

# LB1930M

Continued from preceding page.

Parameter	Symbol	Conditions	Ratings	Unit
Allowable power dissipation	$P_d \text{ max}$	Mounted on a specified board *	800	mW
Operating temperature	$T_{opr}$		-30 to +85	°C
Storage temperature	$T_{stg}$		-55 to +150	°C

\* Specified board: 114.3mm × 76.1mm × 1.5mm, glass epoxy board.

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

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	$V_{CC}$		2.2 to 10.8	V
High-level input voltage	$V_{IH}$		2.0 to 10	V
Low-level input voltage	$V_{IL}$		-0.3 to +0.3	V

## Electrical Characteristics at $T_a = 25^\circ\text{C}$ , $V_{CC} = 3\text{V}$

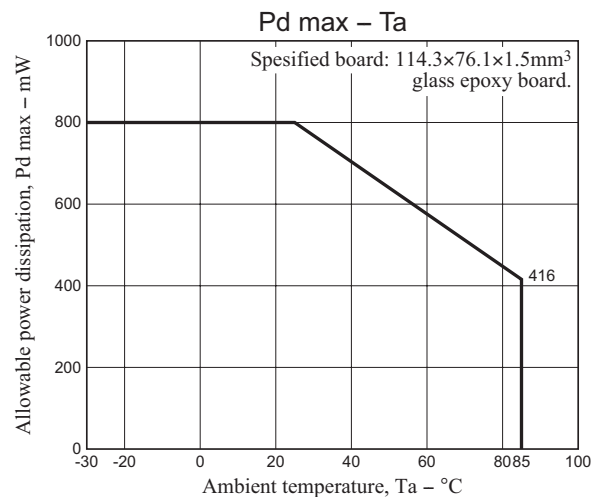
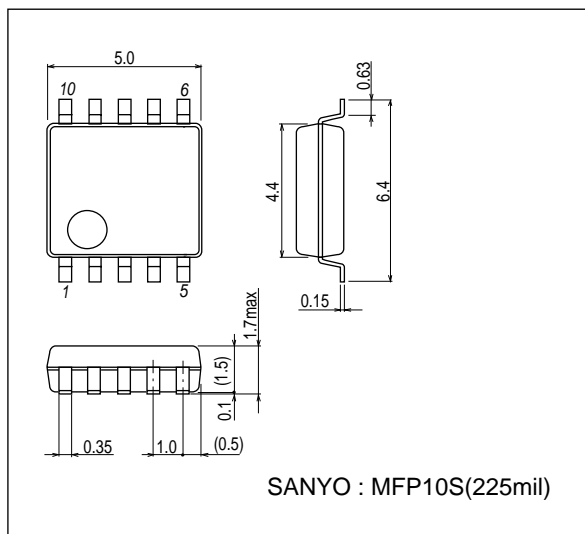
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	$I_{CC1}$	Standby mode		0.1	5	μA
	$I_{CC2}$	Forward or reverse drive operation		15	21	mA
	$I_{CC3}$	Braking		22	31	mA
Output saturation voltage	$V_{O(sat)1}$	Forward or reverse drive: High side + low side, $I_O = 200\text{mA}$		0.25	0.35	V
	$V_{O(sat)2}$	Forward or reverse drive: High side + low side, $I_O = 500\text{mA}$		0.55	0.75	V
	$V_{O(sat)3}$	Forward or reverse drive: High side only, $I_O = 200\text{mA}$		0.15	0.25	V
Input current	$I_{IN}$	$V_{IN} = 5\text{V}$		70	95	μA
Thermal detection operating temperature	THD	Design guarantee value*	150	180	200	°C
<b>Spark killer diode</b>						
Forward voltage	$V_{SF}$	$I_O = 200\text{mA}$		0.9	1.7	V
Reverse current	$I_{RS}$	$V_{OUT} = 10\text{V}$		0.1	5	μA

\* Design guarantee value, Do not measurement.

## Package Dimensions

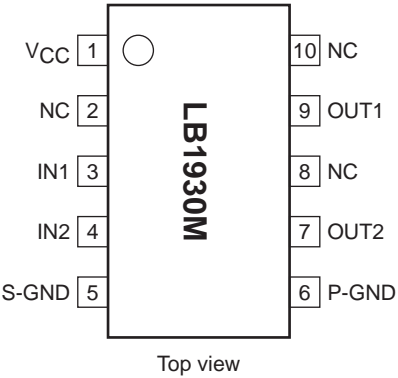
unit : mm (typ)

3086B

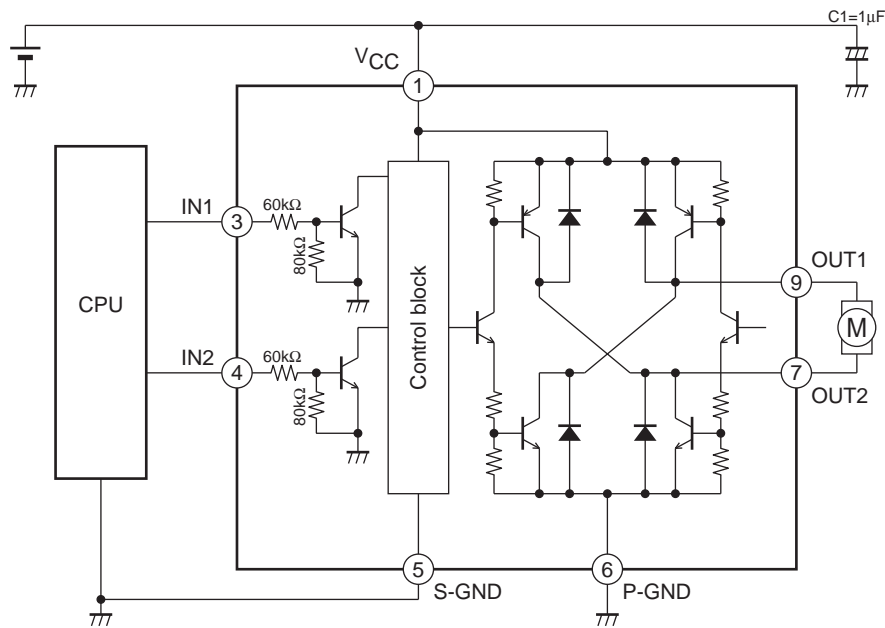


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## Pin Assignment

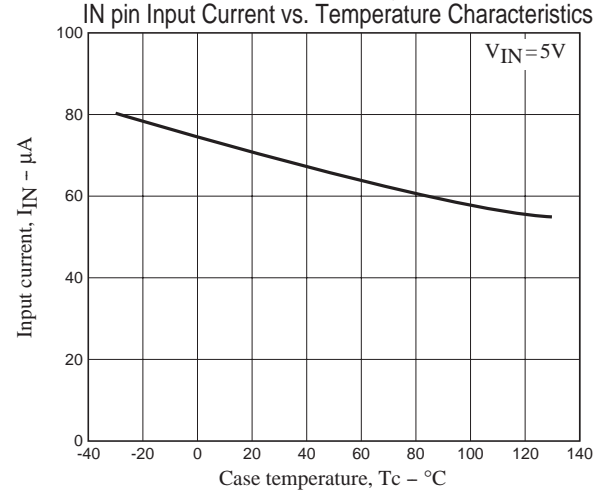
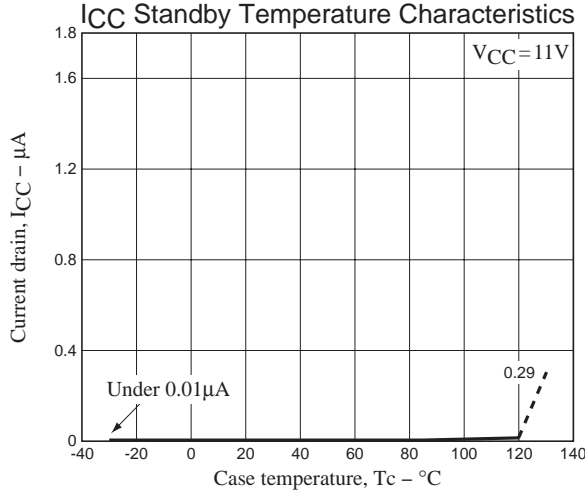
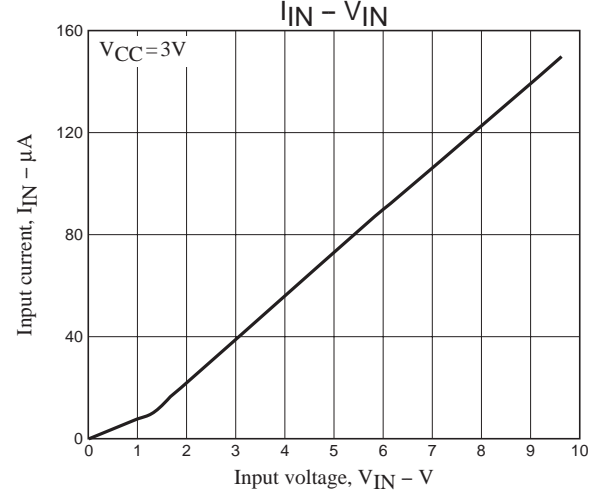
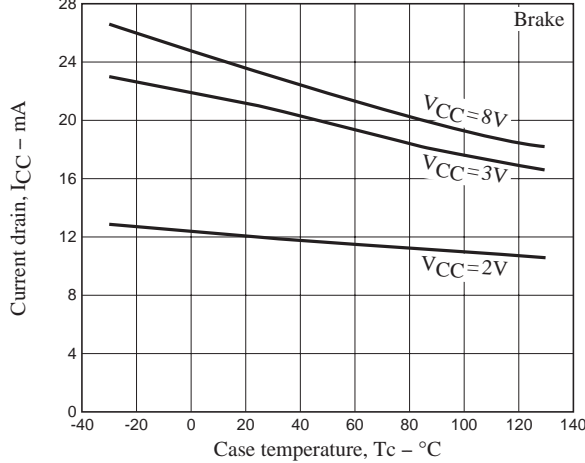
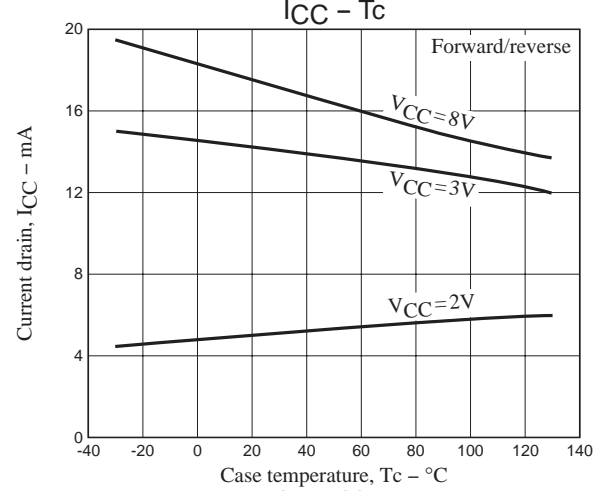
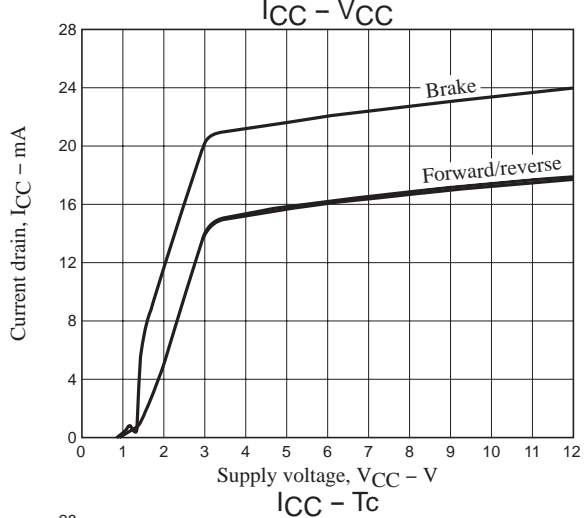
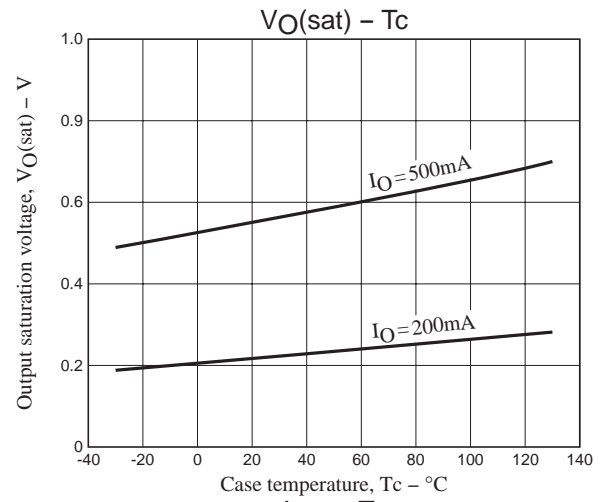
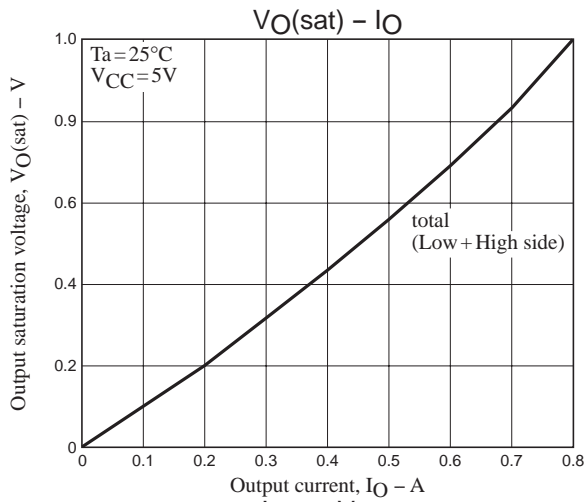


## Block Diagram and Application Circuit Example



## Truth Table

IN1	IN2	OUT1	OUT2	Mode
L	L	OFF	OFF	Standby
H	L	H	L	Forward
L	H	L	H	Reverse
H	H	H	H	Brake



## Usage Notes

Oscillation may occur in the  $V_{CC}$  and P-GND lines, since these lines carry a wide range of currents. The following may help if this is a problem.

- (1) Lower the inductance of the wiring by making lines wider and shorter.
- (2) Insert capacitors with good frequency characteristics close to the IC.
- (3) Consider adopting the following methods if the CPU and this IC are mounted on different printed circuit boards that could easily have different ground potentials.
  - Connect S-GND to the CPU ground and connect P-GND to the power system ground.
  - Insert resistors of about 10k $\Omega$  in series between the controller outputs and the inputs on this IC.

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