

General Description

The A8316 is a 16-channel, constant current sink, LED driver. An external resistor sets the maximum current value of all channels. A8316 also armed with 12 bit (4096 steps) grayscale PWM control and 7 bit (128 steps) current adjustment for every channel. The LED open detection indicates a broken or disconnected LED at an output terminal. A thermal protection function is featured to prevent over-heating.

- Power supply voltage range $V_{DD} = 3.0V$ to $5.5V$
- Current Accuracy:
 - $\pm 3\%$ (Channel to Channel)
 - $\pm 6\%$ (Chip to Chip)
- Operating Temperature: $-40^{\circ}C$ to $85^{\circ}C$
- Integrated Over-Temperature Protection
- LED Open Detection
- Package : TQFP48 with thermal pad

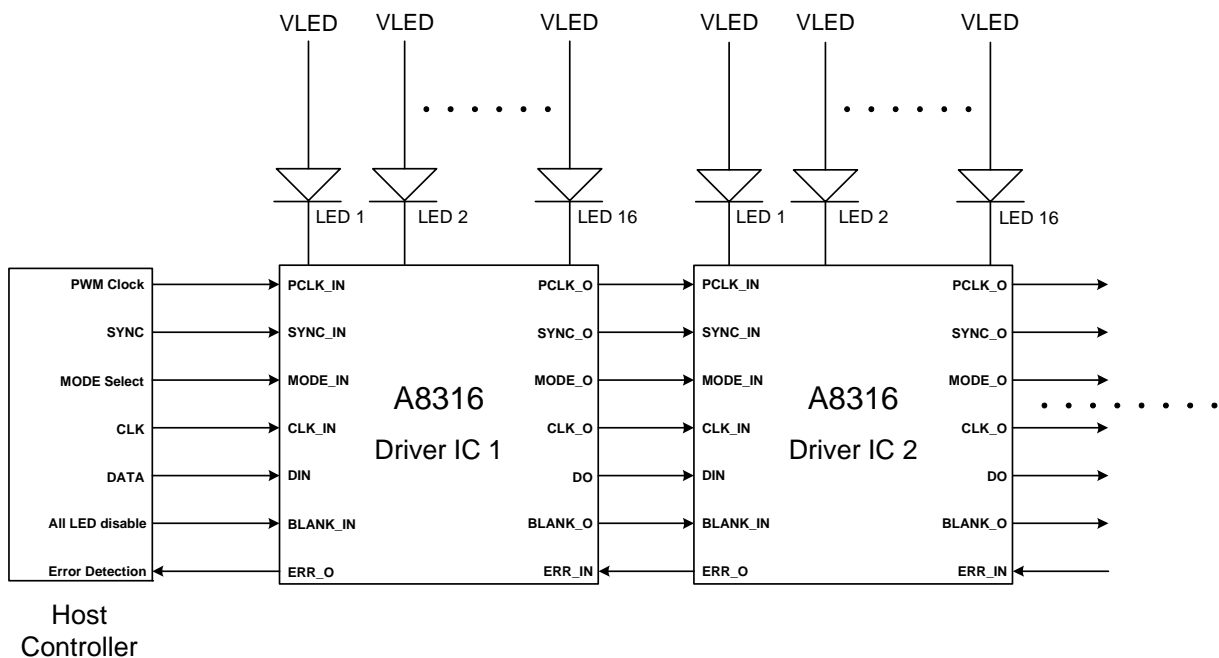
Key Features

- 16 Constant Current Output Channels
- Drive Capability -- 0 to 40mA (Current Sink)
- Built-in 12 bit PWM Grayscale Control
- 7 bit Current Adjustment for each channel
- Fast Data Transfer Rate

Applications

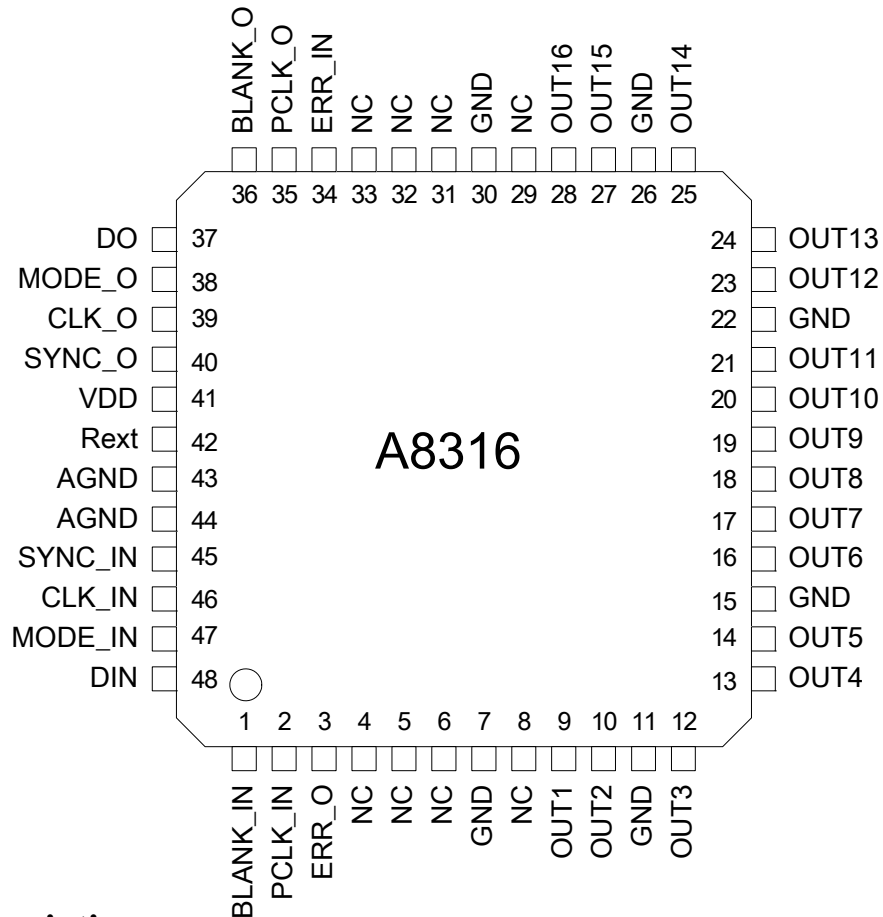
- Side Light
- Direct Back Lighting
- Main Lighting
- Monocolor, Multicolor, Full-Color LED Displays
- LED Signboards

Application Diagram





Pin Configuration



Terminal Description

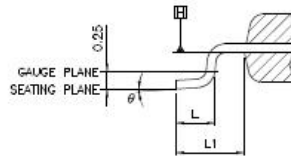
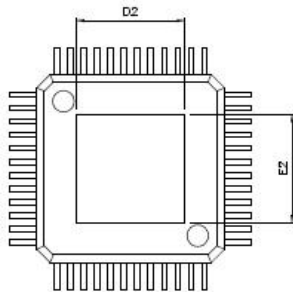
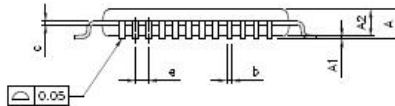
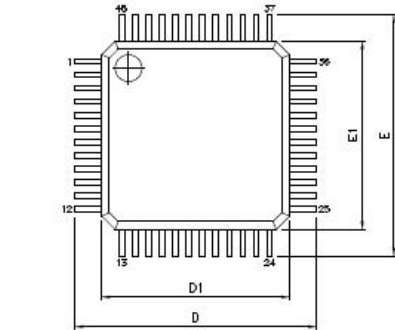
Pin number	Pin name	I/O	Description
1	BLANK_IN	I	Blank control input to turn off all outputs. When BLANK_IN = H, all outputs are forced OFF and the PWM counter is also reset. When BLANK_IN = L, outputs work under normal condition.
2	PCLK_IN	I	Grayscale PWM control input
3	ERR_O	O	Error status output
4	NC	-	No connection
5	NC	-	No connection
6	NC	-	No connection
7	GND	G	Ground
8	NC	-	No connection
9	OUT1	O	Constant current output 1
10	OUT2	O	Constant current output 2
11	GND	G	Ground
12	OUT3	O	Constant current output 3
13	OUT4	O	Constant current output 4
14	OUT5	O	Constant current output 5
15	GND	G	Ground
16	OUT6	O	Constant current output 6



17	OUT7	O	Constant current output 7
18	OUT8	O	Constant current output 8
19	OUT9	O	Constant current output 9
20	OUT10	O	Constant current output 10
21	OUT11	O	Constant current output 11
22	GND	G	Ground
23	OUT12	O	Constant current output 12
24	OUT13	O	Constant current output 13
25	OUT14	O	Constant current output 14
26	GND	G	Ground
27	OUT15	O	Constant current output 15
28	OUT16	O	Constant current output 16
29	NC	-	No connection
30	GND	G	Ground
31	NC	-	No connection
32	NC	-	No connection
33	NC	-	No connection
34	ERR_IN	I	Error status input from next driver.
35	PCLK_O	O	Grayscale PWM control output to next driver.
36	BLANK_O	O	BLANK control output to next driver.
37	DO	O	Serial data output to next driver.
38	MODE_O	O	MODE control output to next driver.
39	CLK_O	O	Serial data shift clock output
40	SYNC_O	O	Sync signal for the first channel to latch data
41	VDD	P	Power supply voltage
42	Rext	P	Connect an external resistor to setup output current.
43	AGND	G	Analog ground
44	AGND	G	Analog ground
45	SYNC_IN	I	Sync signal input
46	CLK_IN	I	Serial data shift clock input
47	MODE_IN	I	Input mode-select pin. When MODE = GND, the driver is in PWM mode. When MODE = VDD, the driver is in CA mode
48	DIN	I	Serial data input



**Package Dimension:
TQFP48**



VARIATIONS (ALL DIMENSIONS SHOWN IN MM)

SYMBOLS	MIN.	NOM.	MAX.
A	---	---	1.20
A1	0.05	---	0.15
A2	0.95	1.00	1.05
b	0.17	0.22	0.27
c	0.09	---	0.16
D	9.00 BSC		
D1	7.00 BSC		
E	9.00 BSC		
E1	7.00 BSC		
e	0.50 BSC		
L	0.45	0.60	0.75
L1	1.00 REF		
θ	0°	3.5°	7°

THERMALLY ENHANCED DIMENSIONS(SHOWN IN MM)

PAD SIZE	E2		D2	
	MIN.	MAX.	MIN.	MAX.
160X16E	3.25	4.06	3.25	4.06

- NOTES:
- JEDEC OUTLINE :
MS-026 ABC
MS-026 ABC-HE(THERMALLY ENHANCED VARIATIONS ONLY)
 - DATUM PLANE (D) IS LOCATED AT THE BOTTOM OF THE MOLD PARTING LINE COINCIDENT WITH WHERE THE LEAD ENITS THE BODY.
 - DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25 mm PER SIDE. DIMENSIONS D1 AND E1 DO INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE (D).
 - DIMENSION b DOES NOT INCLUDE D-HUB+R PROTRUSION.