

**LA5645M****Constant-Voltage/Constant-Current Control IC****Overview**

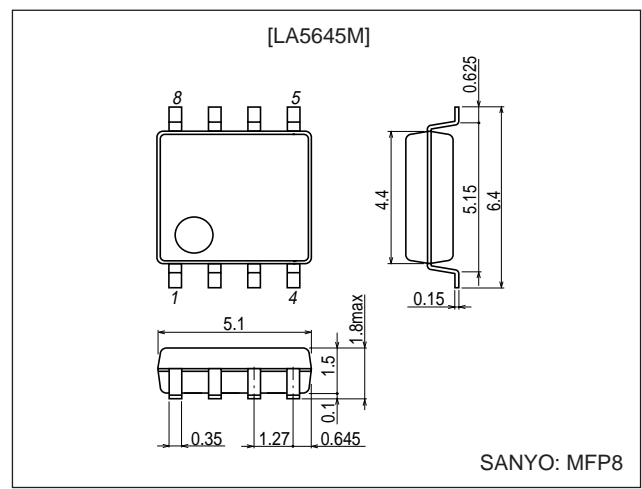
The LA5645M is a constant-voltage/constant-current control IC that incorporates low-voltage operational amplifiers and a high-precision reference voltage circuit ( $V_{REF} = 1.5 \text{ V} \pm 1.0\%$ ). This device is optimal for use as a secondary side controller in battery chargers, switching regulators, and similar products.

**Features**

- Operating supply voltage: 2.5 to 14 V
- High-precision reference voltage:  $1.5 \text{ V} \pm 1.0\%$
- PC pin current: 60 mA (max)
- Current drain: 3 mA (max)
- Input offset voltage: 2 mV (max)

**Package Dimensions**

unit: mm

**3032B-MFP8****Specifications****Maximum Ratings at  $T_a = 25^\circ\text{C}$** 

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	$V_{CC \text{ max}}$		14.5	V
Differential input voltage	$V_{ID \text{ max}}$		14.5	V
PC pin current	$I_{PC \text{ max}}$		60	mA
Allowable power dissipation	$P_d \text{ max}$	Independent IC	300	mW
		Mounted on the specified printed circuit board*	800	mW
Operating temperature	$T_{opr}$		-40 to +85	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-50 to +150	$^\circ\text{C}$

Note: \* Specified printed circuit board:  $76.1 \times 114.3 \times 1.6 \text{ mm}^3$ , glass epoxy board.

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

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	$V_{opr}$		2.5 to 14	V

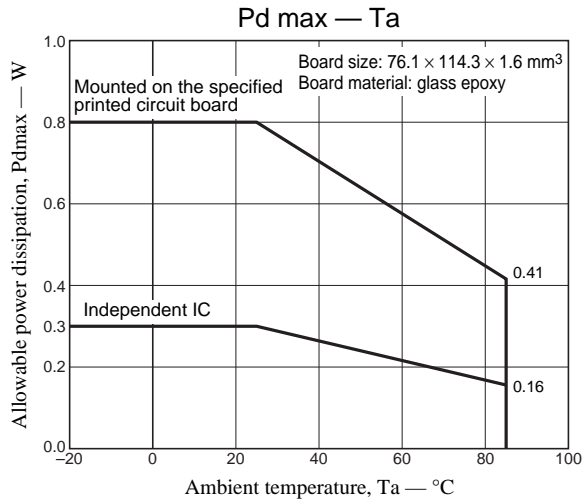
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# LA5645M

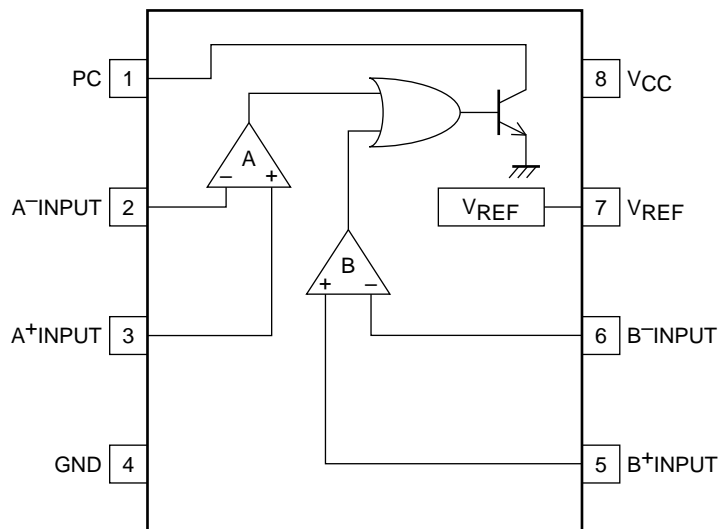


## Electrical Characteristics at Ta = 25°C, VCC = 5 V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	$I_{CC}$	$I_{PC} = \text{OFF}$		1	3	mA
Leakage current	$I_{PC \text{ LEAK}}$	$V_{CC} = V_{PC} = 14 \text{ V}$			100	$\mu\text{A}$
Saturation voltage	$V_{PC} (\text{sat})$	$I_{PC} = 50 \text{ mA}$		0.5	0.7	V
Reference voltage	$V_{REF}$	$I_{REF} = 0 \text{ mA}$	1485	1500	1515	mV
Reference voltage regulation	$\Delta V_{REF}/\Delta I_{REF}$	$I_{REF} = 0 \text{ to } 5 \text{ mA}$			30	mV
[Amplifier Block] (Characteristics common to both channels A and B)						
Input offset voltage	$V_{IO}$			0.5	2	mV
Input offset current	$I_{IO}$			5	50	nA
Input bias current	$I_B$			80	250	nA
Voltage gain	$A_V$	Open loop gain (design guarantee*)		80		dB
Common-mode input voltage range	$V_{ICM}$		0		$V_{CC} - 2$	V
Slew rate	SR	Design guarantee*		0.8		V/ $\mu\text{s}$
Gain-bandwidth product	GB	Design guarantee*		2		MHz

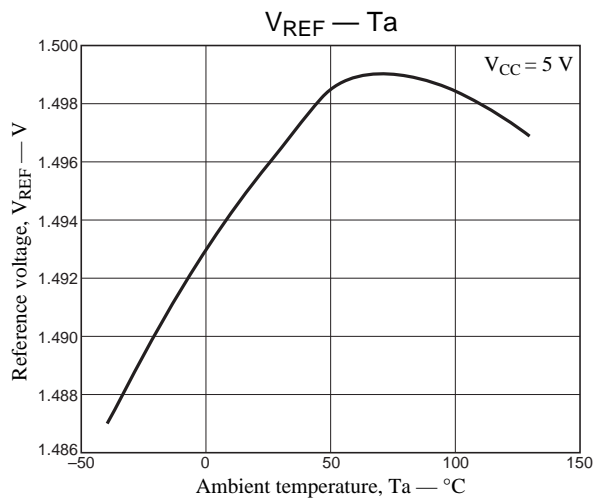
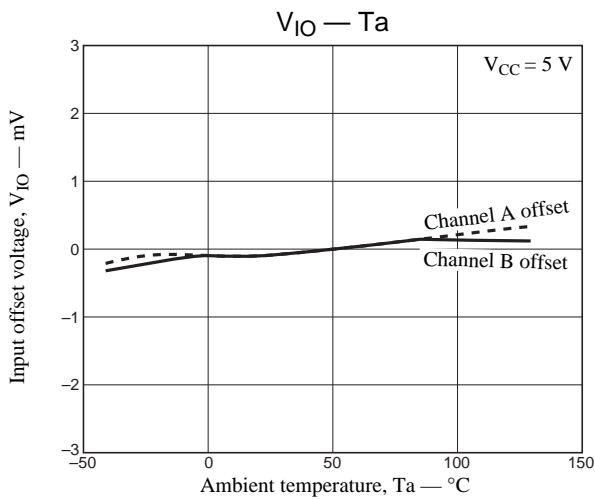
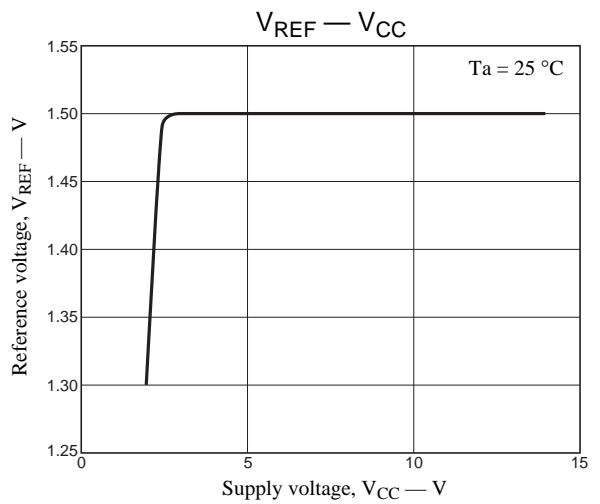
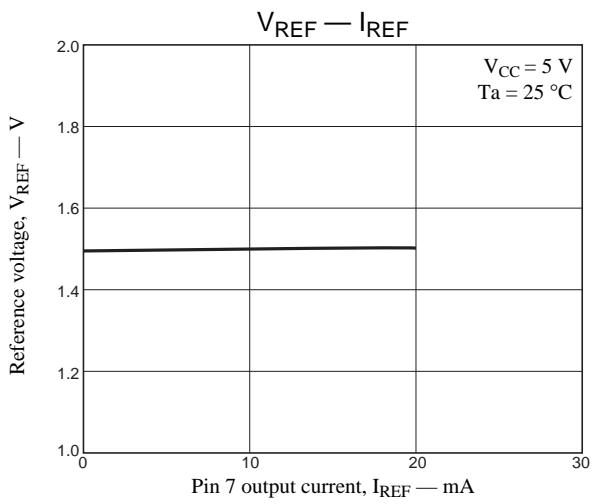
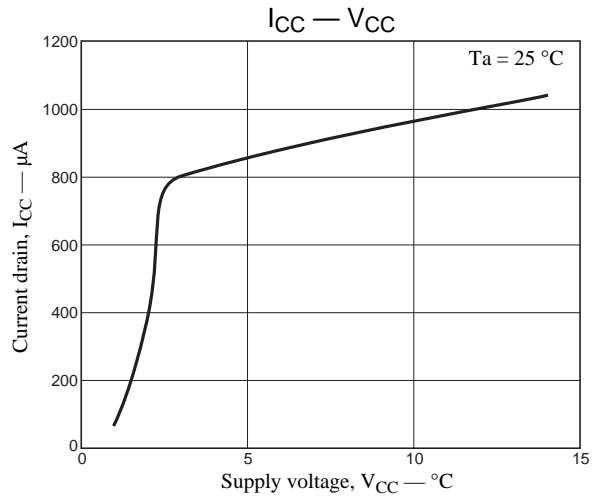
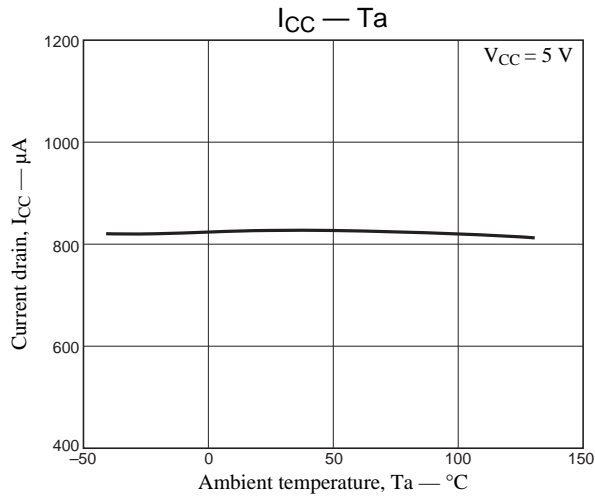
Note: \* Design guarantee value. These parameters are not measured.

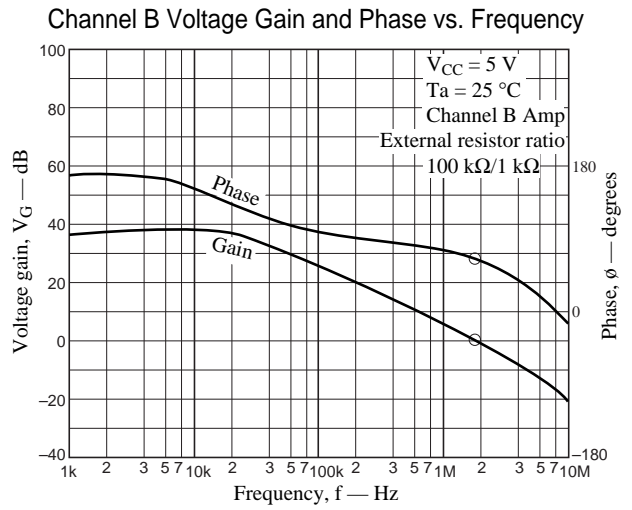
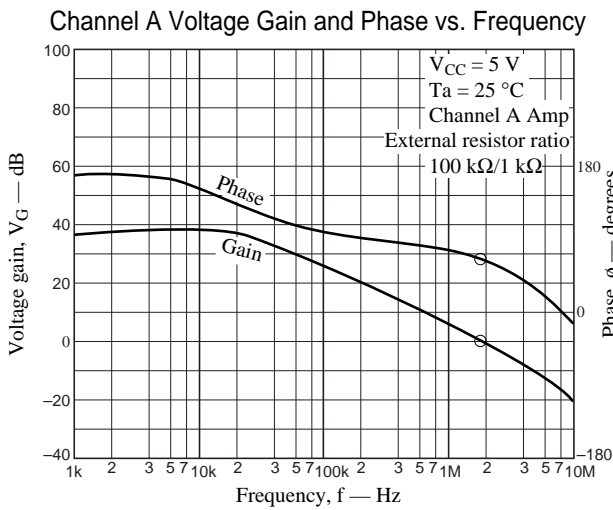
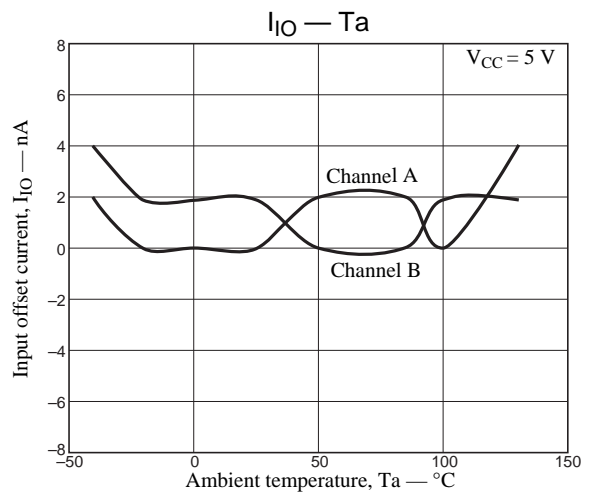
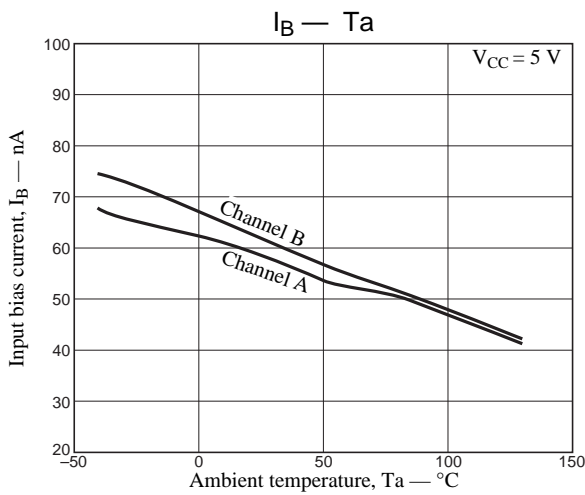
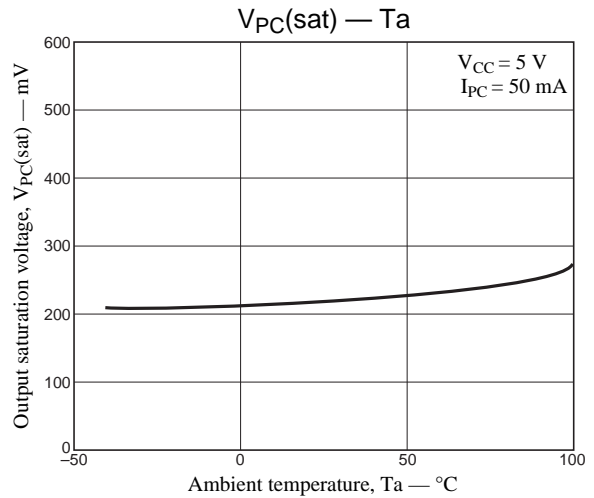
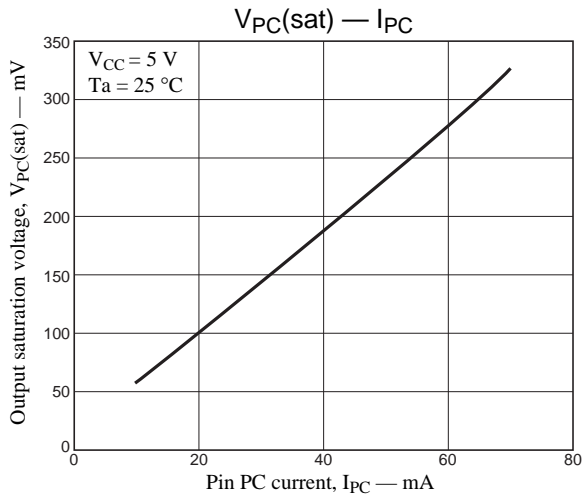
## Pin Assignment



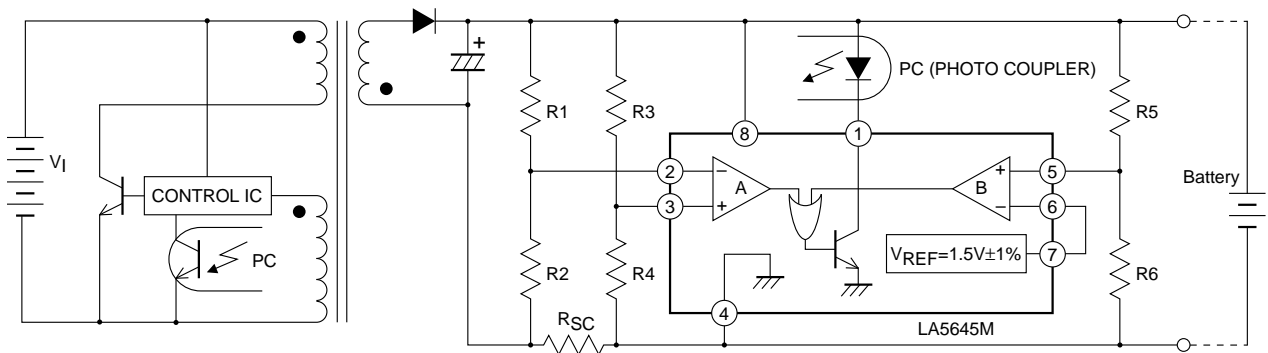
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LA5645M





## Sample Application Circuit



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