

**LB1408****Level Meter**

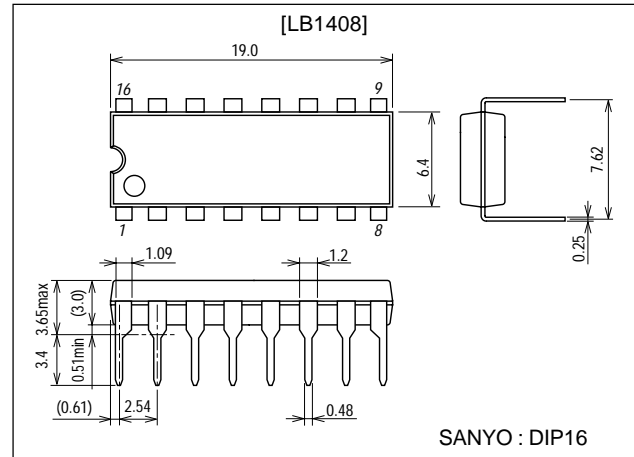
## Features

- An input amplifier is built in.
- Minimum number of external parts required.
- Low current dissipation because of series connection of LED's.

## Package Dimensions

unit:mm

3006C-DIP16



## Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC}$ max	(Pin 3)	-0.3 to +18.0	V
Maximum input voltage	$V_{IN}$ max	(Pin 2)	-0.3 to $V_{CC}$	V
D pin output current	$I_D$ max	Output transistor ON	0 to +30	mA
D pin output voltage	$V_D$ max		-0.3 to $V_{CC}$	V
Reference flow-out current	$I_{ref}$ max	(Pin 4)	-0.3 to 0	mA
Allowable power dissipation	$P_d$ max		1.2	W
Operating temperature	$T_{opr}$		-30 to +80	°C
Storage temperature	$T_{stg}$		-40 to +125	°C

### Allowable Operating Ranges at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	$V_{CC}$		6.7 to 16.0	V

### Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	$I_{CC}$	Quiescent, pin 3 3.3kΩ across $I_{LED1}$ and $V_{ref}$		4	8	mA
Input bias current	$I_{IN}$	Pin 2	-10		0	μA
Reference voltage	$V_{ref}$	Pin 4	4.40	4.85	5.30	V

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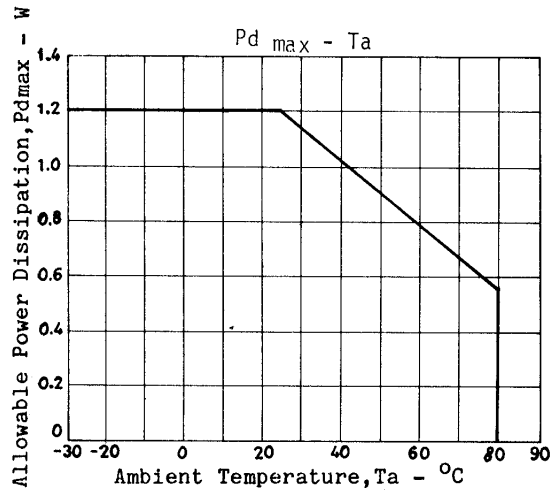
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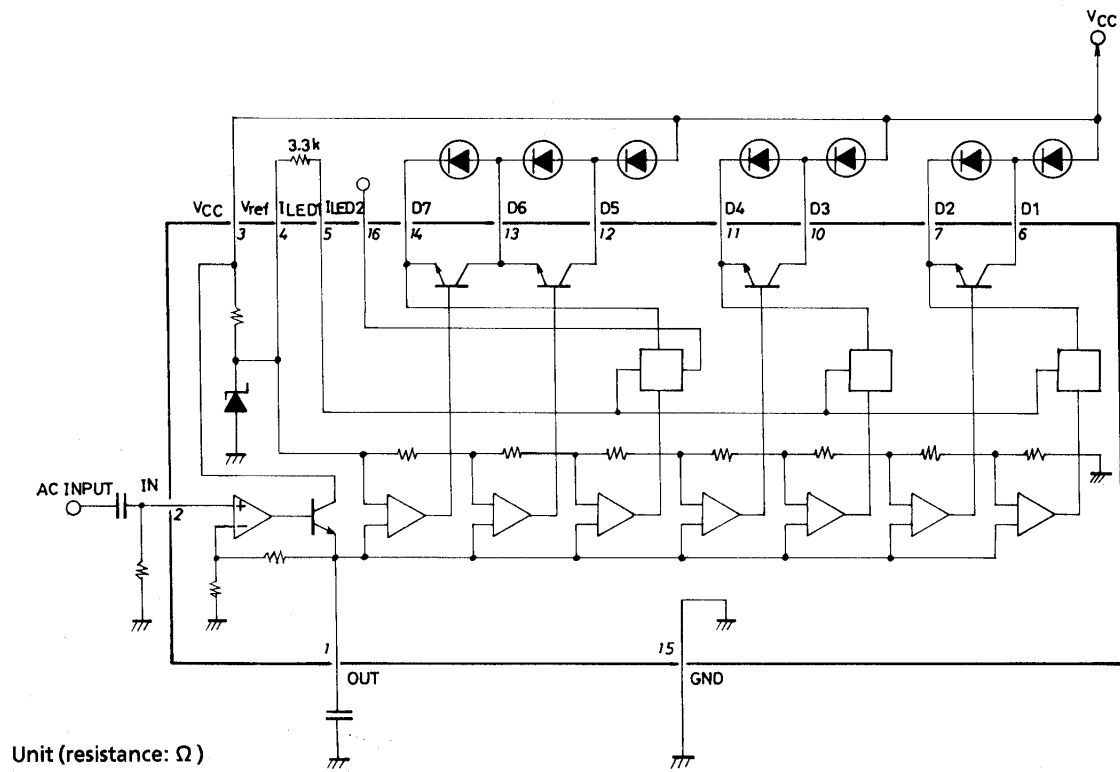
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
D pin current 1	$I_{D2, 4, 7}$	3.3k $\Omega$ across $I_{LED1}$ and $V_{ref}$ $I_{LED2}=GND$ , pins 7, 11, 14	12	16	19	mA
Output saturation voltage	$V_{satD}$ 1, 3, 5, 6	$I_{LED2}=GND$ , pins 6, 10, 12, 13		1.0	1.3	V
D pin current 2	$I_{D2, 4, 7}$	$I_{LED2}=GND$ , $V_{CC}=6.7V$ , $V_{D1, 3, 6}=0.9V$ , pins 7, 11, 14	12		19	mA
Out pin impedance	$R_{OUT}$	Pin 1	8	12	16	k $\Omega$
Input sensitivity	$V_{IN5}$	Input voltage at which LED of D5 is lighted	119	132	145	mV
Comparator level						
D1	$V_{T1}$	Input voltage at which LED of D5 is lighted is taken as 0dB.	-26	-20	-14	dB
D2	$V_{T2}$	Input voltage at which LED of D5 is lighted is taken as 0dB.	-12	-10	-8	dB
D3	$V_{T3}$	Input voltage at which LED of D5 is lighted is taken as 0dB.	-7	-6	-5	dB
D4	$V_{T4}$	Input voltage at which LED of D5 is lighted is taken as 0dB.	-3.5	-3.0	-2.5	dB
D5	$V_{T5}$	Input voltage at which LED of D5 is lighted is taken as 0dB.	0	0	0	dB
D6	$V_{T6}$	Input voltage at which LED of D5 is lighted is taken as 0dB.	2.5	3.0	3.5	dB
D7	$V_{T7}$	Input voltage at which LED of D5 is lighted is taken as 0dB.	5	6	7	dB
Output leakage current	$I_{DL1, 3, 5}$	$V_{IN}=0V$ , pins 6, 10, 12	0		10	$\mu A$
D pin current 3	$I_{D7}$	3.3k $\Omega$ across $I_{LED1}$ and $V_{ref}$ $I_{LED2}=open$ , pin14	4.5	6.0	8.0	mA
D pin current 4	$I_{D7}$	$I_{LED2}=open$ , pin14, $V_{CC}=6.7V$ , $V_{D6}=0.7V$ , pin14	4.5		8.0	mA



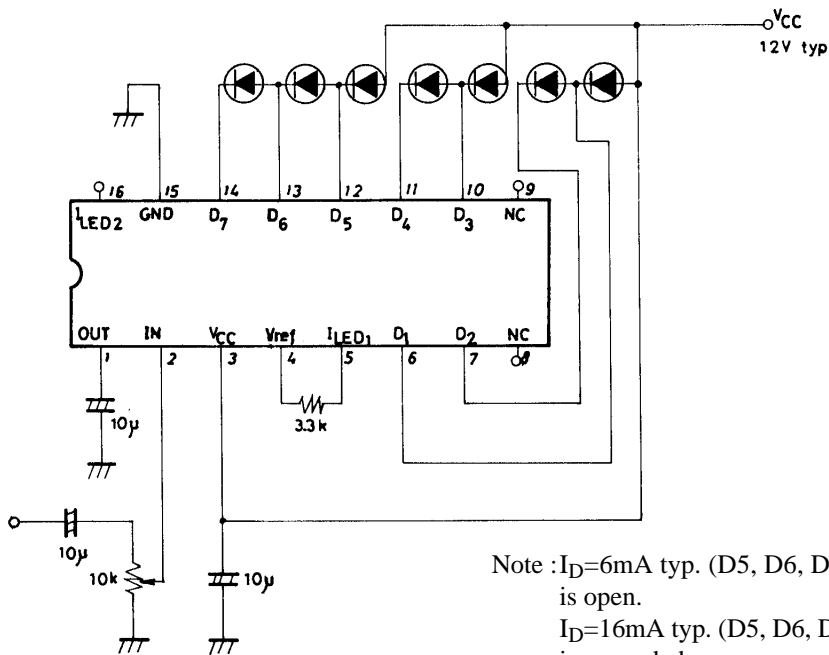
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## Equivalent Circuit Block Diagram and Sample Peripheral Circuit



## Sample Application Circuit

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



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