

New KA2284 Batterie Indicator Audio Power Level Indicator Modul Tafel



Description

The KA2284 Voltage Level Indicator Module provides a logarithmic visual indication of a static or dynamic voltage level using LEDs.

PACKAGE INCLUDES:

- KA2284 Voltage Level Indicator Module

KEY FEATURES OF KA2284 VOLTAGE LEVEL INDICATOR MODULE:

- Uses KA2284 5-Dot LED Level Meter Driver w/ built-in rectifying amplifier
- Adjustable voltage range with LED display
- Use with AC or DC voltages
- 3.5 to 16V operation

The module can be used to indicate a voltage level such as for monitoring a DC battery level or for use with AC signals to implement a VU meter for audio strength or similar applications.

The module uses the KA2284 LED Dot Level Meter Driver IC to implement a logarithmic LED dot indicator display. The display consists of 5 LEDs – 3 green, 1 yellow and 1 red which are lit in sequence as the input voltage increases.

A single-turn potentiometer is used to set the range for the display.

The input for the voltage measurement includes a series capacitor for use with AC waveforms. There is a small jumper on the board which shorts this capacitor so that the module can be used with a DC signal such as when monitoring battery.

- Jumper OFF = Monitor AC voltage
- Jumper ON = Monitor DC voltage

The module can be powered off a wide voltage range of 3.5 to 16V

Module Connections

There is a 4-pin header on the assembly for making connections.

1 x 4 Header

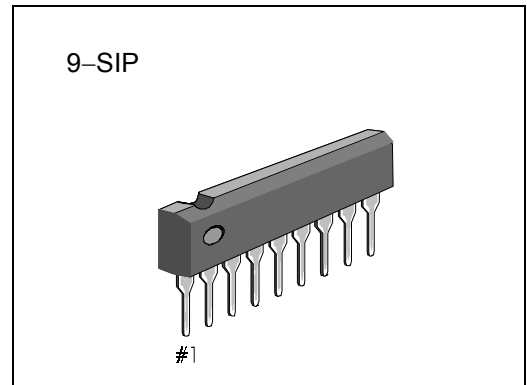
- **VCC** = Connect to 3.5 to 16V
- **IN** = Input. The voltage to be measured by the device
- **GND** = Ground. There are 2 ground pins, but only one needs to be used
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INTRODUCTION

The KA2284B and KA2285B are monolithic integrated circuits designed for 5-dot LED level meter drivers with a built-in rectifying amplifier. It is suitable for AC/DC level meters such as VU meters or signal meters.

FEATURES

- High gain rectifying amplifier included ($G_V = 26\text{dB}$)
- Low radiation noise when LED turns on
- Logarithmic indicator for 5-dot bar type LED ($-10, -5, 0, 3, 6\text{dB}$)
- Constant current output
KA2284B: $I_o = 15\text{mA}$ (Typ)
KA2285B: $I_o = 7\text{mA}$ (Typ)
- Wide operating supply voltage range:
 $V_{CC} = 3.5\text{V} \sim 16\text{V}$
- Minimum number of external parts required



ORDERING INFORMATION

Device	Package	Operating Temperature	I_D
KA2284B	9-SIP	$-20^\circ\text{C} \sim +80^\circ\text{C}$	15mA
KA2285B			7mA

BLOCK DIAGRAM

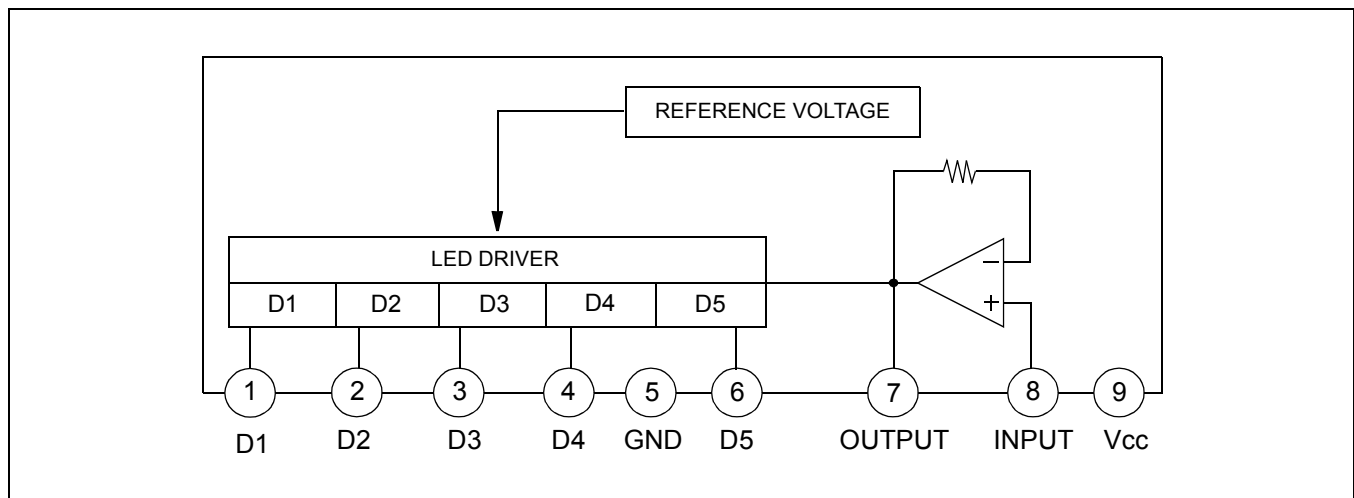


Figure 1.

NOTE: Capacitor to be omitted when used as a DC input signal meter

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	18	V
Amp Input Voltage	V_{8-5}	$-0.5 \sim V_{CC}$	V
Pin 7 Voltage	V_{7-5}	6	V
D Terminal Output Voltage	V_D	18	V
Circuit Current	I_{CC}	12	mA
D Terminal Output Current	I_D	20	mA
Power Dissipation	P_d	1100	mW
Operating Temperature	T_{OPR}	$-20 \sim +80$	$^\circ\text{C}$
Storage Temperature	T_{STG}	$-40 \sim +125$	$^\circ\text{C}$

NOTE: 11mW/ $^\circ\text{C}$ is decreased at higher temperature than $T_a = 25^\circ\text{C}$.

ELECTRICAL CHARACTERISTICS

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

Characteristic		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Circuit Current		I_{CCQ}	$V_i = 0\text{V}$	–	6	8.5	mA
D Output Current	KA2284B	I_O	$V_i = 0.15\text{V}$	11	15	18.5	mA
	KA2285B			5	7	9.5	
Input Bias Current		I_{BIAS}	–	–1	–	0	μA
Amp Gain		G_V	$V_i = 0.1\text{V}$	24	26	28	dB
Comparator ON Level	$V_{CL(ON)}$	$V_{CL(ON)1}$	–	–12	–10	–8	dB
		$V_{CL(ON)2}$		–6	–5	–4	
		$V_{CL(ON)3}$		–	0	–	
		$V_{CL(ON)4}$		2.5	3	3.5	
		$V_{CL(ON)5}$		5	6	7	

NOTE: Definition of 0dB: input voltage level when $V_{CL(ON)3}$ turn ON (50mV)

TEST CIRCUIT

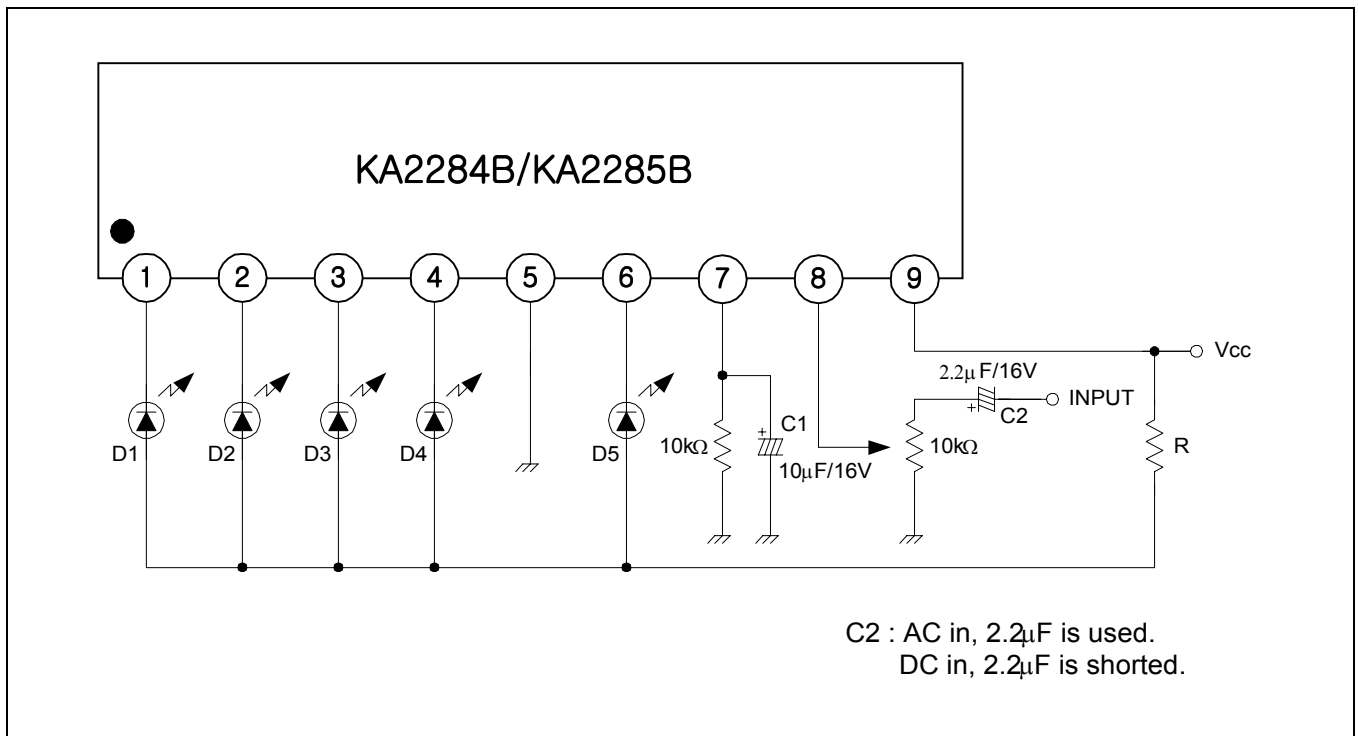
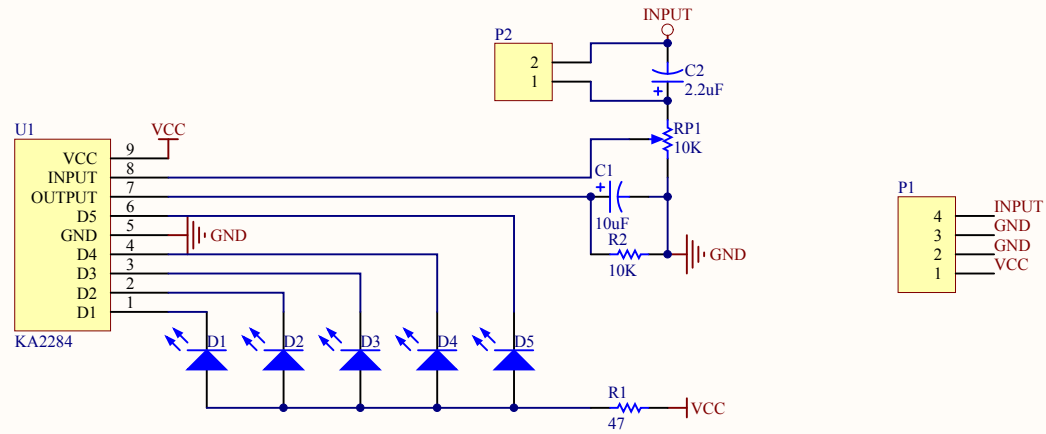


Figure 2.

The recommended value of R at T_a (max) = 60°C.

V_{CC} (V)	8 ~ 12	10 ~ 14	12 ~ 16
R(Ω)	47	68	91

By changing the time constant C_1 and C_2 , the response, attack and release time may be varied. In the above application conditions, power dissipation may be operated at higher levels than the absolute maximum ratings. The wattage of R is to be determined by the total LED current and R value recommended by the R table.



Title		
Size	Number	Revision
A4		
Date:	2012/3/26	Sheet of
File:	E:\Lsofi\PCB\KA2284\Sheet1.SchDoc	Drawn By:

Comment	Description	Designator	Footprint	LibRef	Quantity
10uF	Polarized Capacitor (Radial)	C1	CAPPR2-5x6.8	Cap Pol1	1
2.2uF	Polarized Capacitor (Radial)	C2	CAPPR2-5x6.8	Cap Pol1	1
LED	Typical INFRARED GaAs LED	D1, D2, D3, D4, D5	LED-3	LED	5
Header 4	Header, 4-Pin	P1	HDR1X4	Header 4	1
	Header, 2-Pin	P2	HDR1X2	Header 2	1
47	Resistor	R1	AXIAL-0.3	Res1	1
10K	Resistor	R2	AXIAL-0.3	Res1	1
10K	Potentiometer	RP1	RM063	RPot	1
KA2284		U1	HDR1X9	KA2284	1