

Edge Triggered Bleeder with Current Sense

■ Description

- ▶ Bleeder circuit for a TRIAC dimmer with an edge detection circuit, variable current source, and a current sense circuit for current compensation
- ▶ Edge detection circuit includes a high pass filter (R1, R2, C1) to detect the high frequency transition in the input voltage V_{IN} when the TRIAC fires and triggers the variable current circuit (Darlington pair Q1, Q2) to provide the bleeder current I_B
- ▶ Current sense circuit triggers the variable current circuit to provide the bleeder current I_B when the sensed input current I_{IN} (RSENSE) falls below a threshold
- ▶ When input current I_{IN} is below a threshold, transistor Q3 is off and diode D2 is forward biased and triggers the variable current circuit (via D1, R4, D2 or C2, R4, D2)

■ Benefits

- ▶ Bleeder current I_B maintains the input current I_{IN} above the TRIAC holding current, especially for leaky TRIACs
- ▶ No efficiency loss, as the bleeder current is only provided when an edge is detected or when the input current I_{IN} falls below a threshold
- ▶ **Could be used with:** Lighting drivers

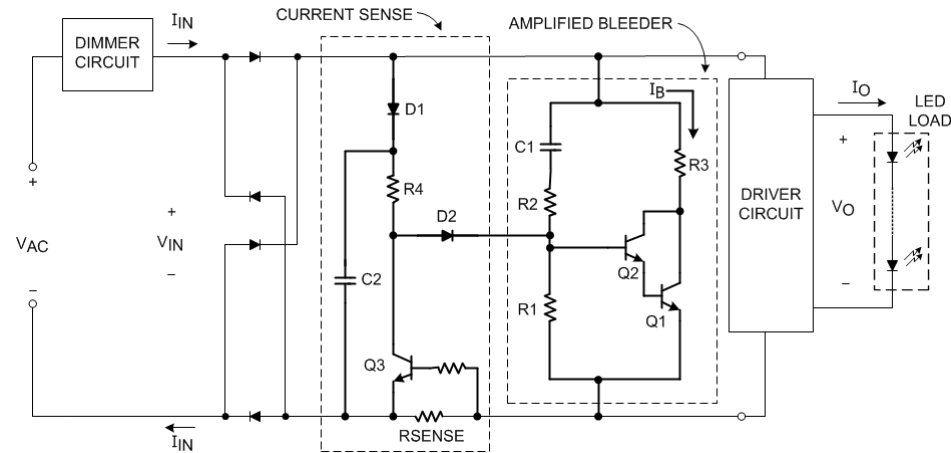


Figure 1. Example amplified bleeder with current sense circuit