



No. 3986

Monolithic Digital IC

LB8620M

**Low-voltage, Low-saturation,
Dual-motor Driver**

OVERVIEW

The LB8620M is a low-voltage, low-saturation, dual-motor driver IC that incorporates four independently adjustable, constant-voltage outputs for forward and reverse motor drive, making it ideal for use in portable videos, cameras and radio cassette players.

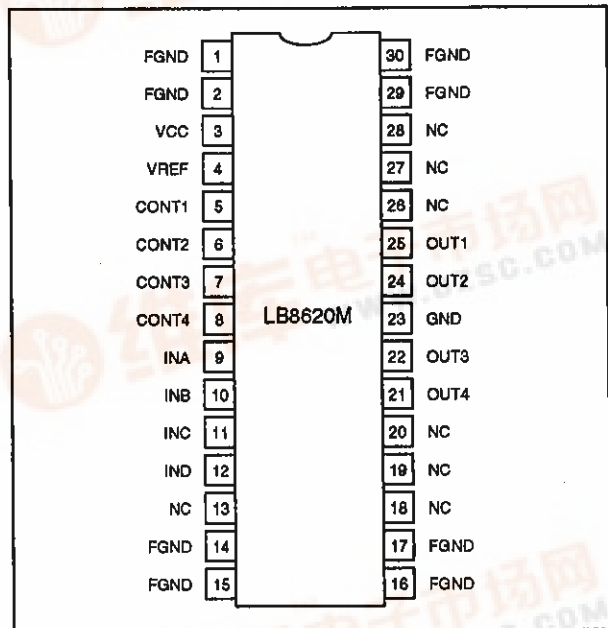
The LB8620M features 1 V (typ) output saturation voltage when $I_o = 1$ A and less than 1 μ A (typ) standby supply current.

The LB8620M operates from a 3.0 to 7.0 V (unregulated) or a 4.5 to 7.0 V (regulated) supply and is available in 30-pin MFPs.

FEATURES

- 1 V (typ) output saturation voltage when $I_o = 1$ A
- Less than 1 μ A (typ) standby supply current when motors are OFF.
- Four independently adjustable, constant-voltage outputs
- Motor braking
- On-chip spark suppression diodes
- 3.0 to 7.0 V (unregulated) or 4.5 to 7.0 V (regulated) supply
- 30-pin MFP

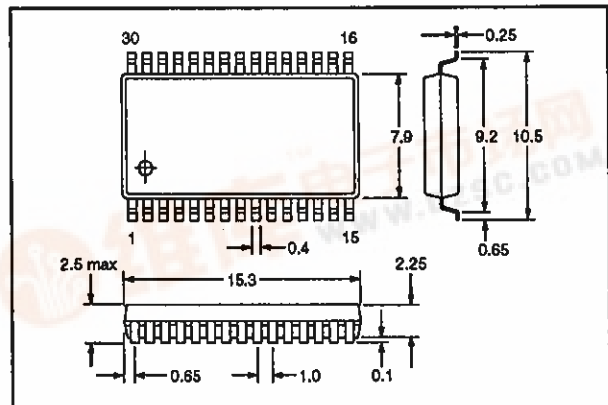
PINOUT



PACKAGE DIMENSIONS

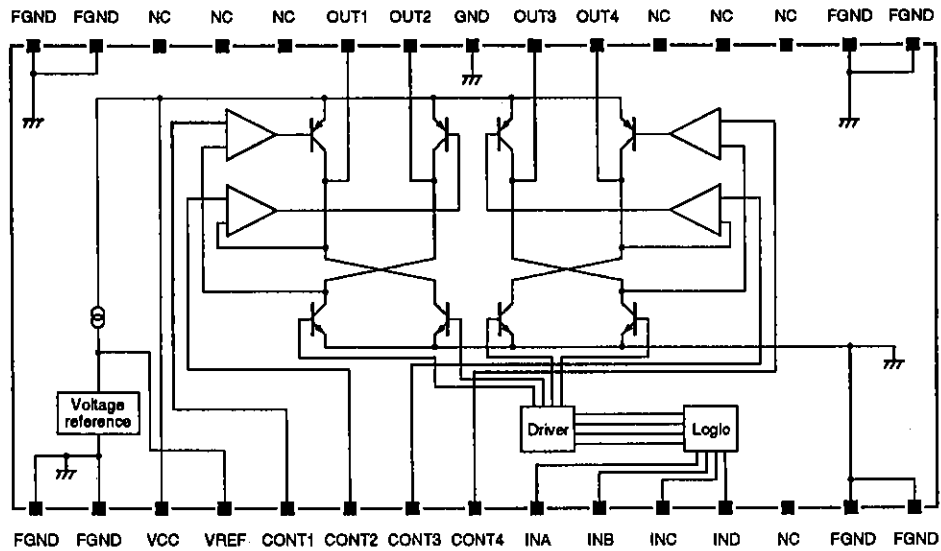
Unit: mm

3073A-MFP30S



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BLOCK DIAGRAM



PIN DESCRIPTION

Number	Name	Description
1, 2, 14 to 17, 29, 30	FGND	Frame ground
3	VCC	Voltage supply
4	VREF	Reference voltage output
5	CONT1	Constant-voltage adjustment inputs
6	CONT2	
7	CONT3	
8	CONT4	
9	INA	Motor forward, reverse and brake mode select inputs
10	INB	
11	INC	Motor constant-voltage and high-speed mode select input
12	IND	Motor 1 and motor 2 select input
13, 18 to 20, 26 to 28	NC	No connection
21	OUT4	Motor 2 control outputs
22	OUT3	
23	GND	Ground
24	OUT2	Motor 1 control outputs
25	OUT1	

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SPECIFICATIONS

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V _{CC}	6	V
Input voltage range	V _I	-0.3 to 8.0	V
Output current	I _O	1.5	A
Power dissipation	P _D	1	W
Operating temperature range	T _{opr}	-20 to 80	°C
Storage temperature range	T _{stg}	-40 to 125	°C

Recommended Operating Conditions

T_a = 25 °C

Parameter	Symbol	Rating	Unit
Supply voltage	V _{CC}	6	V
Supply voltage range	V _{CC}	4.5 to 7.0 (regulated)	V
		9.0 to 7.0 (unregulated)	

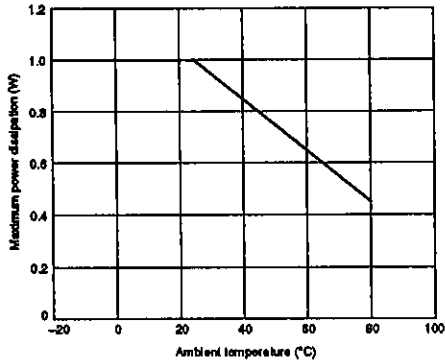
Electrical Characteristics

V_{CC} = 6 V, T_a = 25 °C unless otherwise noted

Parameter	Symbol	Condition	Rating			Unit
			min	typ	max	
Supply current	I _{CC}	Forward or reverse mode, OUT1 to OUT4 open	-	45	-	mA
		Brake mode, OUT1 to OUT4 open	-	75	-	
Quiescent supply current	I _{CCQ}	Standby mode	-	0.5	10.0	µA
LOW-level input voltage	V _{IL}		-0.3	-	0.3	V
HIGH-level input voltage	V _{IH}		2	-	7	V
Output saturation voltage	V _{sat}	I _O = 200 mA	-	0.2	0.3	V
		I _O = 500 mA	-	0.5	0.75	
		I _O = 1 A	-	1.0	1.5	
Output voltage vs. supply voltage characteristic	$(\frac{\Delta V_O}{V_O})/\Delta V_{CC}$	V _O = 4 V, V _{CC} = 4.5 to 7.0 V, I _O = 100 mA	-	0.5	-	%/V
Output voltage vs. supply current characteristic	$(\frac{\Delta V_O}{V_O})/\Delta I_{CC}$	V _O = 4 V, I _O = 30 to 500 mA	-	-0.005	-	%/mA

Typical Performance Characteristics

Maximum power dissipation vs. ambient temperature



FUNCTIONAL DESCRIPTION

Operating Mode Selection Table

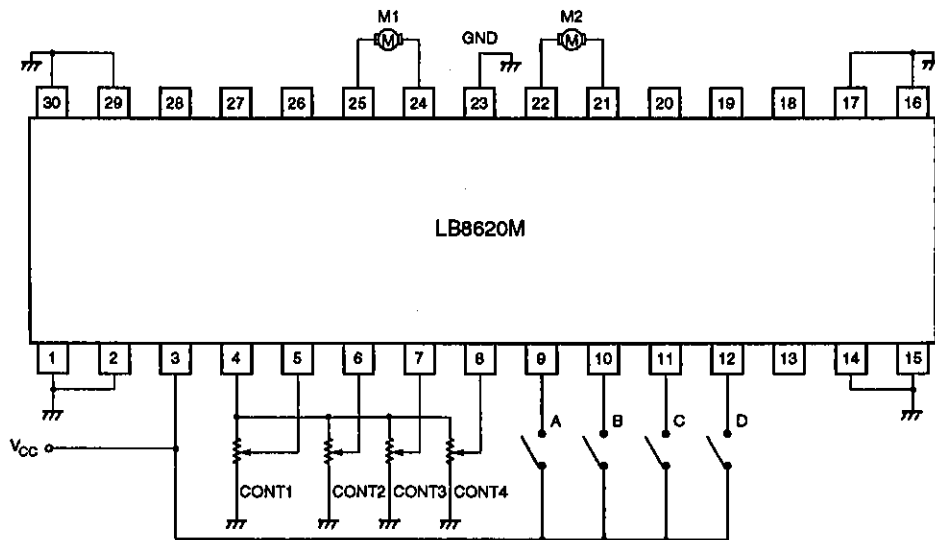
INA	INB	INC	IND	Operating mode
LOW	HIGH	LOW	LOW	M1 constant-voltage (CONT1), forward
LOW	HIGH	HIGH	LOW	M1 high-speed, forward
HIGH	LOW	LOW	LOW	M1 constant-voltage (CONT2), reverse
HIGH	LOW	HIGH	LOW	M1 high-speed, reverse
HIGH	HIGH	x	LOW	M1 brake
LOW	HIGH	LOW	HIGH	M2 constant-voltage (CONT3), forward
LOW	HIGH	HIGH	HIGH	M2 high-speed, forward
HIGH	LOW	LOW	HIGH	M2 constant-voltage (CONT4), reverse
HIGH	LOW	HIGH	HIGH	M2 high-speed, reverse
HIGH	HIGH	x	HIGH	M2 brake
LOW	LOW	x	LOW	OFF

Note

x = don't care

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TYPICAL APPLICATION



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