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# LA5655

## Voltage Regulator for FLT Display Desk-Top Calculator

### Overview

The LA5655 is an IC containing all the voltage regulators required for an FLT display desk-top calculator with a printer.

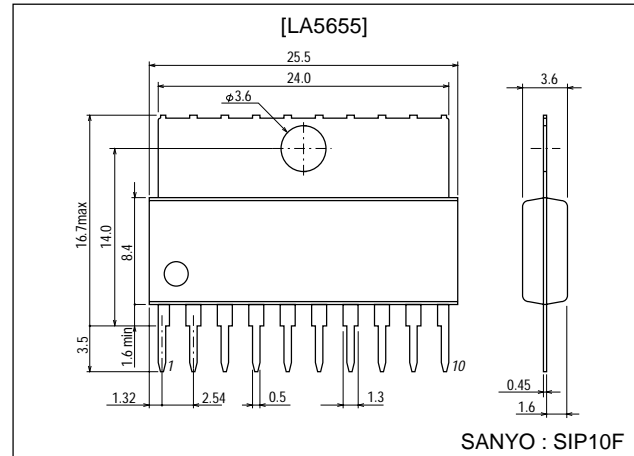
### Features and Functions

- a. On-chip voltage regulators required for desk-top calculator (FLT display) with a printer.
  1. Printer voltage regulator.
  2. IC voltage regulator.
  3. FLT anode, grid voltage regulator.
  4. FLT heater grid voltage regulator.
  5. FLT bias grid voltage regulator.
- b. On-chip printer motor brake circuit.

### Package Dimensions

unit:mm

3046B-SIP10F



### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Voltage regulator input voltage 1	$V_{IN1}$		50	V
Voltage regulator input voltage 2	$V_{IN2}$		25	V
Output current 1	$I_{OUT1}$		40	mA
Output current 2	$I_{OUT2}$		2.0	mA
Output current 3	$I_{OUTX}$	(X=3, 4, 5) other regulator	40	mA
Allowable power dissipation	$P_d \text{ max}$	IC alone	2.45	W
Operating temperature	$T_{opr}$		-20 to +75	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-40 to +125	$^\circ\text{C}$

Operating Conditions at  $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Voltage regulator input voltage range	$V_{IN1}$		20 to 50	V
MT pin H voltage	$V_{ENAH}$		2.0 to 7.0	V
MT pin L voltage	$V_{ENAL}$		-0.3 to +0.3	V

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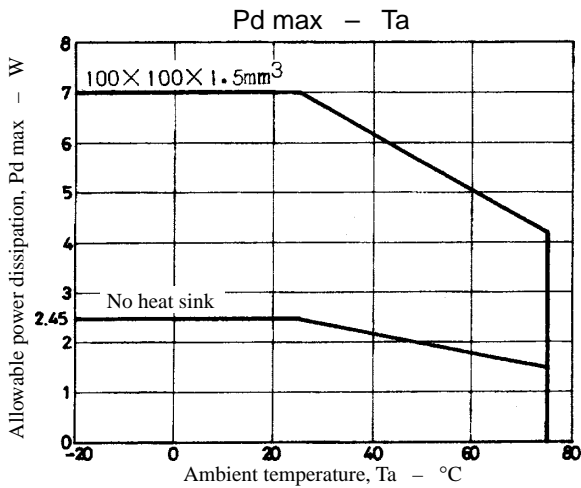
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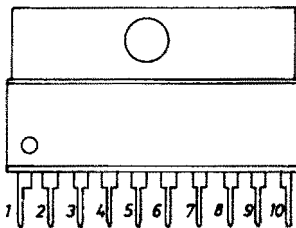
# LA5655

**Operating Characteristics** at  $T_a = 25^\circ\text{C}$ ,  $V_{IN1}=35\text{V}$ ,  $V_{IN2}=10\text{V}$ ,  $I_{OUT2}=200\text{mA}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output voltage 1	$V_{OUT1}$	① → ⑧ $I_{OUT1}=30\text{mA}$	28.5	30	32.5	V
Output voltage 2	$V_{OUT2}$	⑦ → ⑧	5.3	5.6	6.0	V
Output voltage 3	$V_{OUT3}$	① → ⑩ $I_{OUT3}=-12\text{mA}$	13.8	15	16.2	V
Output voltage 4	$V_{OUT4}$	③ → ④ $I_{OUT4}=-30\text{mA}$	4.6	5	5.4	V
Output voltage 5	$V_{OUT5}$	③ → ⑧ $I_{IN5}=30\text{mA}$	7.3	8	8.7	V
Load regulation 1	$\Delta V_{O1LOAD}$	$10\text{mA} < I_{OUT1} < 30\text{mA}$			250	mA
Load regulation 2	$\Delta V_{O2LOAD}$	$100\text{mA} < I_{OUT2} < 2\text{A}$			250	mA
Load regulation 3	$\Delta V_{O3LOAD}$	$-20\text{mA} < I_{OUT3} < -5\text{mA}$			100	mA
Load regulation 4	$\Delta V_{O4LOAD}$	$-40\text{mA} < I_{OUT4} < -10\text{mA}$			100	mA
Load regulation 5	$\Delta V_{O5LOAD}$	$20\text{mA} < I_{IN5} < 40\text{mA}$			200	mA
Line regulation 1	$\Delta V_{O1LINE}$	$33\text{V} < V_{IN1} < 45\text{V}$			250	mA
Line regulation 2	$\Delta V_{O2LINE}$	$7.5\text{V} < V_{IN2} < 20\text{V}$			100	mA
Line regulation 3	$\Delta V_{O3LINE}$	$33\text{V} < V_{IN1} < 45\text{V}$			100	mA
Line regulation 4	$\Delta V_{O4LINE}$	$6.5\text{V} < V_{IN5} < 8\text{V}$			100	mA
Quiescent current 1	$I_{CC1}$			6.5	9.0	mA
Quiescent current 2	$I_{CC2}$			8.5	12.0	mA
Input-output voltage drop	$V_{D1}$	$V_{OUT1}\Delta V_{O1}=10\%$ , $I_{OUT1}=35\text{mA}$			1.3	V
	$V_{D2-1}$	$V_{OUT2}\Delta V_{O2}=10\%$ , $I_{OUT2}=1\text{A}$			1.4	V
	$V_{D2-2}$	$V_{OUT2}\Delta V_{O2}=10\%$ , $I_{OUT2}=2\text{A}$			1.9	V
Saturation voltage at $V_{OUT2}$ off mode	$V_{O2\text{OFF(sat)}}$	$I_{OUT2}=-1\text{A}$			1.4	V

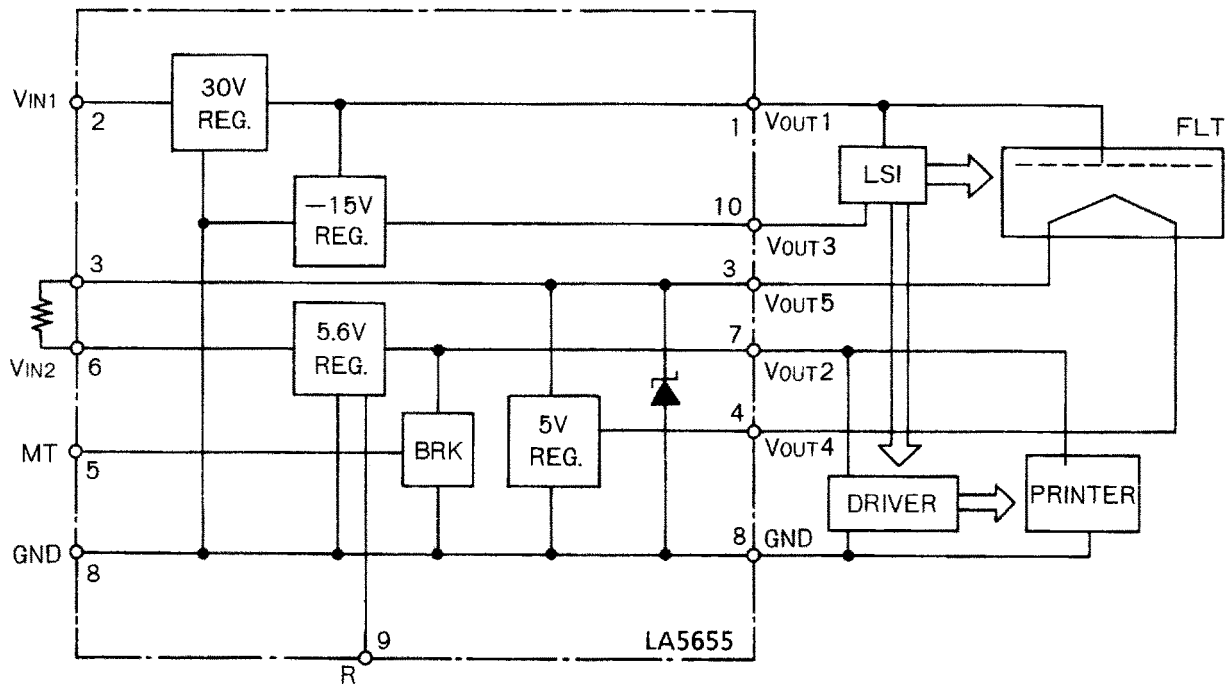


## Pin Assignment



Pin No.	Pin Name	Pin No.	Pin Name
1	$V_{OUT1}$	6	$V_{IN2}$
2	$V_{IN1}$	7	$V_{OUT2}$
3	$V_{OUT5}$	8	GND
4	$V_{OUT4}$	9	R
5	MT	10	$V_{OUT3}$

Block Diagram and Sample Application Circuit



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