

# DBL 1016

## 5 Dots LED LEVEL METER

DBL 1016 series are a monolithic integrated circuit designed for 5 dot LED level meter driver.

### FEATURES

- Capable of generating a bar-display or input voltage with 5 LEDs.
- Power supply voltage range is wide(3.5 to 16V) for a wide range of applications.
- Operates with either AC or DC input voltage using a built-in rectifier amplifier.
- LEDs are driven by a constant current; stable under varying power supply voltages.
- Lighting levels remain stable under varying power supply voltages using a built-in reference voltage.

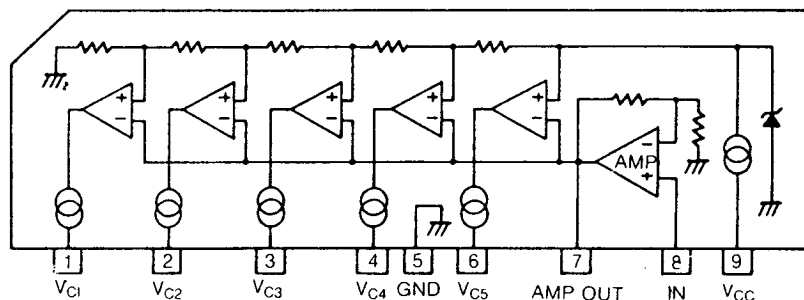
### APPLICATIONS

- AC level meters such as VU meters.
- DC level meters such as signal meters.

### MAXIMUM RATINGS [DBL 1016, 1116, 1216, 1316] at $T_a=25^{\circ}\text{C}$ .

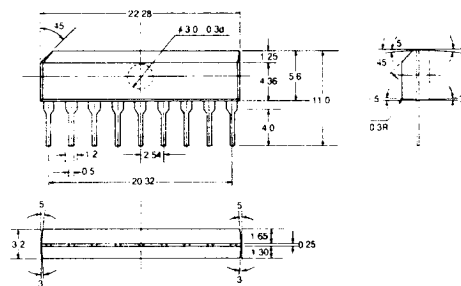
Characteristic	Symbol	Rating	Unit
Supply Voltage	$V_{CC}$	18	V
Power Dissipation	$P_D$	1,100	mW
Operating Temperature	$T_{opr}$	$-25 \sim +60$	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	$-55 \sim +125$	$^{\circ}\text{C}$

### EQUIVALENT CIRCUIT



9SIP

Unit: mm



# DBL 1016

## ☐ ELECTRICAL CHARACTERISTICS

(Unless otherwise specified,  $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 6\text{V}$ ,  $f = 1\text{KHz}$ )

### [DBL 1016]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Current	$I_{CCQ}$	—	—	5	8	mA
Sensitivity	$V_{IN}$	$V_{C3}$ on-level	74	85	96	mVrms
Comparator Level 1	$V_{C1}$	—	-11.5	-10	-8.5	dB
Comparator Level 2	$V_{C2}$	—	-6	-5	-4	dB
Comparator Level 3	$V_{C3}$	Point of adjustment	—	0	—	dB
Comparator Level 4	$V_{C4}$	—	2.5	3	3.5	dB
Comparator Level 5	$V_{C5}$	—	5	6	7	dB
LED Constant Current	$I_{LED}$	—	11	15	18.5	mA
Input Bias Current	$I_{IB}$	—	-1.0	-0.3	—	$\mu\text{A}$

### [DBL 1116]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Current	$I_{CCQ}$	—	—	5	8	mA
Sensitivity	$V_{IN}$	$V_{C3}$ on-level	91	105	119	mVrms
Comparator Level 1	$V_{C1}$	—	$0.28V_{C3}$	$0.33V_{C3}$	$0.40V_{C3}$	mVrms
Comparator Level 2	$V_{C2}$	—	$0.59V_{C3}$	$0.67V_{C3}$	$0.75V_{C3}$	mVrms
Comparator Level 3	$V_{C3}$	Point of adjustment	—	$V_{IN}$	—	mVrms
Comparator Level 4	$V_{C4}$	—	$1.25V_{C3}$	$1.33V_{C3}$	$1.42V_{C3}$	mVrms
Comparator Level 5	$V_{C5}$	—	$1.48V_{C3}$	$1.67V_{C3}$	$1.85V_{C3}$	mVrms
LED Constant Current	$I_{LED}$	—	11	15	18.5	mA
Input Bias Current	$I_{IB}$	—	-1	-0.3	—	$\mu\text{A}$

### [DBL 1216]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Current	$I_{CCQ}$	—	—	5	8	mA
Sensitivity	$V_{IN}$	$V_{C3}$ on-level	74	85	96	mVrms
Comparator Level 1	$V_{C1}$	—	-11.5	-10	-8.5	dB
Comparator Level 2	$V_{C2}$	—	-6	-5	-4	dB
Comparator Level 3	$V_{C3}$	Point of adjustment	—	0	—	dB
Comparator Level 4	$V_{C4}$	—	2.5	3	3.5	dB
Comparator Level 5	$V_{C5}$	—	5	6	7	dB
LED Constant Current	$I_{LED}$	—	—	7	9.5	mA
Input Bias Current	$I_{IB}$	—	-1	-0.3	—	$\mu\text{A}$

# DBL 1016

## ELECTRICAL CHARACTERISTICS (Continued)

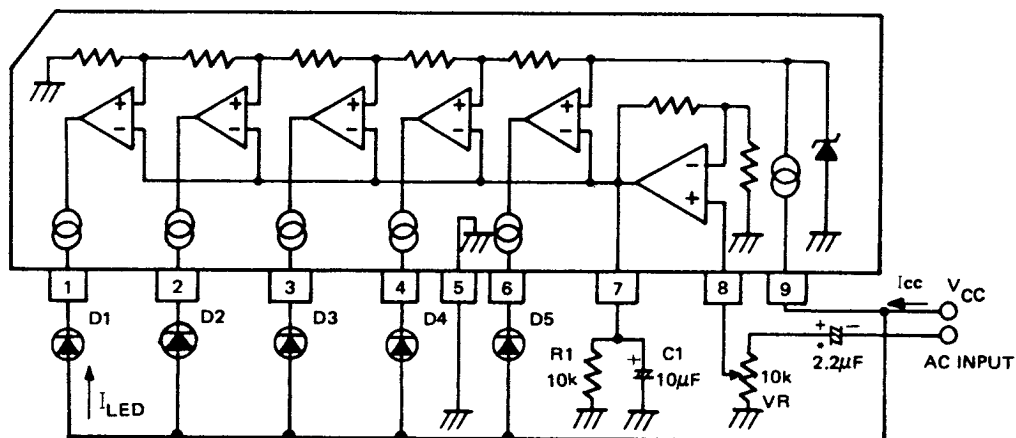
[DBL 1316]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Current	$I_{CCO}$	—	—	5	8	mA
Sensitivity	$V_{IN}$	$V_{C3}$ on-level	91	105	119	mVrms
Comparator Level 1	$V_{C1}$	—	$0.28V_{C3}$	$0.33V_{C3}$	$0.40V_{C3}$	mVrms
Comparator Level 2	$V_{C2}$	—	$0.59V_{C3}$	$0.67V_{C3}$	$0.75V_{C3}$	mVrms
Comparator Level 3	$V_{C3}$	Point of adjustment	—	$V_{IN}$	—	mVrms
Comparator Level 4	$V_{C4}$	—	$1.25V_{C3}$	$1.33V_{C3}$	$1.42V_{C3}$	mVrms
Comparator Level 5	$V_{C5}$	—	$1.48V_{C3}$	$1.67V_{C3}$	$1.87V_{C3}$	mVrms
LED Constant Current	$I_{LED}$	—	5	7	9.5	mA
Input Bias Current	$I_{IB}$	—	-1.0	-0.3	—	$\mu A$

## ALLOWABLE OPERATING CONDITION( $T_a=25^{\circ}C$ )

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	$V_{CC}$	3.5	6	16	V

## APPLICATION CIRCUIT(AC-input VU-meter)



\*Capacitor to be omitted when used as a DC-input signal meter.