



LA5317M

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 operational amplifiers to deliver 5 voltage outputs.
- Low current drain (1.6mA typ).
- Miniflat package.

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{EE\ max}$	$V_{CC}-V_{EE}$	-38 to 0	V
Maximum output current	$I_{OUT\ max}$	V_1 to V_5	* ± 25	mA
Allowable power dissipation	$P_d\ max$		800	mW
Operating temperature	T_{opr}		-20 to +75	$^\circ\text{C}$
Storage temperature	T_{stg}		-30 to +125	$^\circ\text{C}$

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 $T_a = 25^\circ\text{C}$

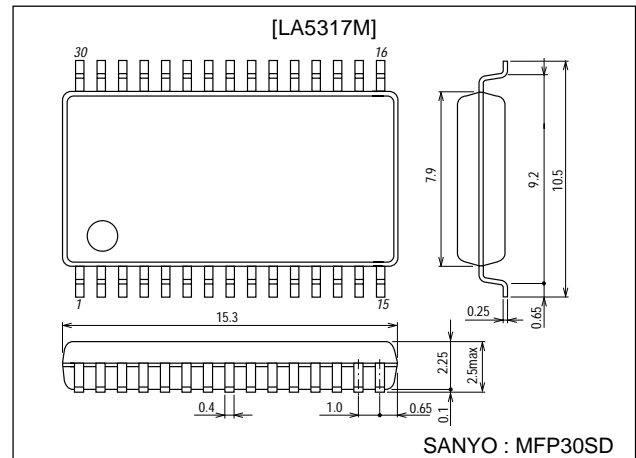
Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{EE}	$V_{CC}-V_{EE}$	-35 to -10	V
Output current	I_{OUT1}	V_1	-0.5 to +10	mA
	$I_{OUT2, 3}$	V_2, V_3	-10 to +10	mA
	$I_{OUT4, 5}$	V_4, V_5	-15 to +0.5	mA

Note 3) Set V_{CC}, V_{EE} so that $|V_1|, |V_5-V_4|$ become 1V or greater.

Package Dimensions

unit:mm

3073A-MFP30SD



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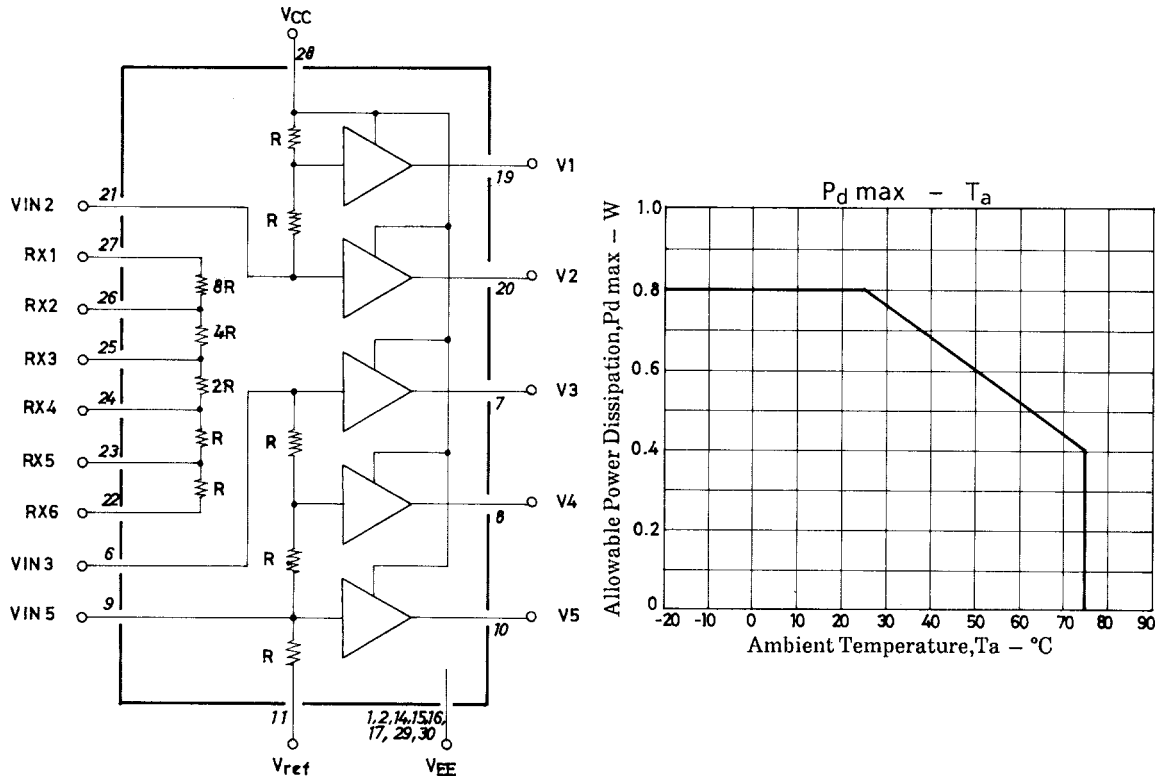
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Operating Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} - V_{EE} = 20\text{V}$, $V_{REF} = V_{EE}$, $R_X = 8R$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	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	
Output voltage ratio 2	Ra2	$(V_5 - V_3)/(V_5 - V_4)$	1.96	2.00	2.04	
Output voltage ratio 3	Rb1	V_5/V_1	11.64	12.00	12.36	
Output voltage ratio 4	Rb2	V_5/V_2	5.82	6.00	6.18	
Output voltage ratio 5	Rb3	$V_5/(V_5 - V_3)$	5.82	6.00	6.18	
Output voltage ratio 6	Rb4	$V_5/(V_5 - V_4)$	11.64	12.00	12.36	
Internal resistance ratio 1	8R	$R_{X1} - R_{X2}$, Resistance ratio referenced to R across R_{X5} and R_{X6}		8		
Internal resistance ratio 2	12R	$R_{X1} - R_{X3}$, Resistance ratio referenced to R across R_{X5} and R_{X6}		12		
Internal resistance ratio 3	14R	$R_{X1} - R_{X4}$, Resistance ratio referenced to R across R_{X5} and R_{X6}		14		
Internal resistance ratio 4	15R	$R_{X1} - R_{X5}$, Resistance ratio referenced to R across R_{X5} and R_{X6}		15		
Internal resistance ratio 5	16R	$R_{X1} - R_{X6}$, Resistance ratio referenced to R across R_{X5} and R_{X6}		16		
Resistance	R	R value when 0.5V is applied across R_{X5} and R_{X6}		20		k Ω
Load regulation 1	ΔV_1	$V_1 : -0.2\text{mA} < I_{OUT1} < +10.0\text{mA}$			± 20	mV
Load regulation 2	ΔV_2	$V_2 : -0.2\text{mA} < I_{OUT2} < +10.0\text{mA}$			± 20	mV
Load regulation 3	ΔV_3	$V_3 : -0.2\text{mA} < I_{OUT3} < +10.0\text{mA}$			± 20	mV
Load regulation -2	$-\Delta V_2$	$V_2 : -10.0\text{mA} < I_{OUT2} < +0.2\text{mA}$			± 20	mV
Load regulation -3	$-\Delta V_3$	$V_3 : -10.0\text{mA} < I_{OUT3} < +0.2\text{mA}$			± 20	mV
Load regulation -4	$-\Delta V_4$	$V_4 : -10.0\text{mA} < I_{OUT4} < +0.2\text{mA}$			± 20	mV
Load regulation -5	$-\Delta V_5$	$V_5 : -10.0\text{mA} < I_{OUT5} < +0.2\text{mA}$			± 20	mV

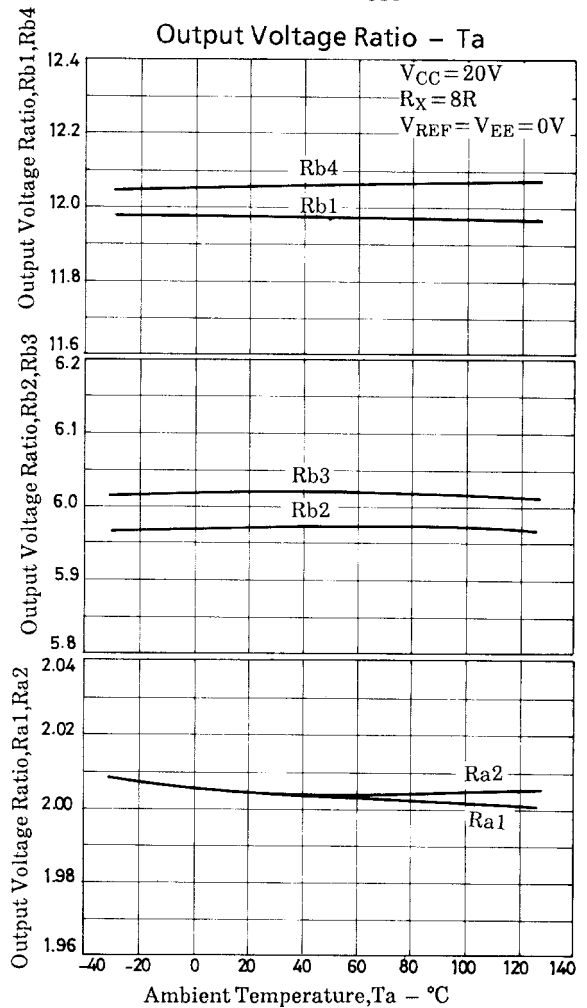
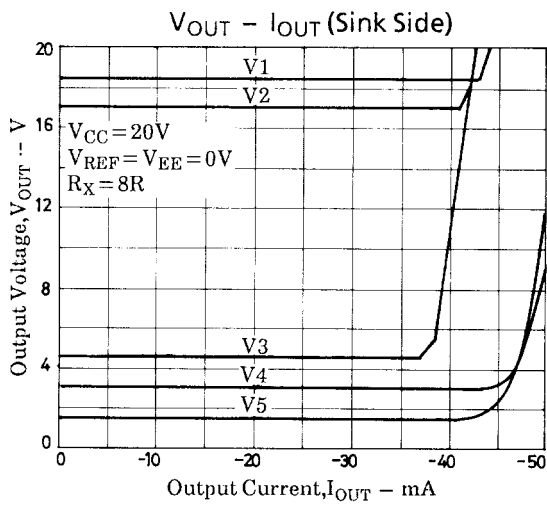
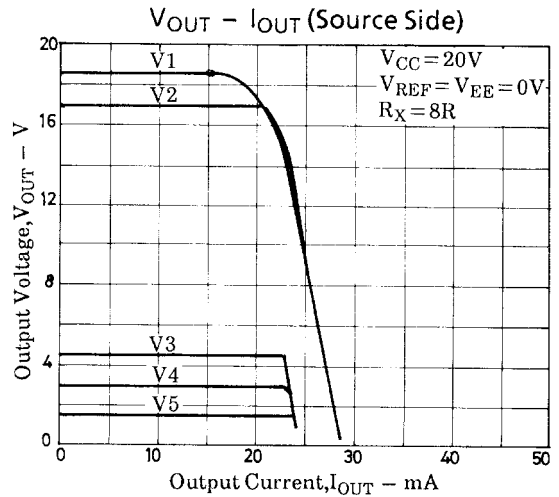
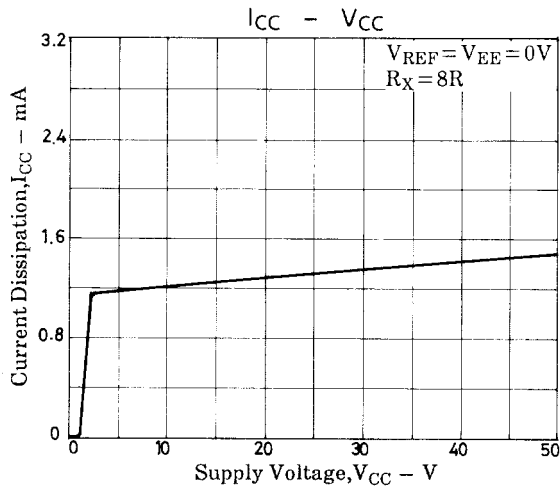
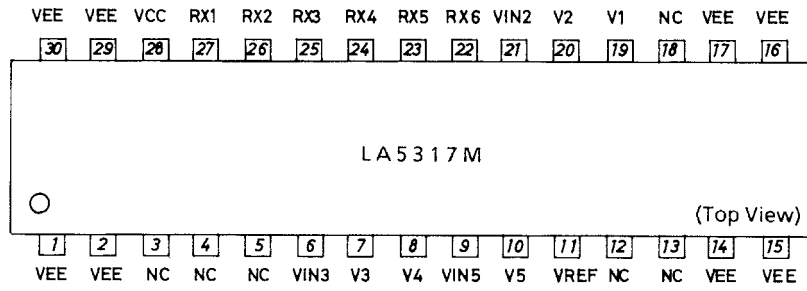
Equivalent Circuit Block Diagram



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 Assingment



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