P <sub>d</sub> max		800	mW
Operating Temperature	T <sub>opr</sub>		-20 to +75	°C
Storage Temperature	T <sub>stg</sub>		-30 to +125	°C

Note 1) Continuous operation (nonbreakdown) is guaranteed when operated at the maximum ratings shown above.

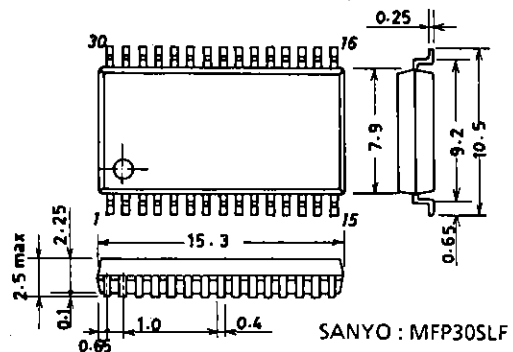
Note 2)\* The maximum output current is a value specified under the conditions otherwise specified separately.

**Operating Conditions at Ta = 25°C**

Supply Voltage	V <sub>EE</sub>	V <sub>CC</sub> -V <sub>EE</sub>	-35 to -10	V
Output Current	I <sub>OUT1</sub>	V <sub>1</sub>	-0.5 to +10	mA
	I <sub>OUT2,3</sub>	V <sub>2</sub> , V <sub>3</sub>	-10 to +10	mA
	I <sub>OUT4,5</sub>	V <sub>4</sub> , V <sub>5</sub>	-15 to +0.5	mA

Note 3) Set V<sub>CC</sub>, V<sub>EE</sub> so that |V<sub>1</sub>|, |V<sub>5</sub>-V<sub>4</sub>| become 1V or greater.

**Package Dimensions 3073A-M30IC**  
(unit: mm)

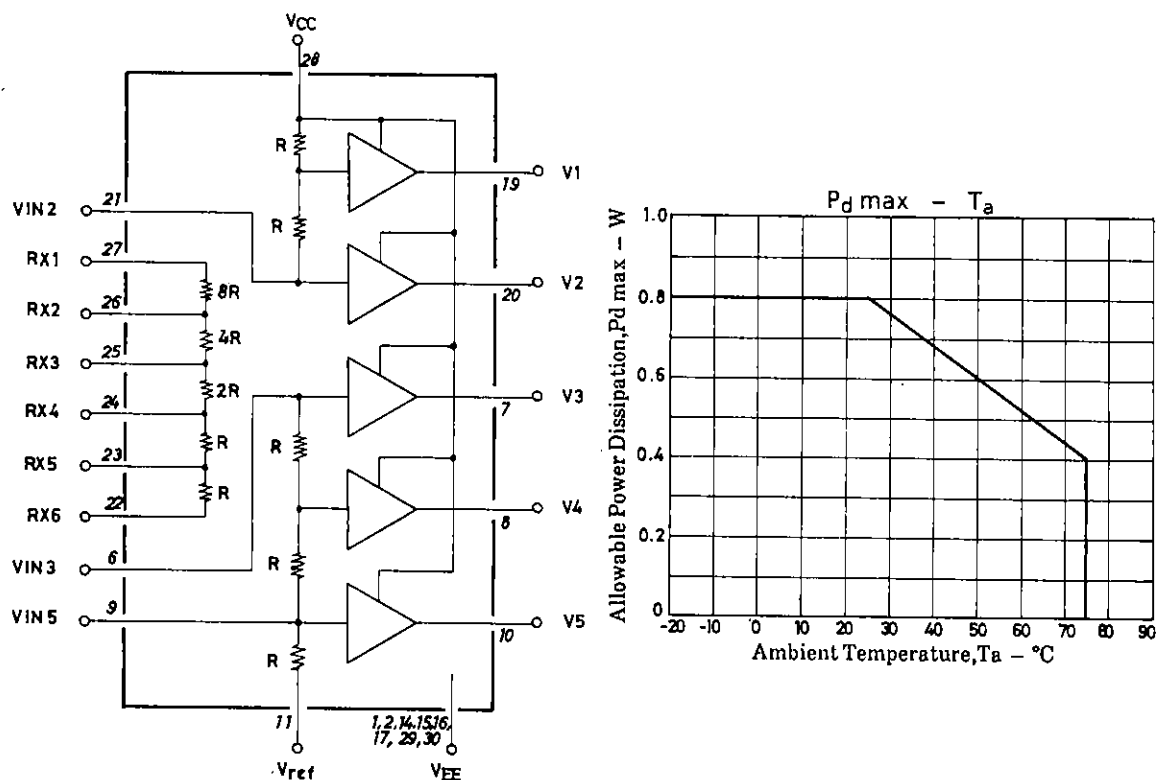


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Operating Characteristics at  $T_a = 25^\circ\text{C}$ ,  $V_{CC} - V_{EE} = 20\text{V}$ ,  $V_{REF} = V_{EE}$ ,  $R_X = 8R$

			min	typ	max	unit
Current Dissipation	$I_{CC}, I_{EE}$	$V_{CC}, V_{EE} : V_{CC} - V_{EE} = 20\text{V}$ , $R_X = 8R$		1.6	3	mA
Output Voltage Ratio	1	Ra1	$V_2/V_1$	1.96	2.00	2.04
	2	Ra2	$(V_5 - V_3)/(V_5 - V_4)$	1.96	2.00	2.04
	3	Rb1	$V_5/V_1$	11.64	12.00	12.36
	4	Rb2	$V_5/V_2$	5.82	6.00	6.18
	5	Rb3	$V_5/(V_5 - V_3)$	5.82	6.00	6.18
	6	Rb4	$V_5/(V_5 - V_4)$	11.64	12.00	12.36
Internal Resistance Ratio	1	8R	$R_{X1} - R_{X2}$		8	
	2	12R	$R_{X1} - R_{X3}$	Resistance ratio referenced to R across $R_{X5}$ and $R_{X6}$	12	
	3	14R	$R_{X1} - R_{X4}$		14	
	4	15R	$R_{X1} - R_{X5}$		15	
	5	16R	$R_{X1} - R_{X6}$		16	
Resistance	R	R value when 0.5V is applied across $R_{X5}$ and $R_{X6}$ .			20	
Load Regulation	1	$\Delta V_1$	$V_1 : -0.2\text{mA} < I_{OUT1} < +10.0\text{mA}$		$\pm 20$	mV
	2	$\Delta V_2$	$V_2 : -0.2\text{mA} < I_{OUT2} < +10.0\text{mA}$		$\pm 20$	mV
	3	$\Delta V_3$	$V_3 : -0.2\text{mA} < I_{OUT3} < +10.0\text{mA}$		$\pm 20$	mV
	-2	$-\Delta V_2$	$V_2 : -10.0\text{mA} < I_{OUT2} < +0.2\text{mA}$		$\pm 20$	mV
	-3	$-\Delta V_3$	$V_3 : -10.0\text{mA} < I_{OUT3} < +0.2\text{mA}$		$\pm 20$	mV
	-4	$-\Delta V_4$	$V_4 : -10.0\text{mA} < I_{OUT4} < +0.2\text{mA}$		$\pm 20$	mV
	-5	$-\Delta V_5$	$V_5 : -10.0\text{mA} < I_{OUT5} < +0.2\text{mA}$		$\pm 20$	mV

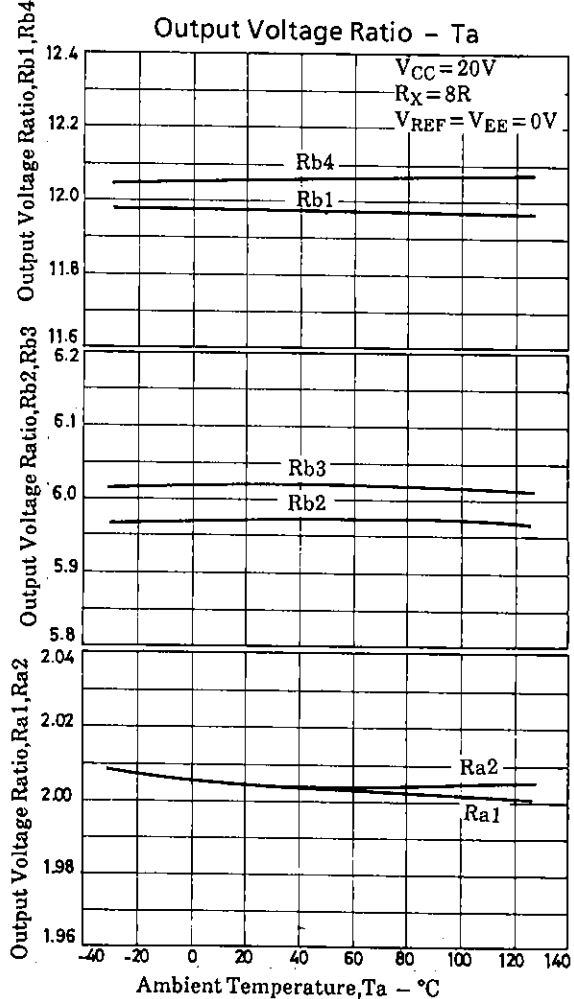
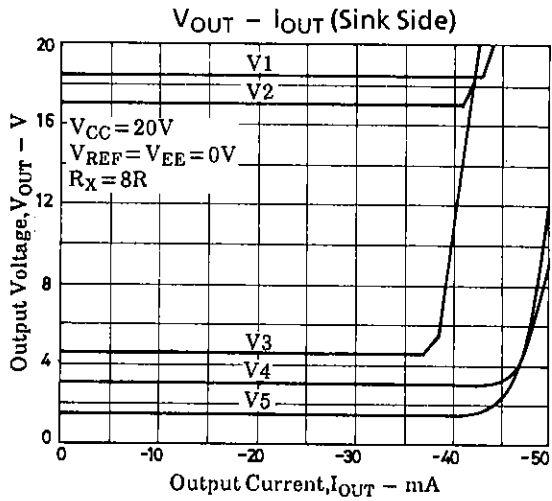
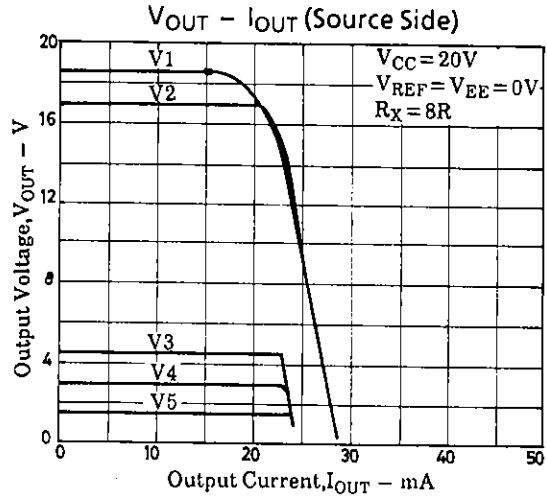
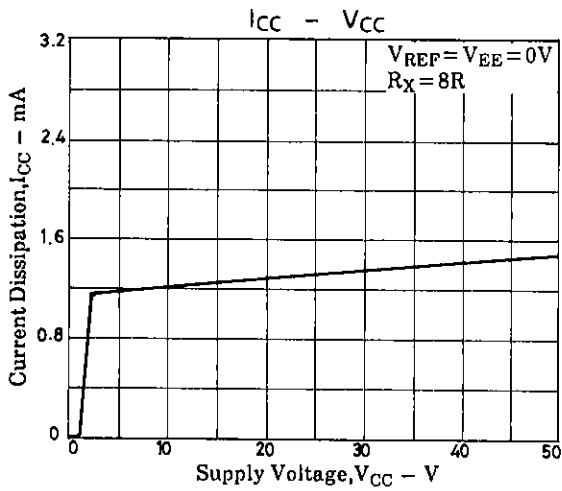
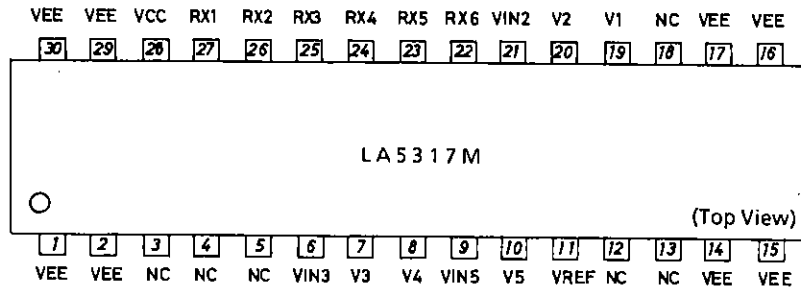
## Equivalent Circuit Block Diagram



Note : Use the IC so that  $V_{RX1} \geq V_{RX2} \geq V_{RX3} \geq V_{RX4} \geq V_{RX5} \geq V_{RX6}$  is obtained.

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## Pin Assignment



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