

Raffar Technology Corp.

RT516

16-channel Constant Current LED Driver with Anti-ghosting Function

2012/06

Version: 1.5 (brief)

Description

RT516 is a highly integrated 16-channel constant current LED sink driver with anti-ghosting function. The accurate constant current outputs with high uniformity between channels (bits) and chips can be adjusted from 1 mA to 45 mA by adjusting the external resistors.

The output ports of RT516 are guaranteed to endure 20 V output voltages in maximal. The fast output current response time and the build-in anti-ghosting function both enhance the output performance of RT516.

Features

- Anti-ghosting function for LED display
- Operating supply voltage: 3.3 V ~ 5.5 V
- Constant current output: 1 ~ 45 mA
- Max. output voltage: 20 V
- Clock frequency: 30 MHz
- Operating temperature: -40 °C ~ +85 °C
- Constant current output accuracy:
Bit-to-bit: $\pm 1.0\%$

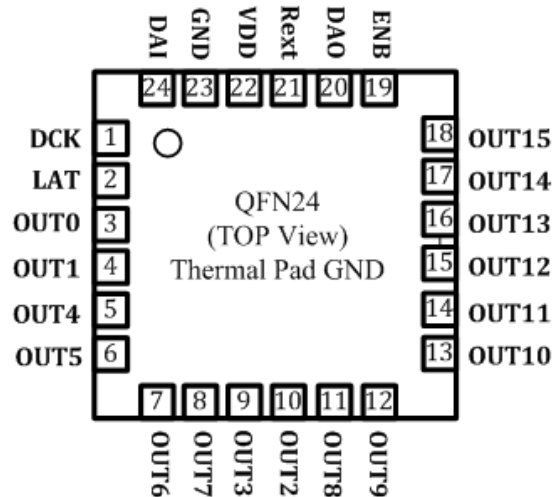
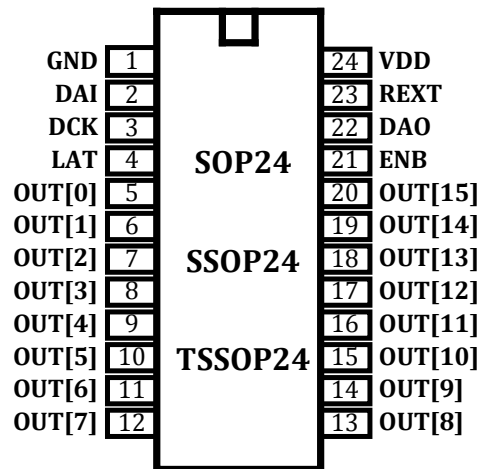
Application

Indoor/outdoor LED display

Order Information

No.	Part No.	Package
1	RT516SC	SOP24-236 mil-1.0 mm
2	RT516SS	SSOP24-150 mil-0.635 mm
3	RT516TS	TSSOP24-173mil-0.65mm
4	RT516QN	QFN24-4*4mm

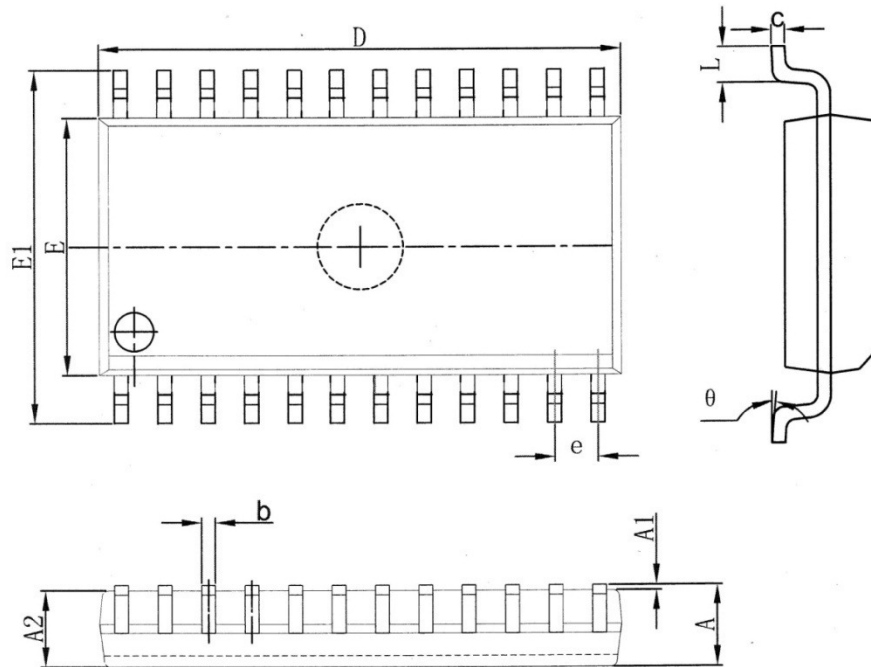
Pin Assignment



Pin No.	Pin Name	Description
1	GND	Ground terminal
2	DAI	Serial data input
3	DCK	Clock input
4	LAT	Input data strobe signal input
5 ~ 20	OUT[0:15]	Current output
21	ENB	Enable signal for current output (active low)
22	DAO	Serial data output
23	REXT	External resistor terminal
24	VDD	Supply voltage

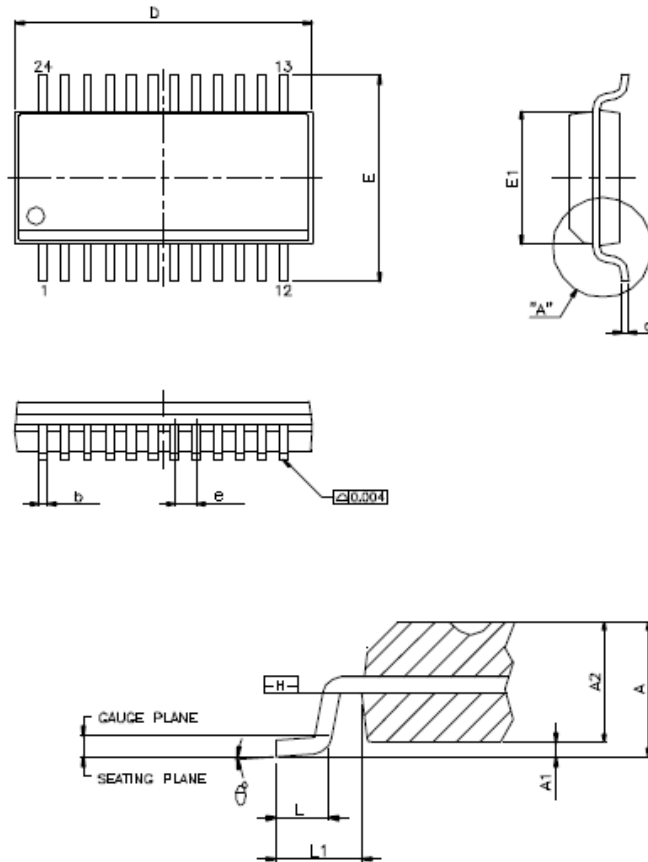
Package Outline Dimension

SOP24 Dimension (236 mil-1.0 mm)



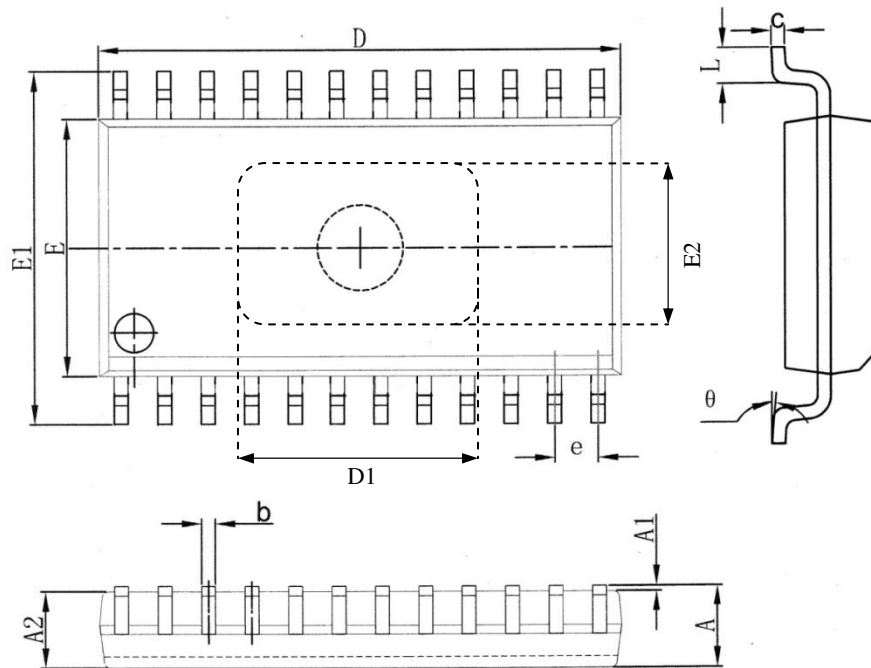
Symbol	Millimeters (mm)		Inches (in)	
	Min.	Max.	Min.	Max.
A	-	1.900	-	0.075
A1	0.050	0.200	0.002	0.008
A2	1.300	1.700	0.051	0.067
b	0.300	0.500	0.012	0.020
c	0.100	0.250	0.004	0.010
D	12.80	13.20	0.504	0.520
E	5.800	6.200	0.228	0.244
E1	7.700	8.300	0.303	0.327
e	1.00 (BSC)		0.04 (BSC)	
L	0.250	0.650	0.010	0.026
θ	0°	10°	0°	10°

SSOP24 Dimension (150 mil-0.635 mm)



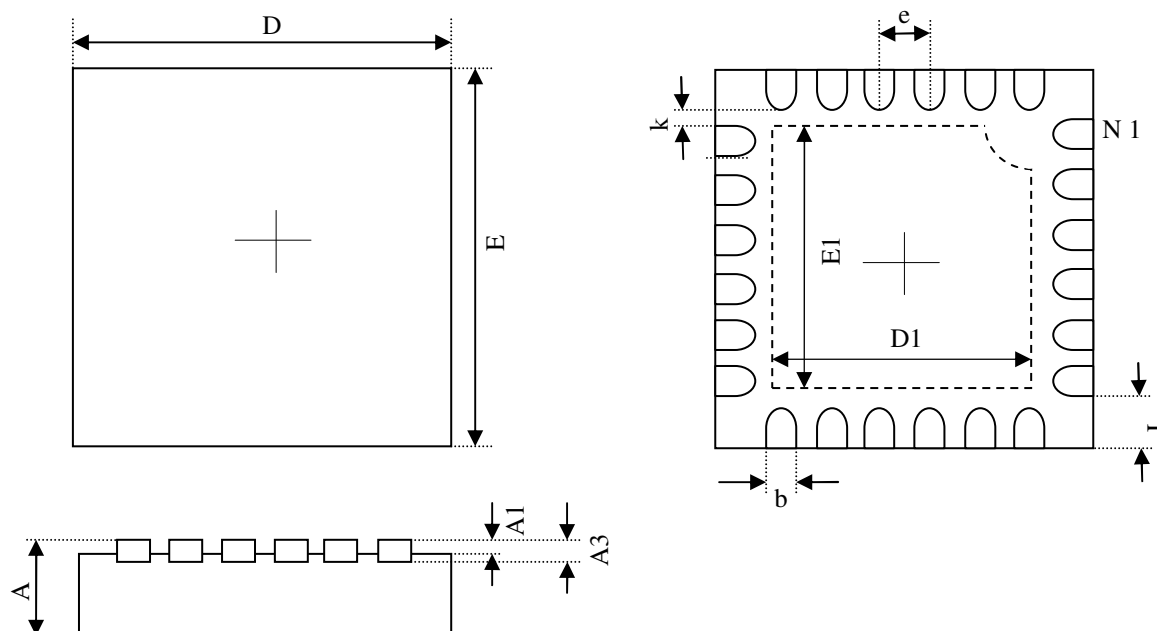
Symbol	Millimeters (mm)		Inches (in)	
	Min.	Max.	Min.	Max.
A	1.346	1.753	0.053	0.069
A1	0.102	0.254	0.004	0.010
A2	-	1.499	-	0.059
b	0.203	0.305	0.008	0.012
C	0.178	0.254	0.007	0.010
D	8.560	8.738	0.337	0.344
E	5.791	6.198	0.228	0.244
e	0.635 (BSC)		0.025 (BSC)	
E1	3.810	3.988	0.150	0.157
L	0.406	1.270	0.016	0.050
L1	1.041 (BSC)		0.0409 (BSC)	
θ°	0	8	0	8

TSSOP24 Dimension (173 mil 0.65mm with Exposed Pad)



Symbol	Millimeters (mm)		Inches (in)	
	Min.	Max.	Min.	Max.
A	-	1.100	-	0.043
A1	0.020	0.150	0.001	0.006
A2	0.800	1.000	0.031	0.039
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
D	7.700	7.900	0.303	0.311
D1	3.000	3.600	0.134	0.138
E	4.300	4.500	0.169	0.177
E1	6.250	6.550	0.246	0.258
E2	2.700	2.900	0.106	0.122
e	0.65(BSC)		0.026(BSC)	
L	0.500	0.700	0.02	0.028
θ	1°	7°	1°	7°

QFN24 Dimension (4*4mm)



Symbol	Millimeters (mm)		Inches (in)	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.050	0.000	0.002
A3	0.203 Ref.		0.008 Ref.	
D	3.900	4.100	0.154	0.161
E	3.900	4.100	0.154	0.161
D1	2.600	2.800	0.102	0.110
E1	2.600	2.800	0.102	0.110
k	0.200 Min.		0.008 Min.	
b	0.180	0.300	0.007	0.012
e	0.500 Typ.		0.020 Typ.	
L	0.300	0.500	0.012	0.020

IC Marking Information

Line 1: RFTXXXX + XX = Product name + Package type code = Part number
 (1) ~ (7) + (8) ~ (9)

Line 2: XXXXXXXX + X = Manufacturing code + Silicon version
 (1) ~ (8) + (9)

The code for package type

Package Type	Code	Remark
DIP16/DIP24	DP	300 mil, PDIP
SOP24	SC	236 mil, pitch 1.00 mm
SOP16/SOP24	SP	300 mil, pitch 1.27 mm
SSOP16/SSOP24	SS	150 mil
TSSOP16/TSSOP24	TS	173 mil with thermal pads
QFN16/20/32	QN	
TO-252	TO	

Note

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