

Monolithic Digital IC

<b>SANYO</b>	No.863E	<b>LB8050</b>
	Intermittent Windshield Wiper Controller	

**Applications**

Intermittent window wiper, seat belt warning lamp, ajar door warning lamp, timer, Schmitt circuit

**Features**

- Performs all functions required for intermittent wipers.
- Any intermittent time settable
- Delayed wipe coupled with washer operation
- 1 to 2 wipes immediately after turning on intermittent switch
- Relay direct driving capability (500mA peak)
- Wide operating voltage range : 8.0 to 16.0V

**Absolute Maximum Ratings at Ta = 25°C**

			unit
Maximum Supply Voltage	V <sub>CC</sub> max	16	V
Maximum Output Voltage	V <sub>OUT</sub> max	18	V
Maximum Output Current	I <sub>O</sub> max1	Output : Darlington connection	See Fig.A.
	I <sub>O</sub> max2	Output : Not Darlington connection	See Fig.B.
Output Surge Current	I <sub>O</sub> surge	Pulse width : 5msec. or less, repeat cycle : 1sec. or more, V <sub>CC</sub> = 8 to 16V, Ta = -30 to +80°C	1000 mA
Allowable Power Dissipation	P <sub>d</sub> max	See Fig.C.	690 mW
Storage Temperature	T <sub>opr</sub>	-50 to +125	°C
Operating Temperature	T <sub>opg</sub>	-30 to +80	°C

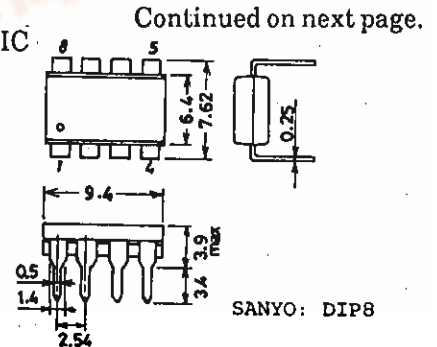
**Allowable Operating Range at Ta = 25°C**

		unit
Operating Voltage Range	V <sub>CC</sub>	12 ± 4 V

**Electrical Characteristics at Ta = 25°C, V<sub>CC</sub> = 16V**

unless otherwise specified			Test				
			Circuit	min	typ	max	unit
Output Current	I <sub>OH1</sub>	V <sub>IN</sub> = 5V, V <sub>WA</sub> = 2V, V <sub>WI</sub> = 0V, V <sub>OH</sub> = 16V	1			100	μA
	I <sub>OH2</sub>	V <sub>IN</sub> = 5V, V <sub>WA</sub> = 2V, V <sub>WI</sub> = 0V, V <sub>OH</sub> = 16V	1			100	μA
Output 'L'-Level	V <sub>OL1</sub>	V <sub>CC</sub> = 6.4V, I <sub>O1</sub> = 0.3A, I <sub>O2</sub> = 4mA, V <sub>WA</sub> = 0V, V <sub>WI</sub> = 0V	2			2.1	V
	V <sub>OL2</sub>	V <sub>CC</sub> = 6.4V, I <sub>O1</sub> = 0.3A, I <sub>O2</sub> = 4mA, V <sub>WA</sub> = 0V, V <sub>WI</sub> = 0V	2			1.6	V

**Package Dimensions 3001B-D8IC**  
(unit: mm)

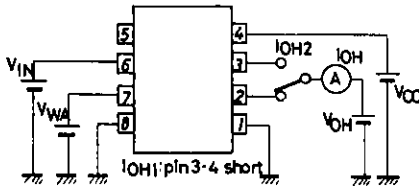


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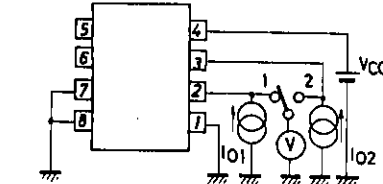
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			Test Circuit	min	typ	max	unit
Input 'H'-Level	$V_{IH1}$	$I_{WA} = 50\mu A, V_{WI} = 0V$	3	4.7		6.8	V
	$V_{IH2}$	$I_{IN} = -1mA, V_{WA} = V_{WI} = 0V$	4	13.2		15.4	V
	$V_{IH3}$	$I_{IN} = -1mA, V_{WI} = 2V, V_{WA} = 0V$	5	13.2		15.4	V
	$V_{IH4}$	$I_{IN} = -1mA, V_{WA} = V_{WI} = 2V$	6	5.6		8.6	V
Input Current	$I_{IH1}$	$V_{IN} = 7V, V_{WA} = 2V, V_{WI} = 0V$	7			20	$\mu A$
	$I_{IH2}$	$V_{CC} = 6.4V, V_{IN} = 2.2V, V_{WI} = 0V$	8			2	$\mu A$
	$I_{WA}$	$V_{WA} = 10V$	9	5		10	mA
	$I_{WI}$	$V_{WI} = 10V$	10	5		10	mA
Supply Current	$I_{CC1 ON}$	$V_{WA} = V_{WI} = 0V$	11	5		13	mA
	$I_{CC2 OFF}$	$V_{WA} = V_{WI} = 2V$	12	4		9	mA
	$I_{CC3 OFF}$	$V_{WA} = 2V, V_{WI} = 0V$	13	4		8.5	mA

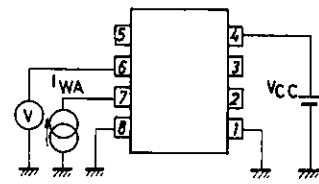
## Test Circuits



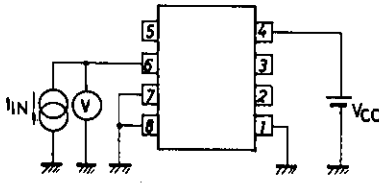
Test Circuit 1 :  $I_{OH1}, I_{OH2}$



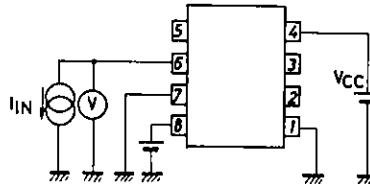
Test Circuit 2 :  $V_{OL1}, V_{OL2}, SW_1, SW_2$



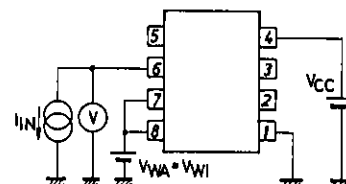
Test Circuit 3 :  $V_{IH1}$



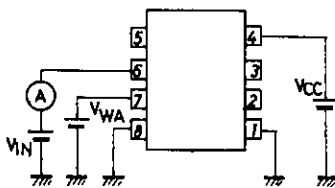
Test Circuit 4 :  $V_{IH2}$



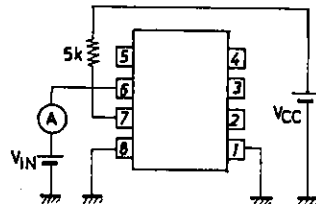
Test Circuit 5 :  $V_{IH3}$



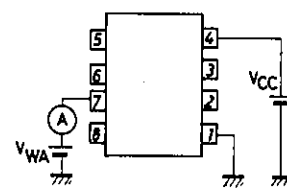
Test Circuit 6 :  $V_{IH4}$



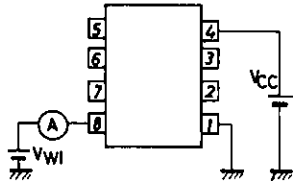
Test Circuit 7 :  $I_{IH1}$



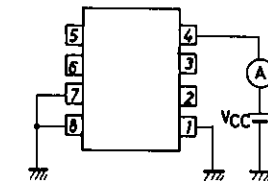
Test Circuit 8 :  $I_{IH2}$



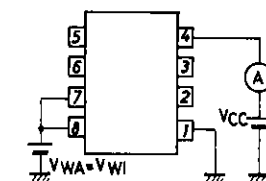
Test Circuit 9 :  $I_{WA}$



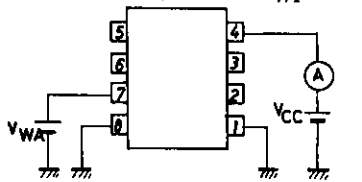
Test Circuit 10 :  $I_{WI}$



Test Circuit 11 :  $I_{CC1 ON}$



Test Circuit 12 :  $I_{CC2 OFF}$



Test Circuit 13 :  $I_{CC3 OFF}$

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Fig.A

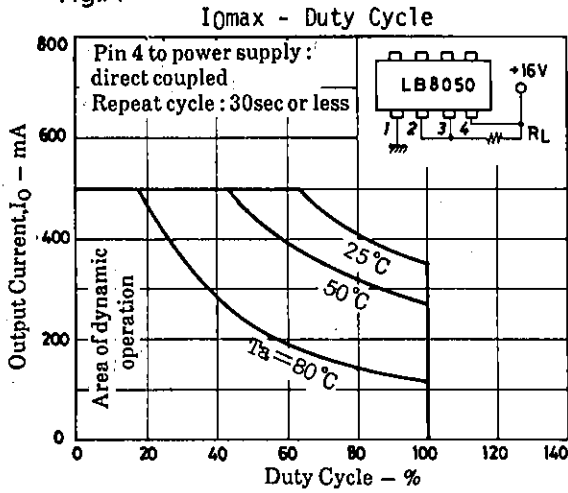


Fig.B

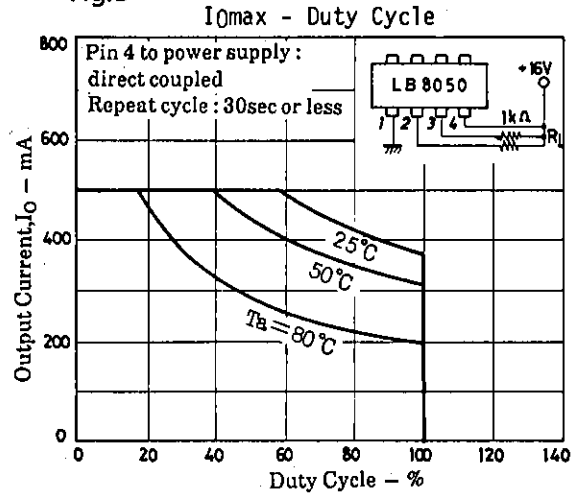
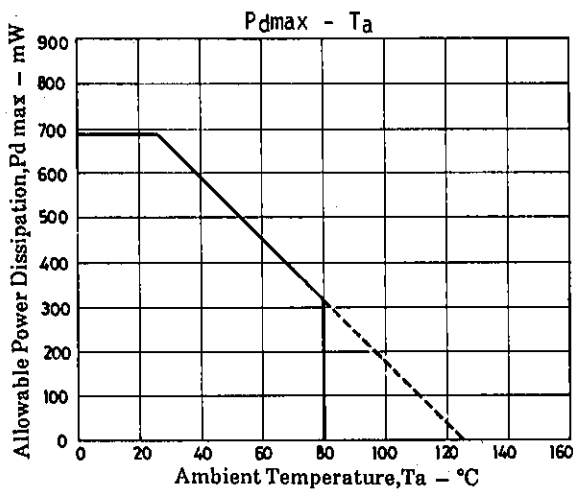
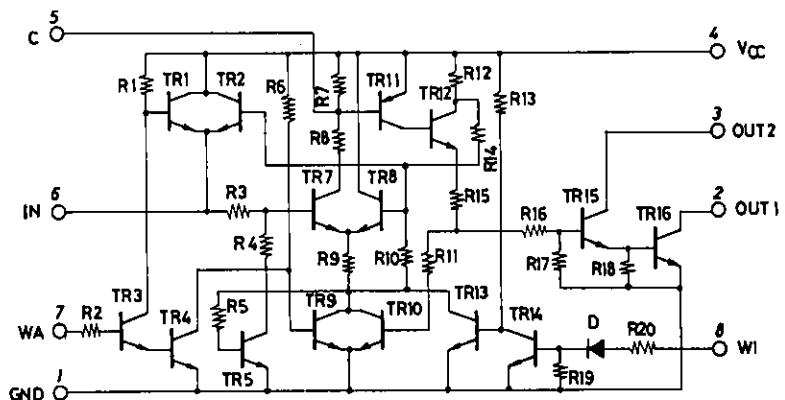
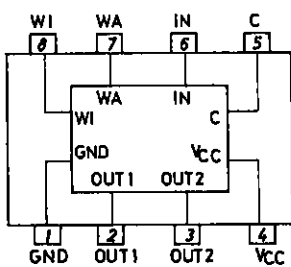


Fig.C

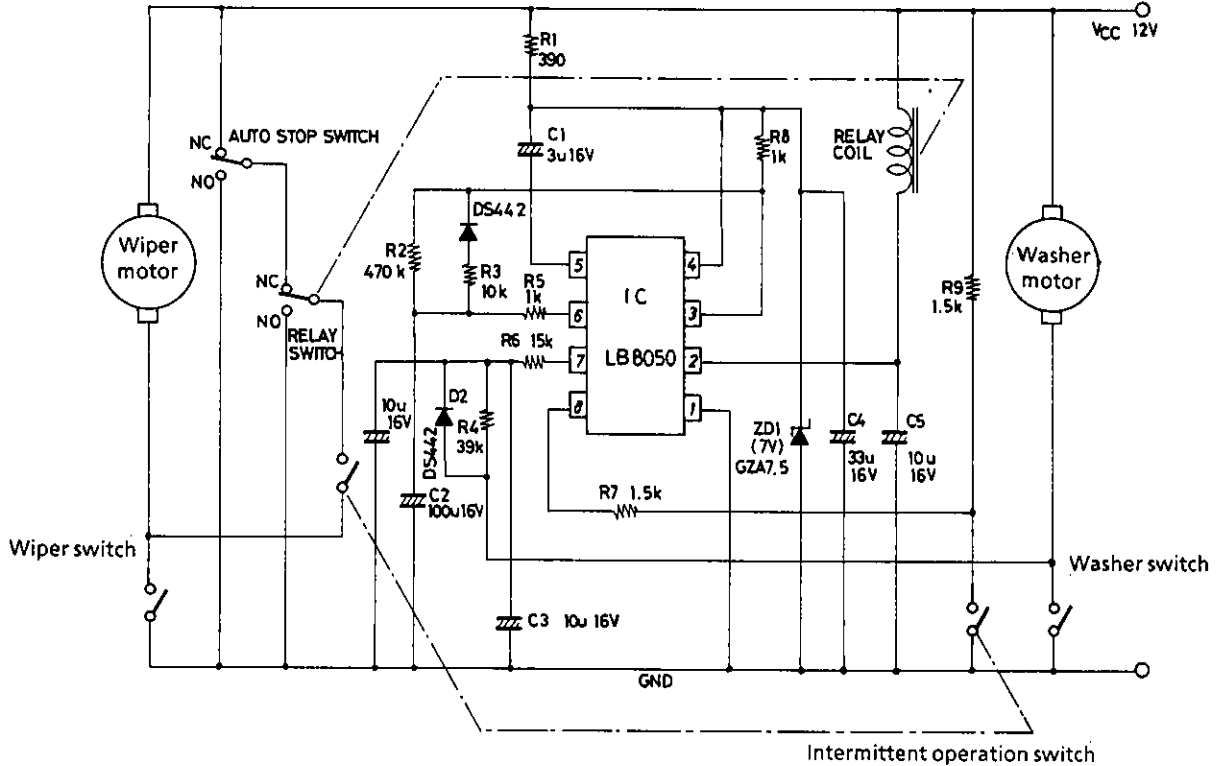


## Equivalent Circuit and Block Diagram



## LB8050

### Sample Application Circuit : Asynchronous intermittent wiper control



Unit (resistance:  $\Omega$ , capacitance: F)

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