

DN79

ZXSC400 1W LED driver

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Description

ZXSC400 is configured to the reference design below. The target application is a 1W white LED driven from a two cell NiCd/NiMH or alkaline battery input for flashlights and high powered LED driving.

The supply voltage for ZXSC400 reference design is: $V_{IN} = 1.8V \sim 3V$.

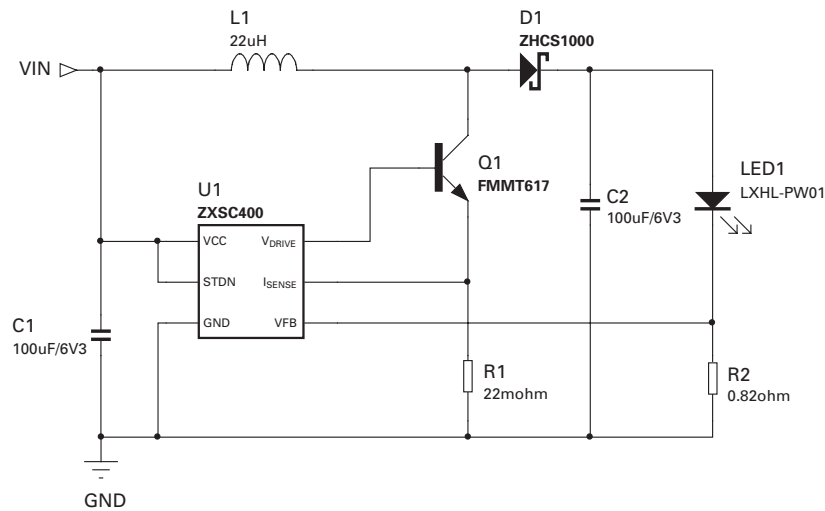


Figure 1 Schematic diagram

Ref.	Value	Package	Part number	Manufacturer	Contact details	Notes
U1	N/A	SOT23-6	ZXSC400E6	Zetex	www.zetex.com	Boost converter
Q1	N/A	SOT23	FM6T617	Zetex	www.zetex.com	Low sat NPN transistor
D1	40V/1A	SOT23	ZHCS1000	Zetex	www.zetex.com	40V/1A Schottky diode
L1	22uH/2.5A	N/A	DO3316P-223	Coilcraft	www.coilcraft.com	22uH/2.5A SMT inductor
R1	22mΩ	0805		Generic	NA	0805 5% tolerance
R2	0.82Ω	0805		Generic	NA	0805 5% tolerance
C1	100μF/6V3	1812	18126D107KAT2A	AVX	www.avx.com	100μF/6V3/X5R/1812
C2	100μF/6V3	1812	18126D107KAT2A	AVX	www.avx.com	100μF/6V3/X5R/1812
LED1	1W	N/A	LXHL-PW01	Lumileds	www.lumileds.com	1W white LED emitter

Table 1 Bill of materials

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Performance

Increasing efficiency

On ZXSC400 reference design, R1 is set to 22mΩ to ensure that the LED current is regulated over the full input voltage range of 3V ~ 1.8V. For improved efficiency R1 can be changed to a 33mΩ resistor but LED current will not be regulated below 2V. See Figure 2, Performance graphs.

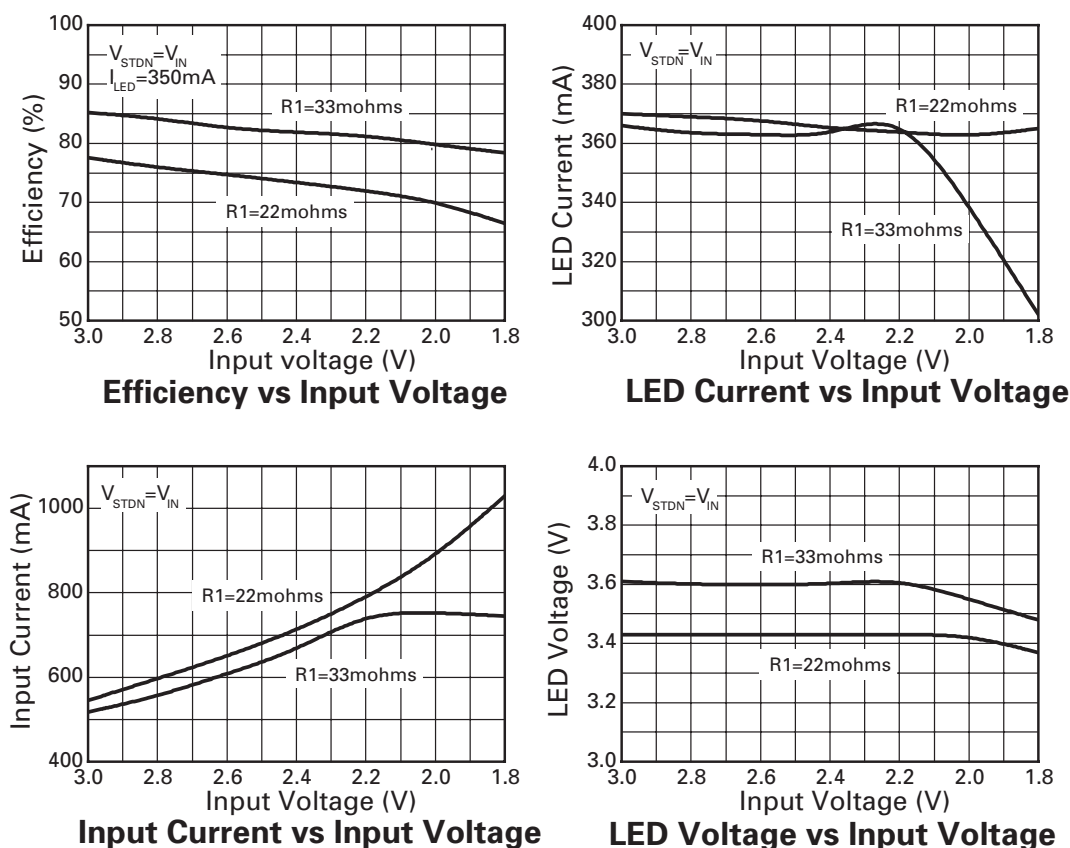


Figure 2 Performance graphs

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