
Design Note 68

ZXSC310 High power torch reference design

Introduction

This design note shows a typical ZXSC310 LED driver circuit for a high powered LED torch. The input voltage ranges from 0.7V to 1.6V with a maximum output current of 335mA at 1.4V input.

A typical schematic diagram is shown in figure 1.

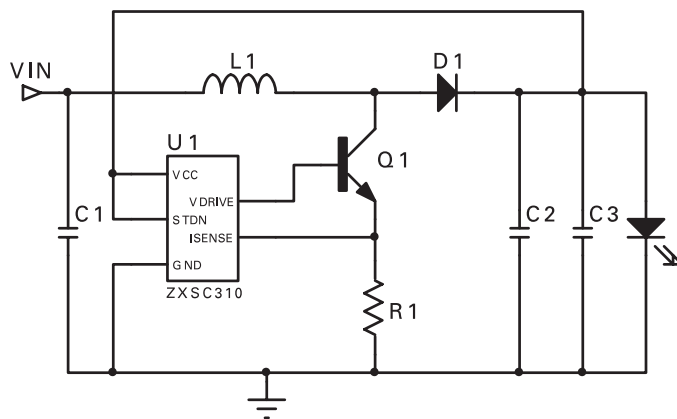


Figure 1

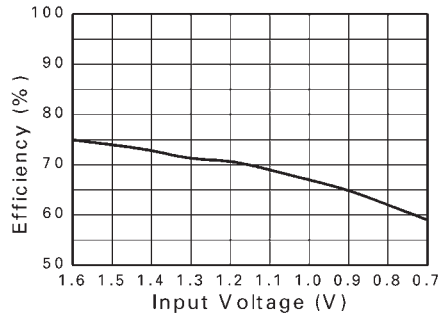
Materials list

| Ref | Value | Part Number | Manufacturer | Comments |
|-----|----------------|---------------|--------------|-----------------------|
| U1 | | ZXSC310E5 | Zetex | LED driver in SOT23-5 |
| Q1 | | FMMT617 | Zetex | Low sat NPN in SOT23 |
| D1 | 2A | ZHCS2000 | Zetex | 2A Schottky in SOT23 |
| L1 | 7.5 μ H | DO3316P-153x2 | Coilcraft | IsAT =3A |
| R1 | 19.5m Ω | Generic | Generic | 0805 size |
| C1 | 1 μ F | Generic | Generic | |
| C2 | 220 μ F | Generic | Generic | |
| C3 | 100 μ F | Generic | Generic | |

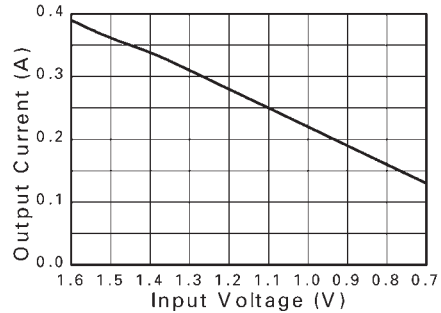
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Typical operating characteristics

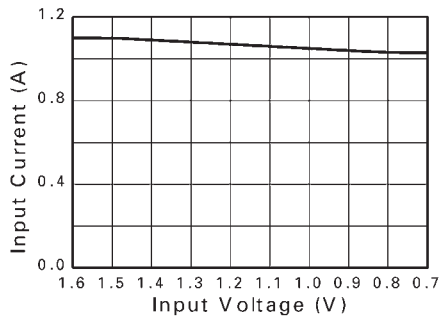
(For typical application circuit where $T_A=25^\circ\text{C}$ unless otherwise stated)



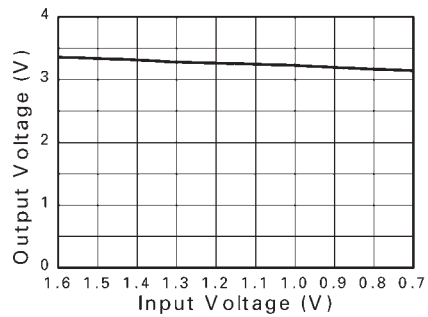
Input Voltage vs Efficiency



Input Voltage vs Output Current



Input Voltage vs Input Current



Input Voltage vs Output Voltage

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