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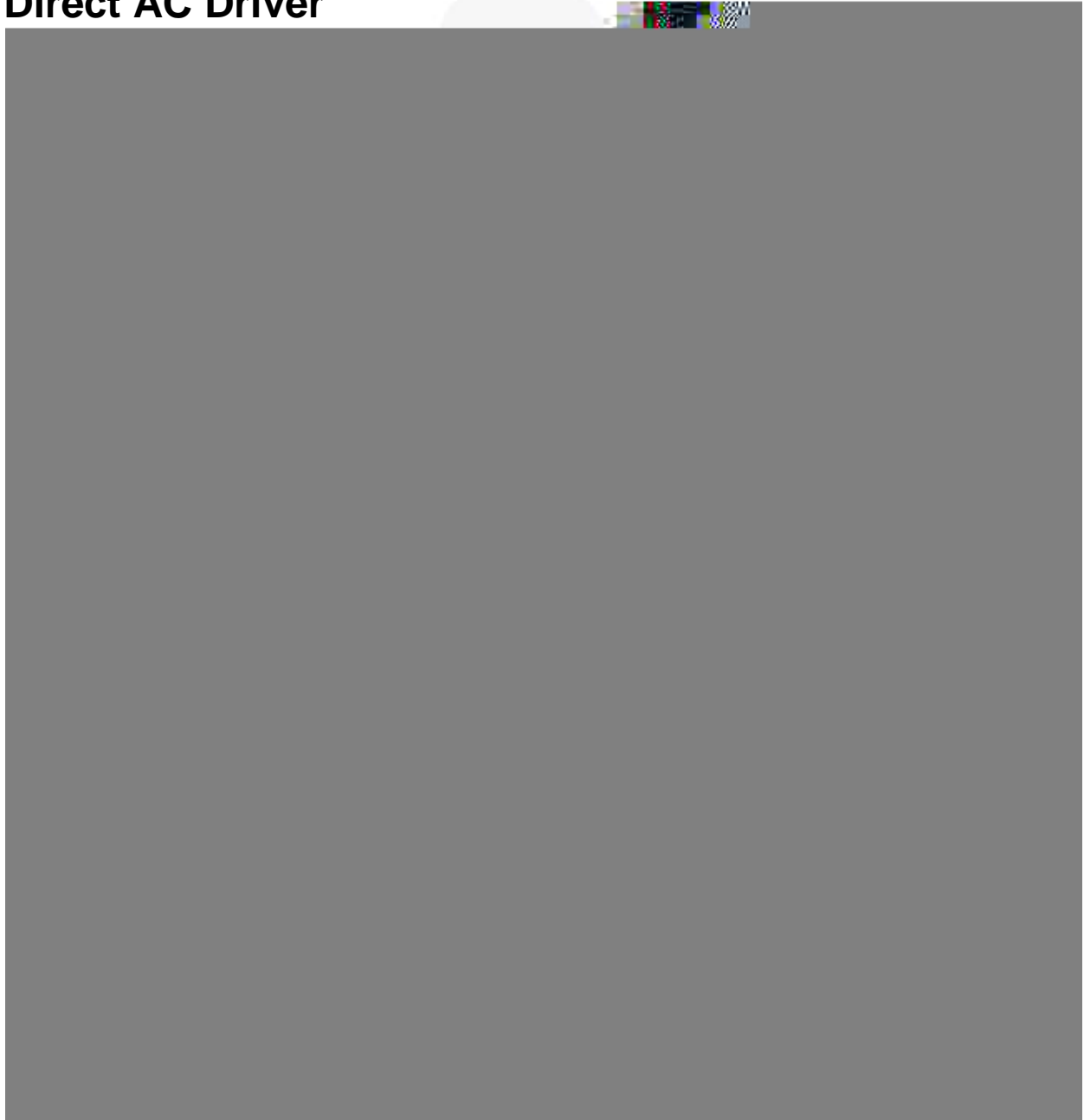
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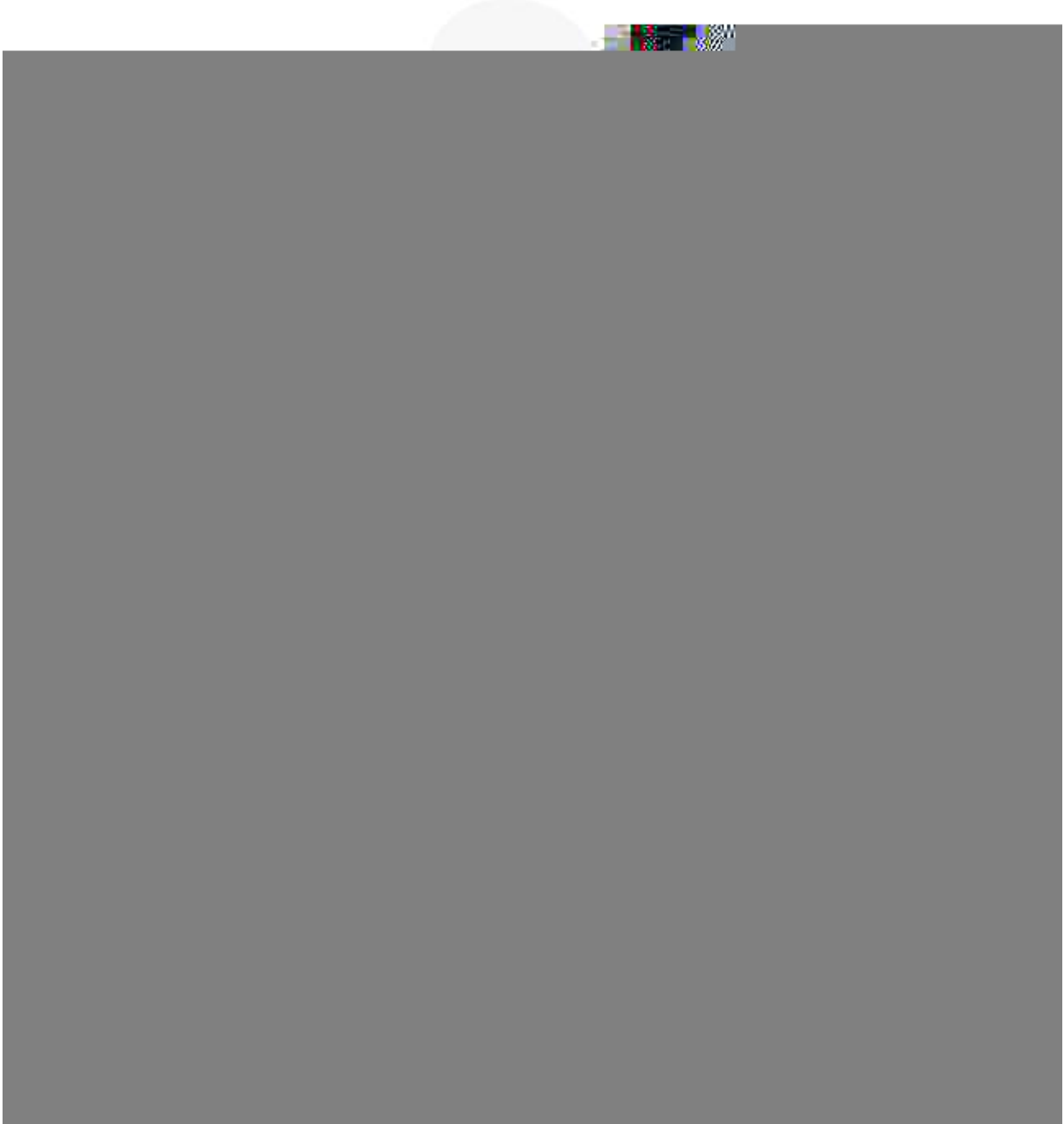


# FL77944

## Analog/PWM/Phase-cut Dimmable High Power LED Direct AC Driver



FL77944 — Analog/PWM/Phase-cut Dimmable High Power LED Direct AC Driver



## Pin Configuration

Figure 3. SOIC-16 EP (Top View)

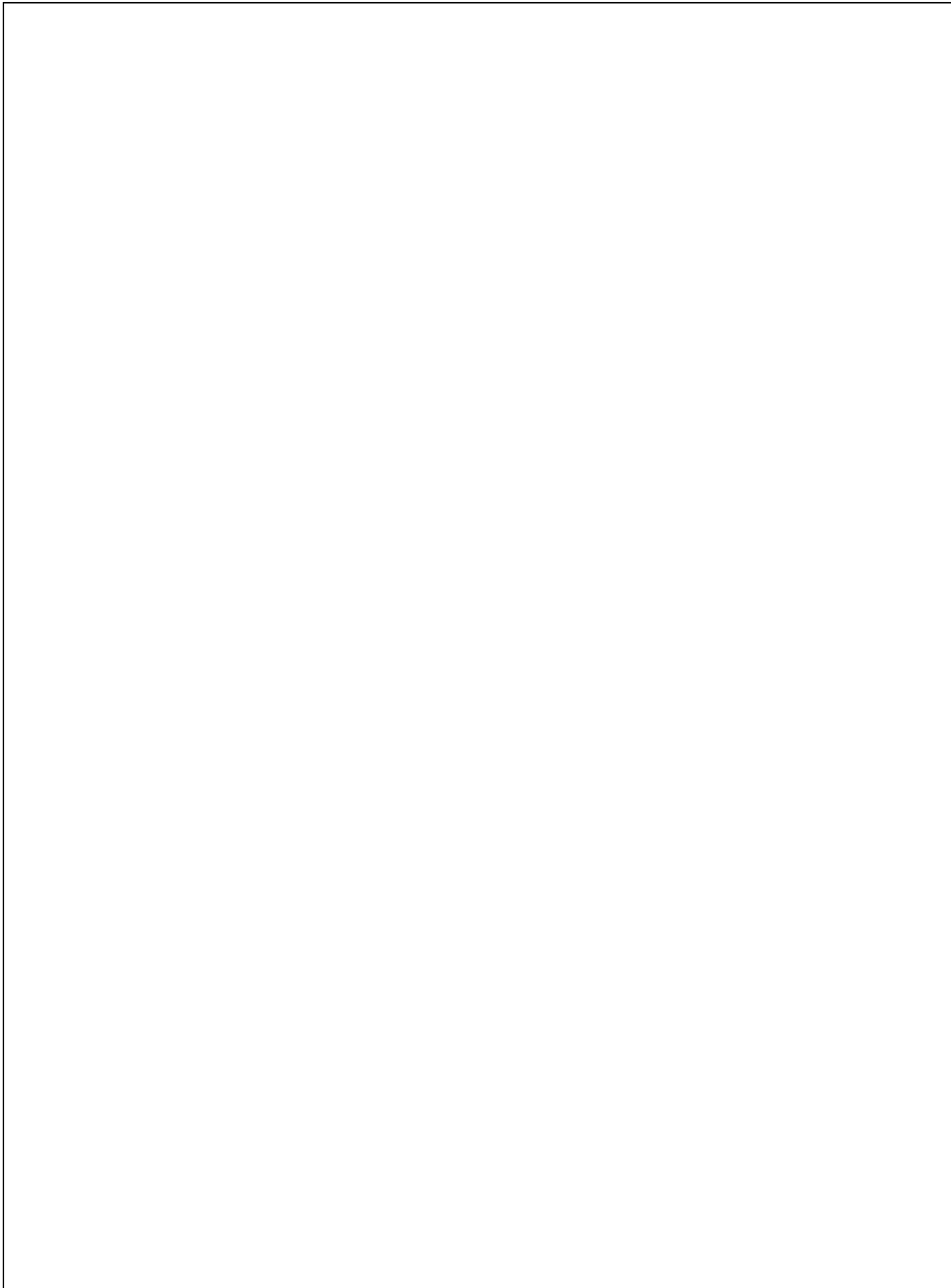
### Thermal Characteristics <sup>(1) (2)</sup>

Component	Package	$\theta_{JA}$ (1S PCB)	$\theta_{JA}$ (2S2P PCB)	Unit
FL77944MX	16-Pin Small-Outline Integrated Circuit (SOIC-EP)	102	24	°C/W

**Notes:**

1.  $\theta_{JA}$







### Typical Performance Characteristics

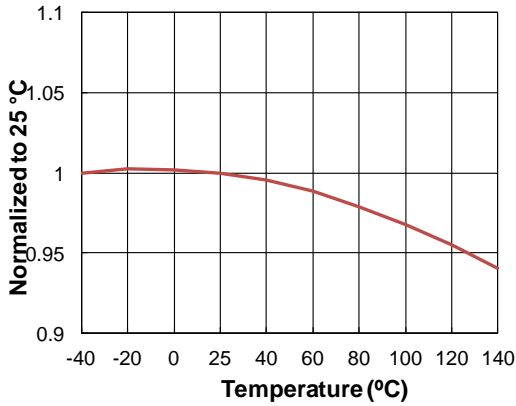


Figure 5.  $I_{QUIES,VIN}$  vs. Temperature

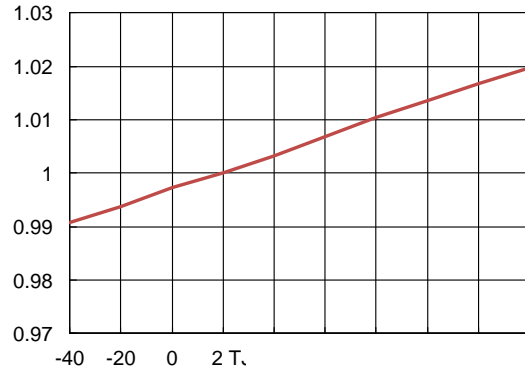


Figure 6.  $V_{DD}$  vs. Temperature

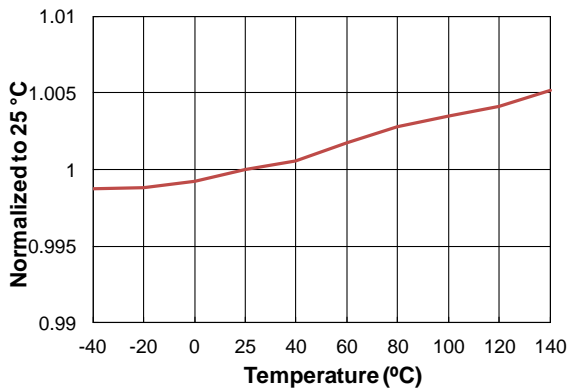


Figure 7.  $I_{LED1}$  vs. Temperature

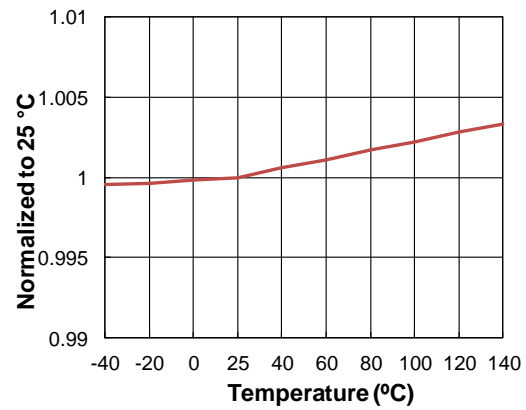


Figure 8.  $I_{LED2}$  vs. Temperature



Figure 9.  $I_{LED3}$  vs. Temperature

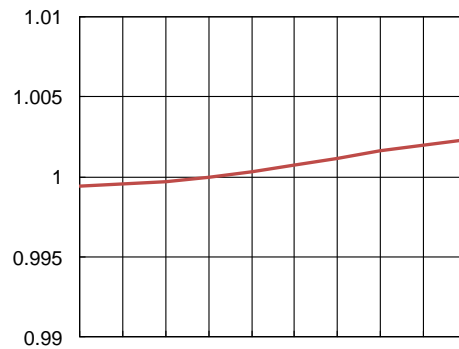


Figure 10.  $I_{LED4}$  vs. Temperature



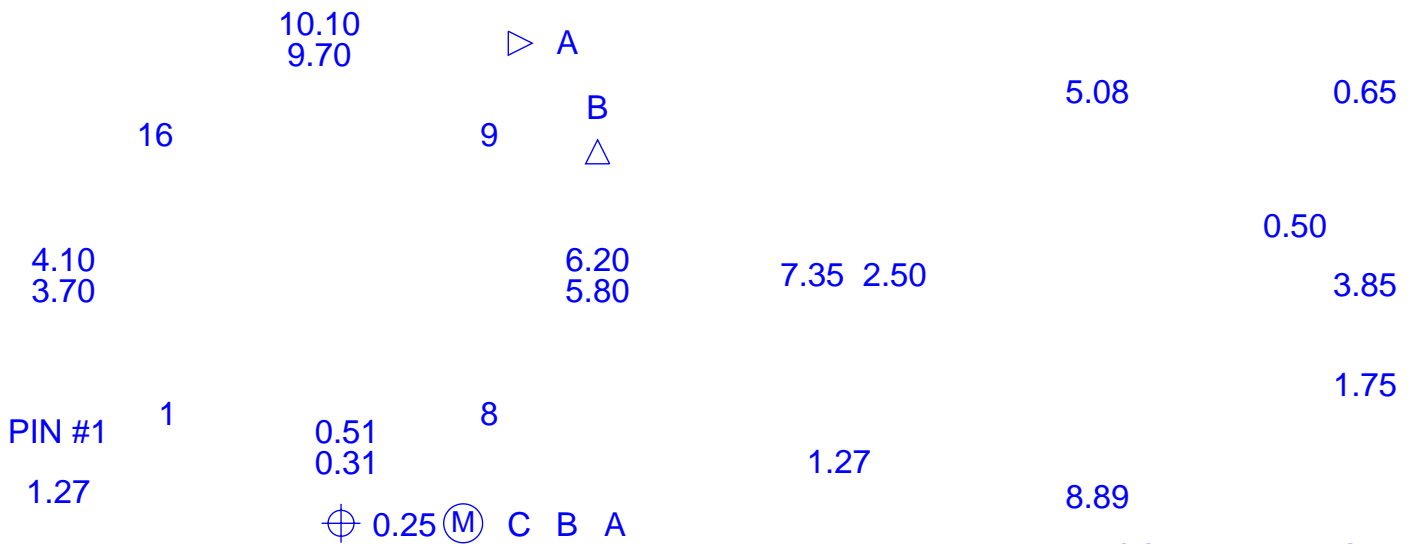
## Functional Description

The FL77944 can drive LED strings attached directly to the rectified AC mains using only two external RC components ( $R_{CS}$  and  $C_{VDD}$ ). With 4 integrated high voltage current sink, LED current in each string is precisely controlled with system compactness. High PF and low THD are obtained by the optimized current sink levels. Phase-cut dimming is easily obtained with wide dimming range and good dimmer compatibility. Dedicated DIM pin can be used to implement analog or digital dimming function. Flicker index in the direct AC drive topology can be improved by adopting proprietary self valley-fill solution.

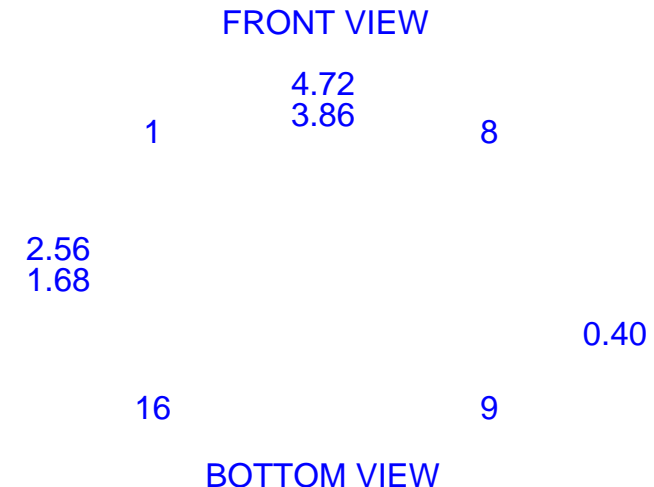
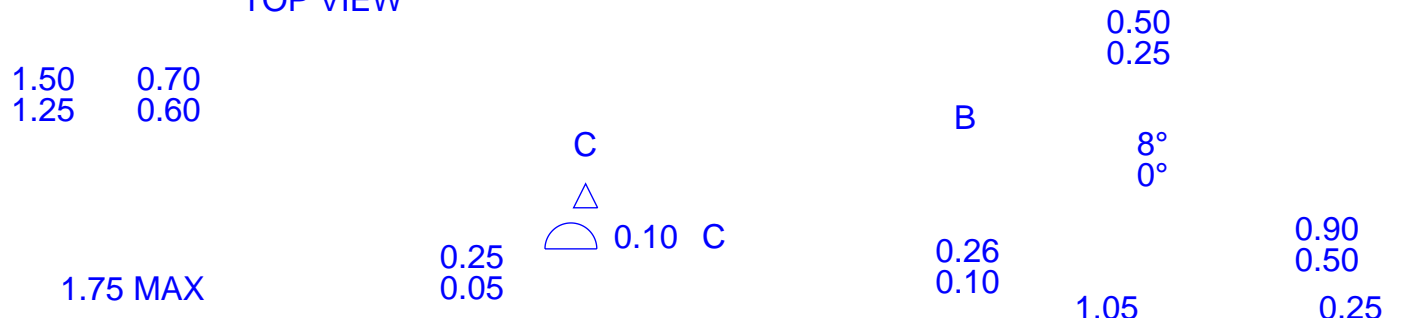
## Operation

When the rectified AC line voltage,  $V_{IN}$ , is higher than


A good starting point for choosing a LED configuration is to have about 260 V~280 V of the total  $V_F$  for 220  $V_{AC}$  mains and 130 V~140 V of the total  $V_F$  for 120  $V_{AC}$ .



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