



LB1636M

Low-Saturation Bidirectional Motor Driver for Low-Voltage Applications

Overview

The LB1636M is a low-saturation bidirectional motor driver IC for use in low-voltage applications. It is especially suited for use in small-sized low-voltage motors for printers, cassette tape recorders, and commercial equipment.

Features

- Low-voltage (2.5V min) operation, low current dissipation ($I_{CC} \leq 30\mu\text{A}$) at the standby mode.
- Low-saturation voltage (upper transistor + lower transistor residual voltage 1.2V max at 400mA).
- On-chip spark killer diodes.

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC \text{ max}}$		-0.3 to +7.0	V
Output supply voltage	V_{OUT}		-0.3 to $V_{CC} + V_F$	V
Input supply voltage	V_{IN}		-0.3 to +7.0	V
Allowable load resistance	$R_M \text{ min}$	Pulse width < 50ms, duty 10%	3	Ω
GND pin flow-out current	I_{GND}	Pulse width < 50ms, duty 10%	1	A
Allowable power dissipation	$P_d \text{ max}$		380	mW
Operating temperature	T_{opr}		-20 to +75	$^\circ\text{C}$
Storage temperature	T_{stg}		-40 to 125	$^\circ\text{C}$

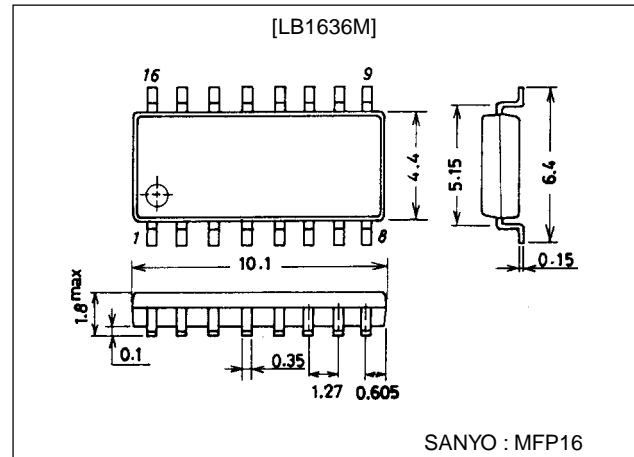
Allowable Operating Conditions at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC}		2.5 to 6.0	V
Input high-level voltage	V_{IH}		2.0 to 6.0	V
Input low-level voltage	V_{IL}		-0.3 to +0.7	V

Package Dimensions

unit:mm

3035A-MFP16



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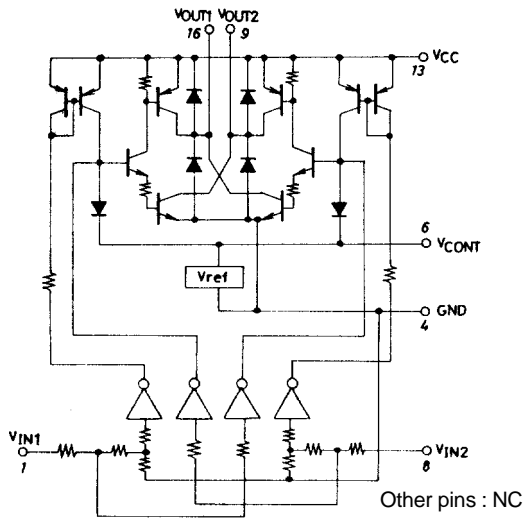
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LB1636M

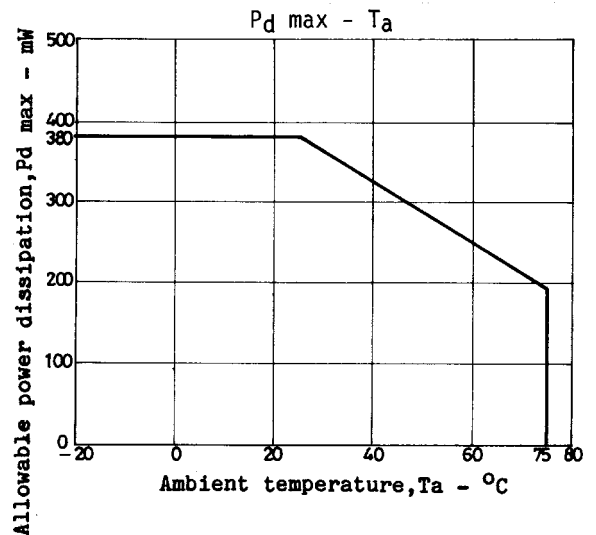
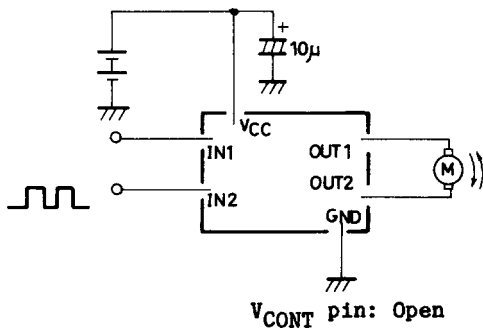
Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output saturation voltage (upper side +lower side)	V_{OUT1}	$V_{CC}=3\text{V}, V_{IN}=3\text{V}, I_{OUT}=200\text{mA}$			0.6	V
	V_{OUT2}	$V_{CC}=3.5\text{V}, V_{IN}=3\text{V}, I_{OUT}=400\text{mA}$			1.2	V
Output sustain voltage	$V_{O(sus)}$	$I_{OUT}=400\text{mA}$	9			V
Output leakage current	$I_{O(leak)}$	$V_{CC}=6\text{V}$			30	μA
Input current	I_{IN}	$V_{IN}=6\text{V}$			1.0	mA
[Spark killer diode]						
Reverse current	$I_{S(leak)}$	$V_{CC}=6\text{V}, V_{IN}=0\text{V}$			30	μA
Forward current	V_{SF}	$I_{OUT}=500\text{mA}$			1.7	V
Current dissipation	I_{CC}	$V_{CC}=3.5\text{V}, V_{IN}=3\text{V}, I_{OUT}=400\text{mA}$			430	mA

Equivalent Circuit



Sample Application Circuit



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