Ordering number : ENN6489

Monolithic Linear IC

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 V ±1.0%). This device is optimal for use as a secondary side controller in battery chargers, switching regulators, and similar products.

Features

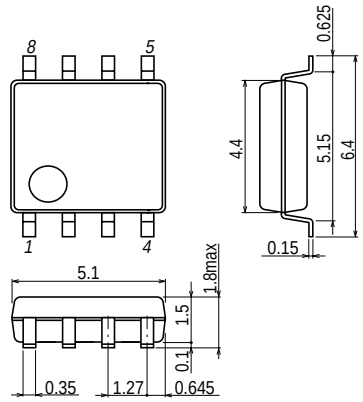
- Operating supply voltage: 2.5 to 14 V
- High-precision reference voltage: 1.5 V ±1.0%
- PC pin current: 60 mA (max)
- Current drain: 3 mA (max)
- Input offset voltage: 2 mV (max)

Package Dimensions

unit: mm

3032B-MFP8

[LA5645M]



SANYO: MFP8

Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC} max		14.5	V
Differential input voltage	V_{ID} max		14.5	V
PC pin current	I_{PC} max		60	mA
Allowable power dissipation	Pd max	Independent IC	300	mW
		Mounted on the specified printed circuit board*	800	mW
Operating temperature	Topr		–40 to +85	°C
Storage temperature	Tstg		–50 to +150	°C

Note: * Specified printed circuit board: 76.1 × 114.3 × 1.6 mm^3, glass epoxy board.

Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	Vopr		2.5 to 14	V

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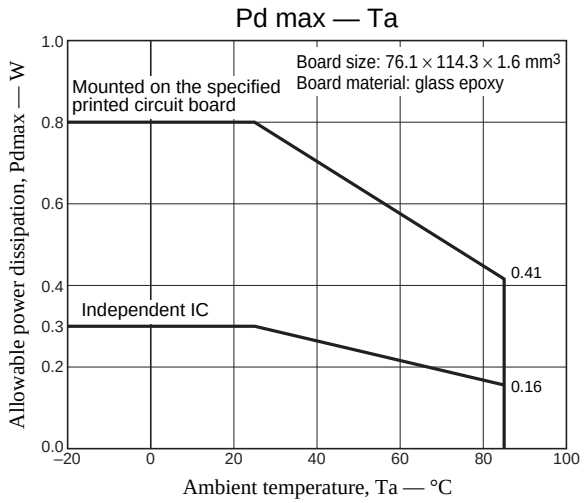
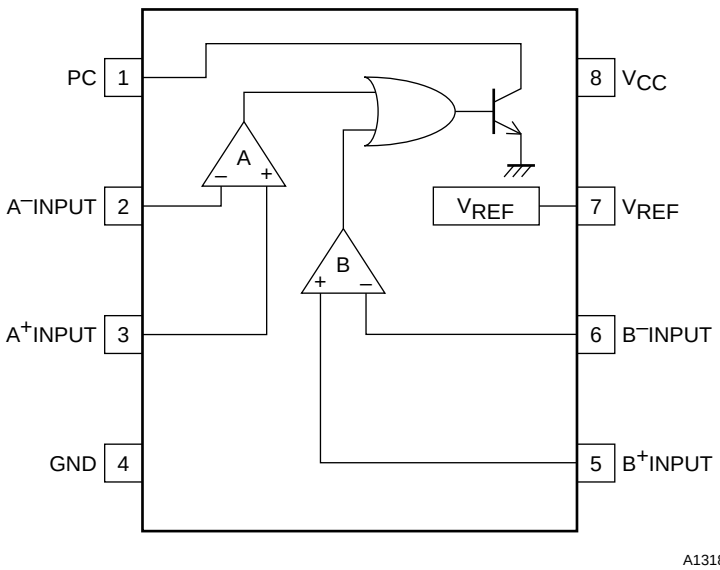


Electrical Characteristics at Ta = 25°C, V_{CC} = 5 V

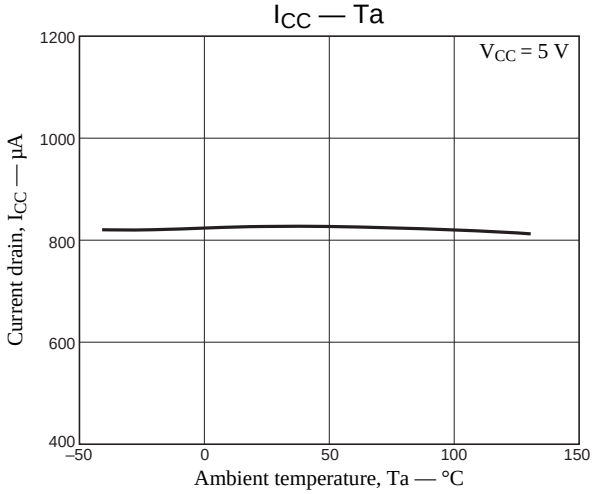
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	I_{CC}	I_{PC} = OFF		1	3	mA
Leakage current	I_{PC} LEAK	V_{CC} = V_{PC} = 14 V			100	µA
Saturation voltage	V_{PC} (sat)	I_{PC} = 50 mA		0.5	0.7	V
Reference voltage	V_{REF}	I_{REF} = 0 mA	1485	1500	1515	mV
Reference voltage regulation	$\Delta V_{REF}/\Delta I_{REF}$	I_{REF} = 0 to 5 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/µs
Gain-bandwidth product	GB	Design guarantee*		2		MHz

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

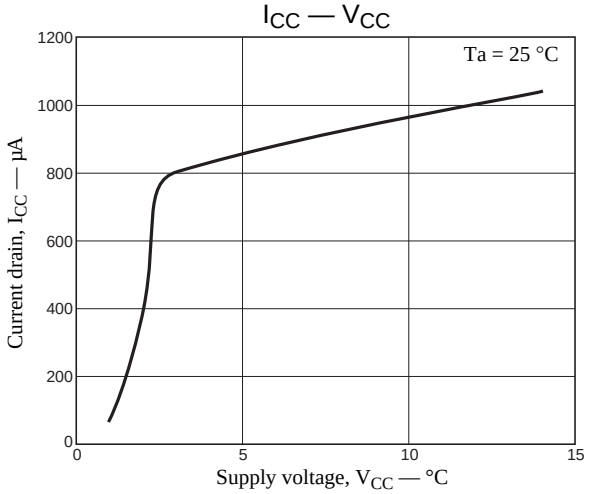
Pin Assignment



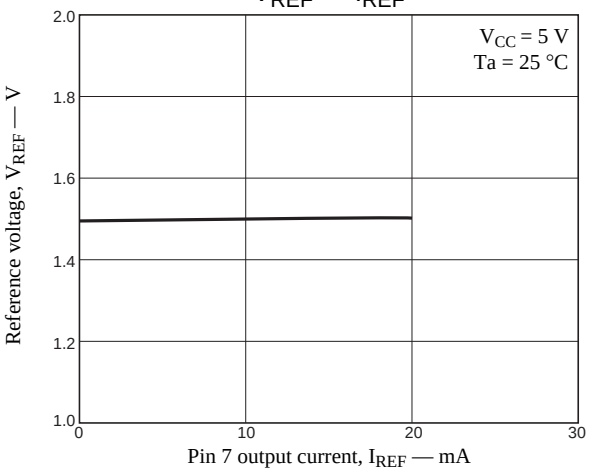
I_{CC} — Ta



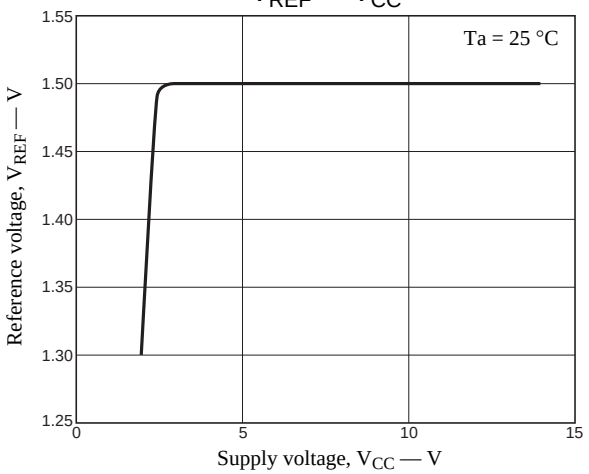
I_{CC} — V_{CC}



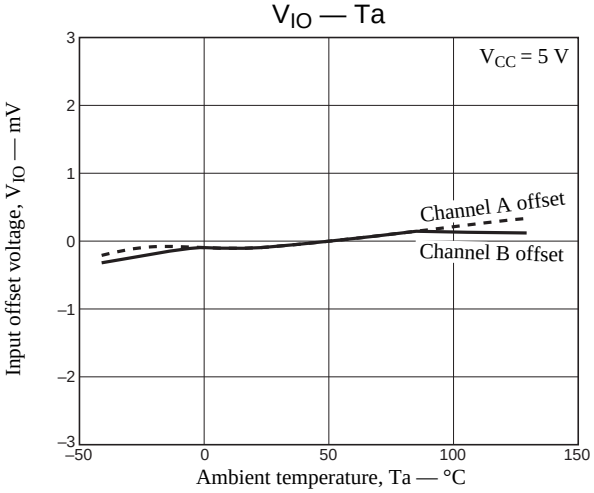
V_{REF} — I_{REF}



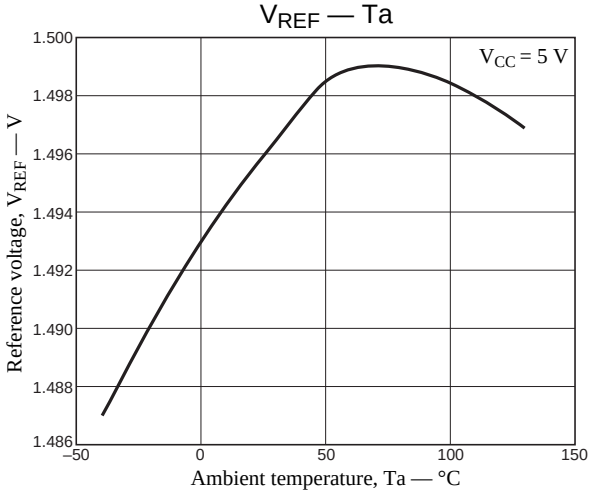
V_{REF} — V_{CC}



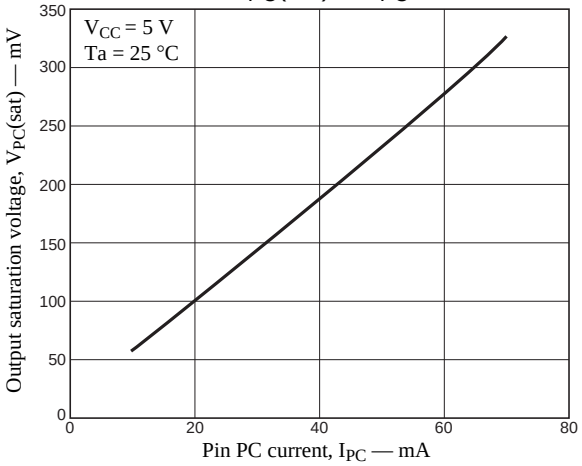
V_{IO} — Ta



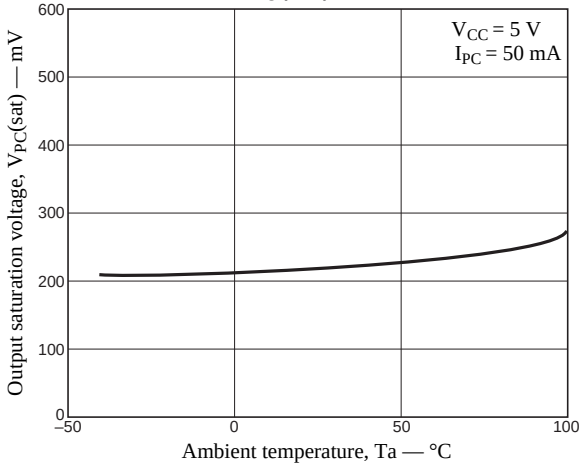
V_{REF} — Ta



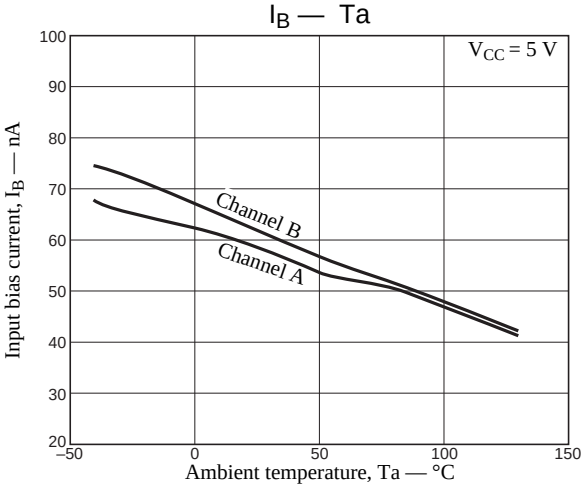
$V_{PC}(sat)$ — I_{PC}



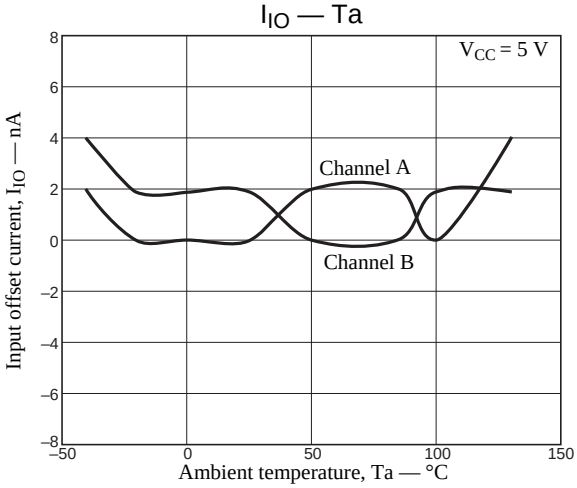
$V_{PC}(sat)$ — Ta



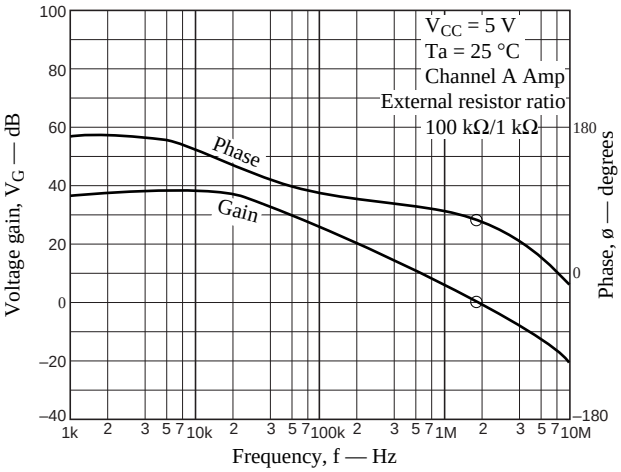
I_B — Ta



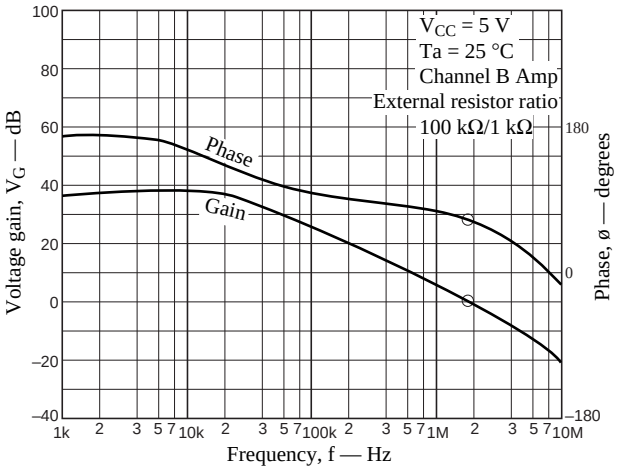
I_{IO} — Ta



Channel A Voltage Gain and Phase vs. Frequency



Channel B Voltage Gain and Phase vs. Frequency



Sample Application Circuit