

GR7666 5 STEP LOGARITHMIC DUAL LED DRIVER

1. General Description

1.1 Description

The GR7666 consists of two inverting amplifiers, ten comparators and a reference voltage network.

Turn-on level intervals are 5dB, 5dB, 3dB, 3dB, in GR7666. It is suitable for stereo radio cassette applications because of dual type.

$V_{CC}=9V$

- Variable Voltage Gain Because of Inverting Amplifier
- Easy Arrangement for dual 10 LED's Driver by series Connection of GR7666

1.2 Features

- Suitable for Stereo LED Driver
- Wide Supply Voltage Range: $V_{CC}=6\sim 12V$
- Low Quiescent Current : $I_{CCQ}=5mA(Typ.)$ at

1.3 Device Information

PART NUMBER	PACKAGE
GR7666	DIP
	SOP

2. Pin Description and Functional Diagram

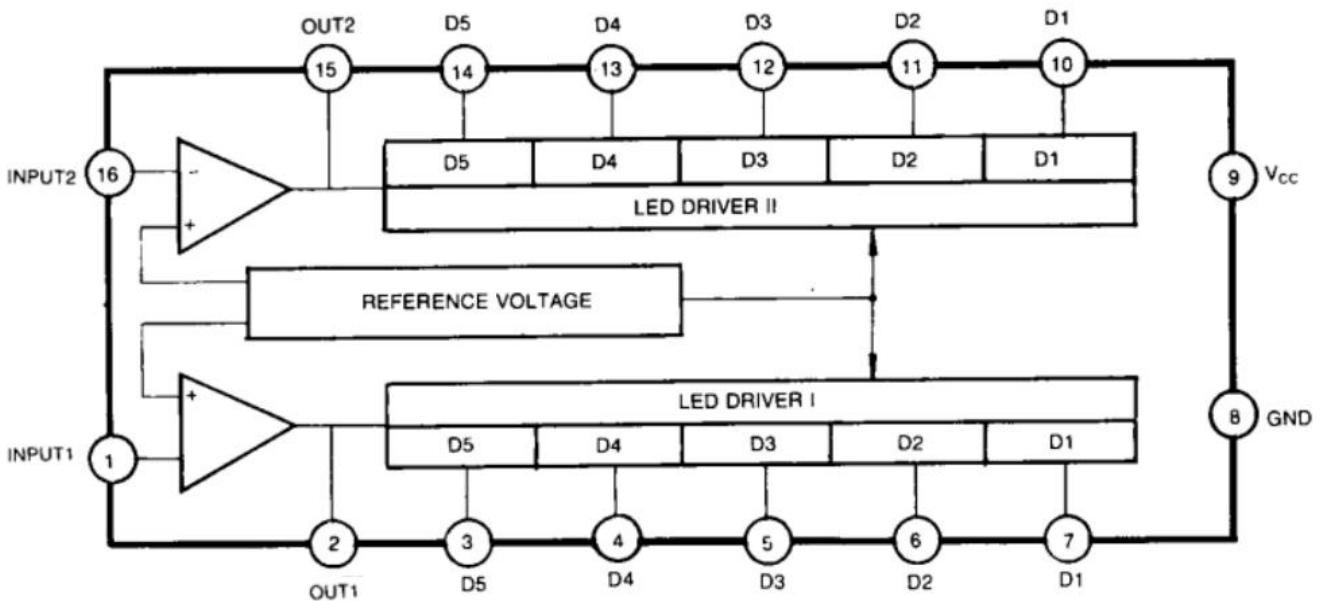


Figure 2.1 Top View

PIN No.	NAME	I/O	FUNCTION
1	INPUT1	I	Data Input
2	OUT2	O	Data Output
3	D5	I	Level driver
4	D4	I	Level driver
5	D3	I	Level driver
6	D2	I	Level driver
7	D1	I	Level driver
8	GND		Circuit ground
9	V _{CC}		Supply Voltage
10	D1	I	Level driver
11	D2	I	Level driver
12	D3	I	Level driver
13	D4	I	Level driver
14	D5	I	Level driver
15	OUT2	O	Data Output
16	INPUT2	I	Data Input

3. System Diagram

3.1 Logic Diagram / Test Circuit

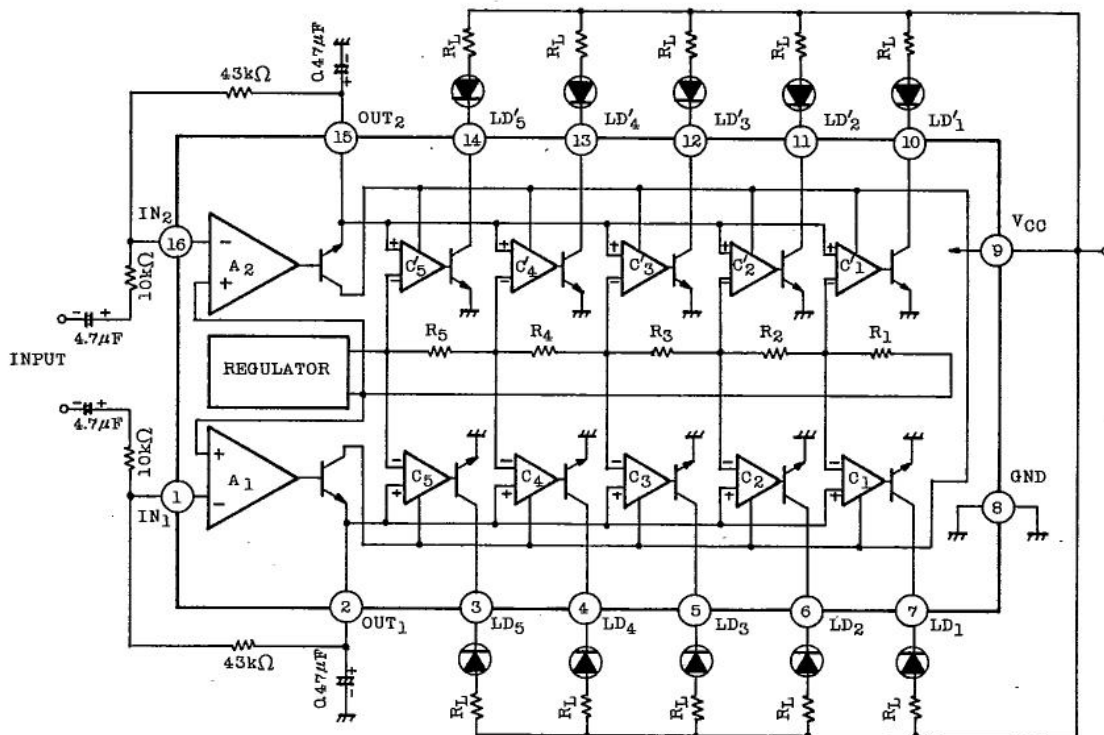


Figure 3.1: GR7666 Logic Diagram / Test Circuit



4. Specifications

4.1 Absolute Maximum Ratings

Symbol	Parameter	MIN	MAX	Unit
V _{CC}	Supply Voltage		14	V
V _L	LED Drive Terminal Voltage		15	V
T _{stg}	Storage Temperature	-55	150	°C
T _{op}	Operating Temperature	-30	75	°C

Absolute maximum ratings are those values beyond which the device could be permanently damaged, These are stress ratings only, which do not imply functional operation of the device at these or any other conditions beyond those indicated under normal operating conditions.

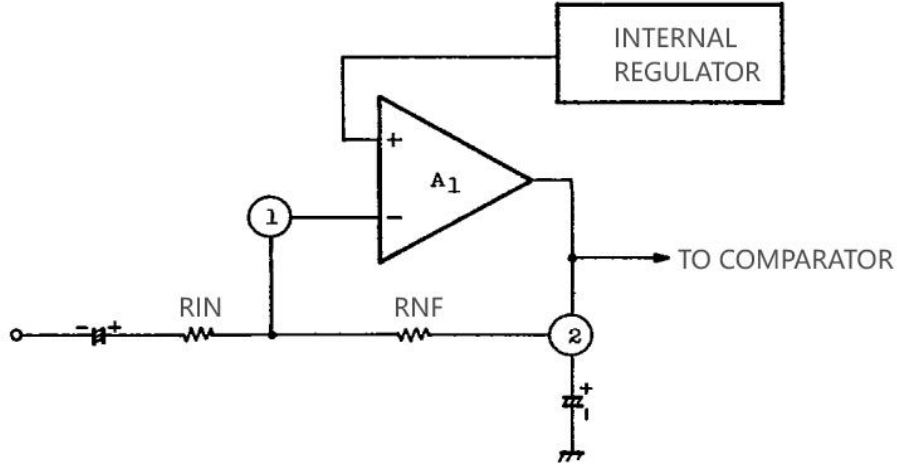
4.2 Electrical Characteristics

(T_a=25°C, V_{CC}=9V, F=1KHz, unless otherwise specified)

Symbol	Parameter	Test Condition	MIN	TYP	MAX	Unit
I _{CCQ}	Quiescent Current	V _{IN} =0	--	5	7	mA
I _o	Output Current	V _{CE} =2V	--	60	--	mA
I _{O(OFF)}	Output Leak Current	V _{IN} =0	--	--	5	uA
G _v	Voltage Gain		--	12.6	--	dB
LD5	Comparator Turn-On Thresholds	GV=12.6dB	-1	0	1	dB
			189	212	238	mVrms
LD4			-4	-3	-2	dB
			134	150	168	mVrms
LD3			-7.5	-6	-4.5	dB
			89	105	126	mVrms
LD2			-13	-11	-9	dB
			47	60	75	mVrms
LD1			-19	-16	-13	dB
			24	34	47	mVrms
ΔLD1	1 st Thresholds Difference between R and L Channel		-1	0	1	dB

5. Applications information

5.1 Setup OF TURING-ON Level



As voltage gain of inverting amplifier depends on signal source resistance R_g , output resistance of prestage amplifier should be smaller than $10 \times R_{IN}$. (Output resistance $\leq 10R_{IN}$)

It is better to change R_{NF} for voltage gain adjustment. As 5th LED turn-on, input level is 911.6 mVrms at $G_v=0\text{dB}$, voltage gain of inverting amplifier is set by the following equation.

$$\text{Voltage Gain} = 20 \log(911.6 \text{ (mVrms)} / V_{IN} \text{ (Input Voltage)}) \text{ (dB)}$$

5.2 Application Circuit

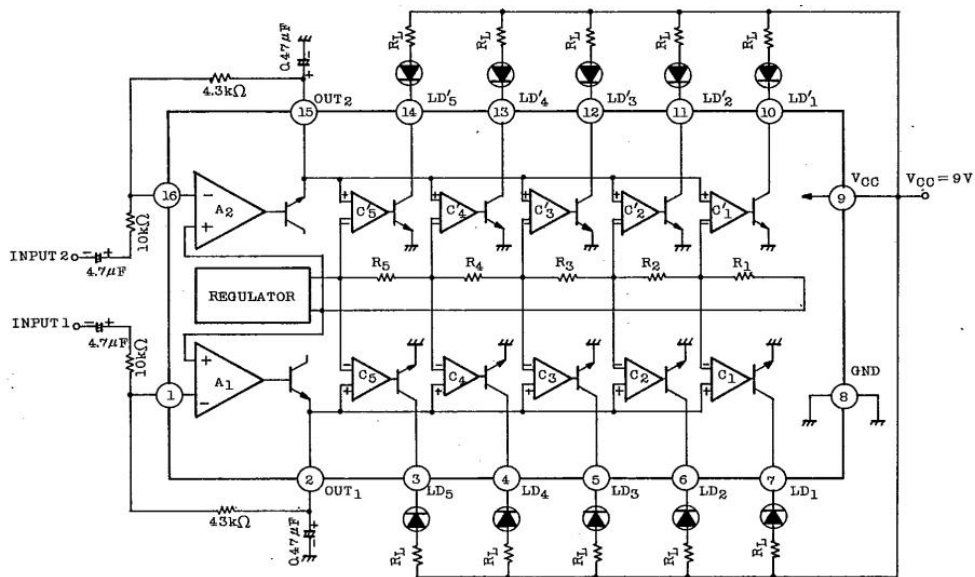


Figure 5.2.1 5 LED*2 application



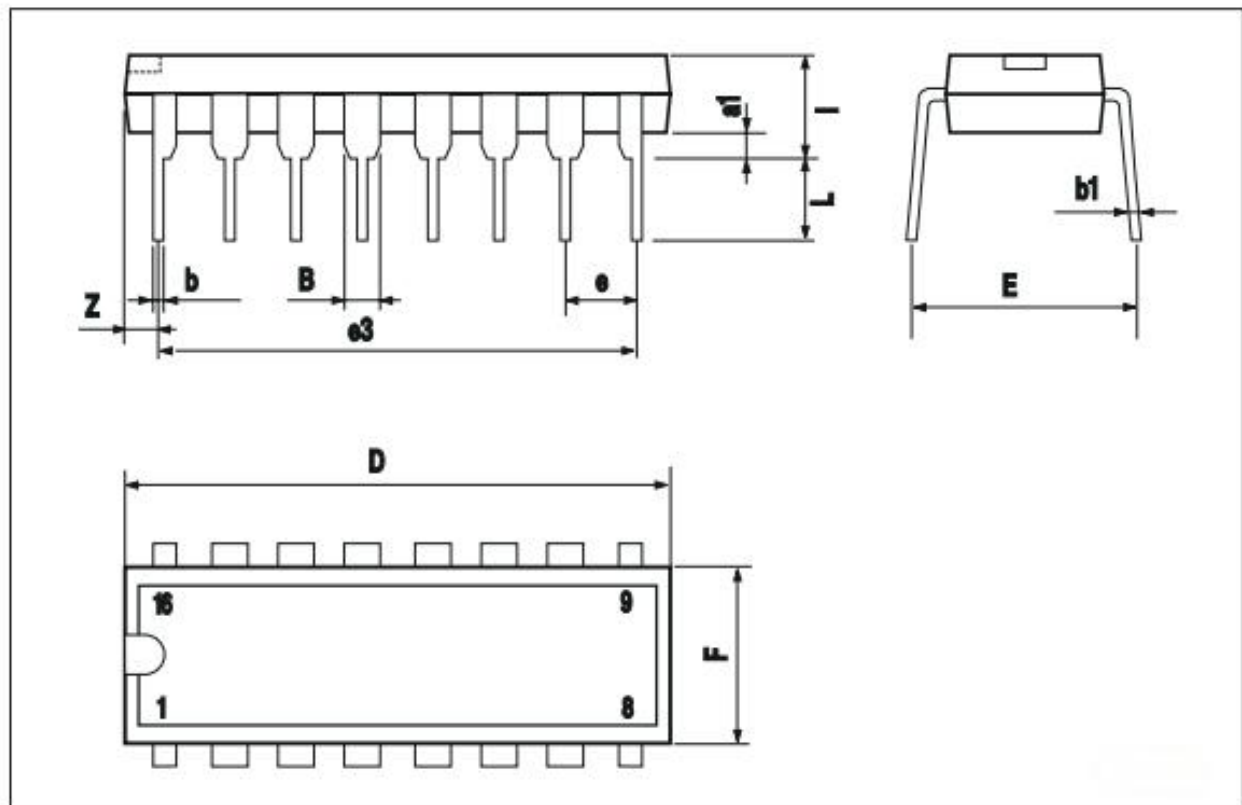
6. Ordering Information

Orderable Device	Package Type	Pins	Packing	Package Qty
GR7666ND16ATBE	DIP	16	Tube	25
GR7666NS16ARDQ	SOP	16	Tape & Reel	4000

7. Package Information

7.1 DIP16

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
a1	0.51			0.020		
B	0.77		1.65	0.030		0.065
b		0.5			0.020	
b1		0.25			0.010	
D			20			0.787
E		8.5			0.335	
e		2.54			0.100	
e3		17.78			0.700	
F			7.1			0.280
I			5.1			0.201
L		3.3			0.130	
Z			1.27			0.050



7.2 SOP16

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.068
a1	0.1		0.25	0.004		0.010
a2			1.64			0.063
b	0.35		0.46	0.013		0.018
b1	0.19		0.25	0.007		0.010
C		0.5			0.019	
c1	45° (typ.)					
D	9.8		10	0.385		0.393
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		8.89			0.350	
F	3.8		4.0	0.149		0.157
G	4.6		5.3	0.181		0.208
L	0.5		1.27	0.019		0.050
M			0.62			0.024
S	8° (max.)					

