

## Simple 90V, 25mA, Temperature Compensated, Constant Current, LED Driver IC

### Features

- ▶ 5.0V to 90V operating range ( $V_{A-B}$ )
- ▶  $25\text{mA} \pm 10\%$  at 5-90V
- ▶ 0.01% / °C typical temperature coefficient
- ▶ No external components (two terminal device)
- ▶ Can be paralleled for higher current

### Applications

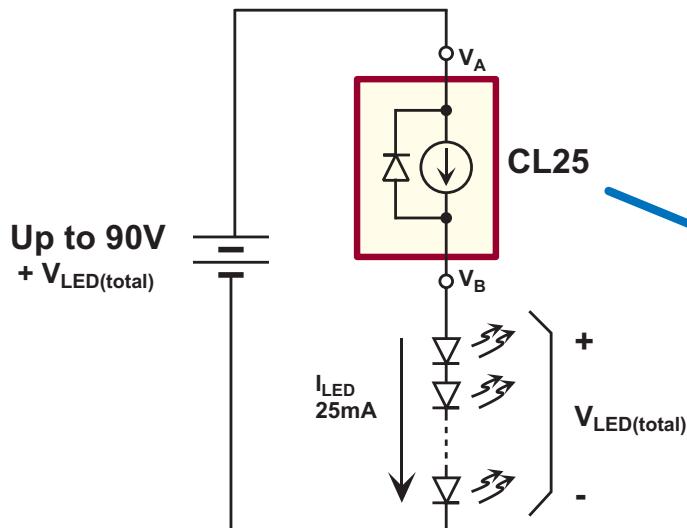
- ▶ LED channel lighting
- ▶ Industrial lamp indicators
- ▶ Accent lighting

### General Description

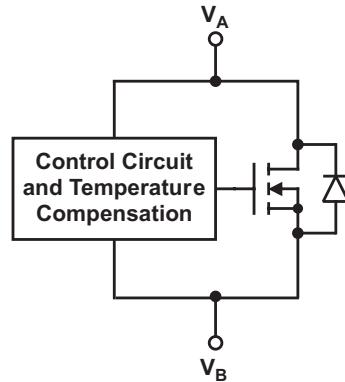
The Supertex CL25 is a high voltage, temperature compensated, constant current source. The device is trimmed to provide a constant current of  $25\text{mA} \pm 10\%$  at an input voltage of 5-90V. No external components are required. The device can be used as a two terminal constant current source or constant current sink.

A typical application for the CL25 is to drive LEDs with a constant current of 25mA. They can also be used in parallel to provide higher currents such as 50mA, 75mA or 100mA. The device is available in TO-92 and TO-243AA (SOT-89) packaging.

### Typical Application Circuit



### Functional Circuit Diagram



## Ordering Information

Device	Package Options	
	TO-92	TO-243AA (SOT-89)
CL25	CL25N3-G	CL25N8-G

-G indicates package is RoHS compliant ('Green')

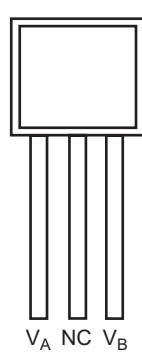


## Thermal Characteristics

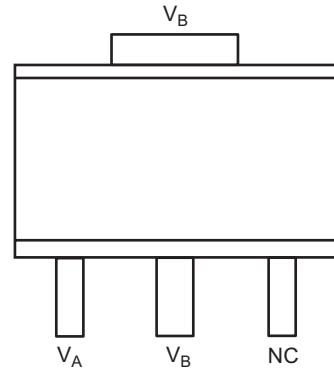
Package	Power Dissipation @T <sub>A</sub> = 25°C	θ <sub>JC</sub> °C/W	θ <sub>JA</sub> °C/W
TO-92	0.6W	125	170
TO-243AA (SOT-89)	1.3W*	15	78*

\* Mounted on FR4 board; 25mm x 25mm x 1.57mm

## Pin Configuration



**TO-92**  
(front view)



**TO-243AA**  
(top view)

NC = No Connect

## Absolute Maximum Ratings

Parameter	Value
Operating voltage, V <sub>A-B</sub>	100V
Operating junction temperature, T <sub>J</sub>	-40°C to +125°C
Storage temperature, T <sub>S</sub>	-55°C to +150°C

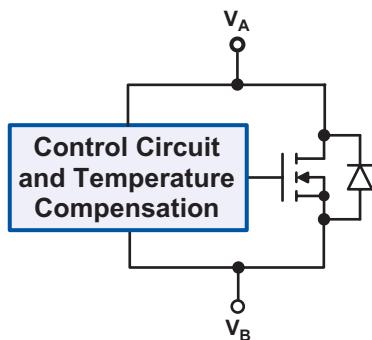
Absolute Maximum Ratings are those values beyond which damage to the device may occur. Functional operation under these conditions is not implied. Continuous operation of the device at the absolute rating level may affect device reliability. All voltages are referenced to device ground.

## Electrical Characteristics

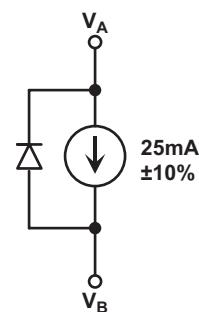
(T<sub>J</sub>=25°C unless otherwise specified)

Symbol	Parameter	Min	Typ	Max	Units	Conditions
V <sub>A-B</sub>	Operating voltage	5	-	90	V	---
I <sub>A-B</sub>	Current regulation	22.5	25	27.5	mA	V <sub>A-B</sub> = 5V - 90V
ΔI <sub>A-B</sub> /ΔT	I <sub>A-B</sub> temperature coefficient	-	0.01	-	%/°C	V <sub>A-B</sub> = 45V, T <sub>J</sub> = -40°C to +100°C
T <sub>J</sub>	Operating junction temperature	-40	-	125	°C	---
R <sub>A-B</sub>	Dynamic resistance	-	300k	-	Ω	---

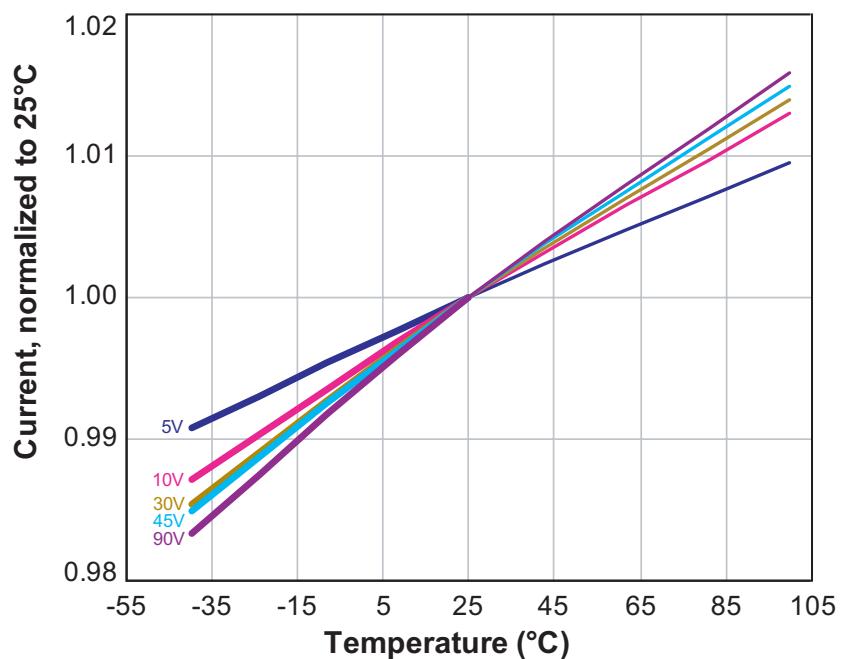
## Functional Circuit Diagram



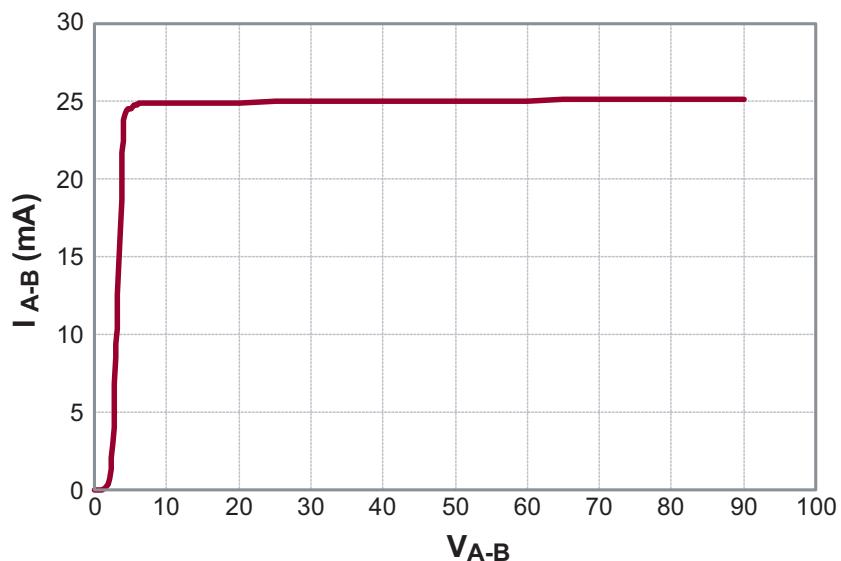
## Equivalent Block Diagram



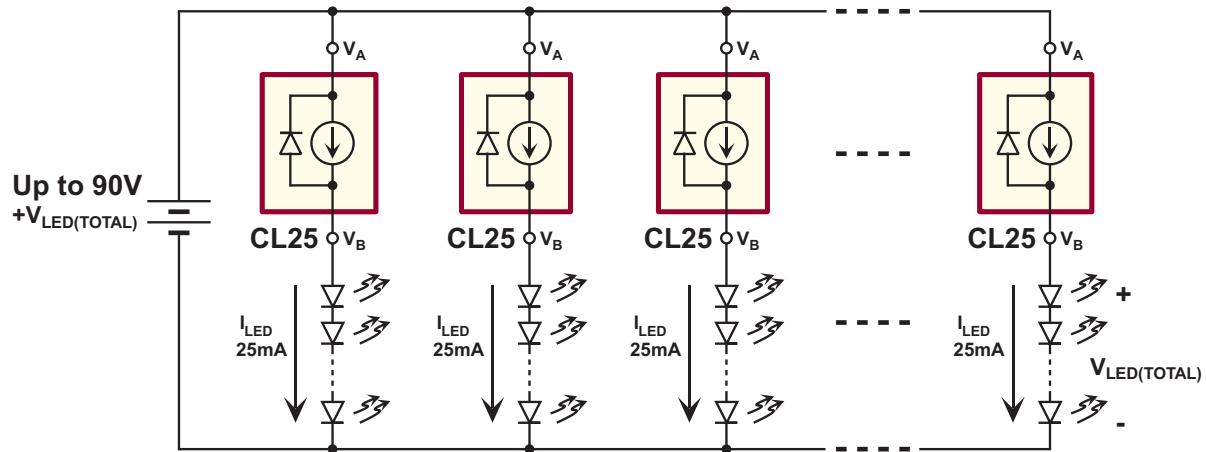
## Temperature Characteristics



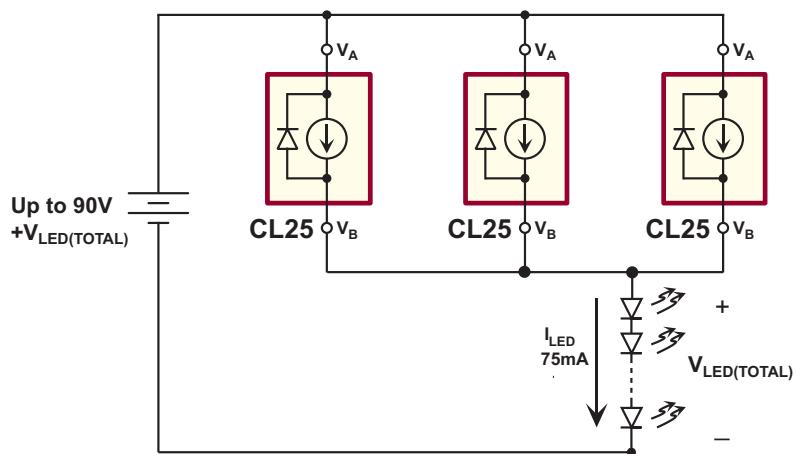
## Output Current vs Voltage



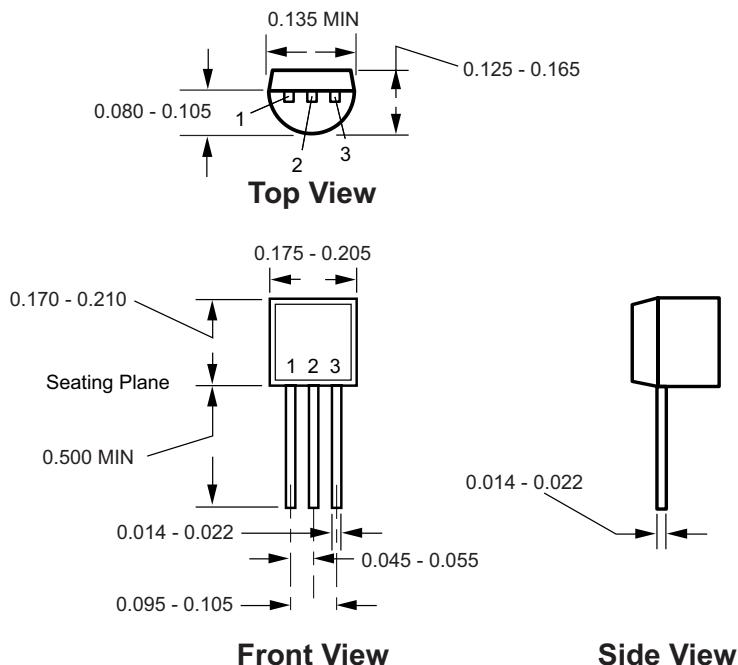
## CL25 for Multiple LED Strings



## CL25 for Higher Current

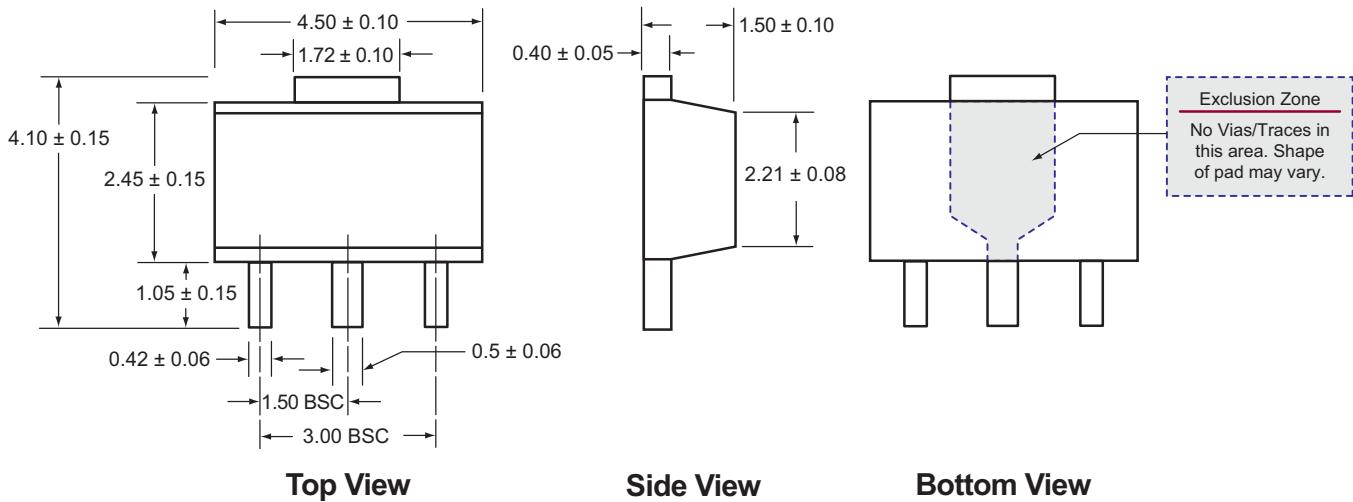


### 3-Lead TO-92 Package Outline (N3)



**Notes:**  
All dimensions are in millimeters; all angles in degrees.

### 3-Lead TO-243AA (SOT-89) Package Outline (N8)



**Notes:**  
All dimensions are in millimeters; all angles in degrees.

(The package drawings in this data sheet may not reflect the most current specifications. For the latest package outline information go to <http://www.supertex.com/packaging.html>.)

**Supertex Inc.** does not recommend the use of its products in life support applications, and will not knowingly sell its products for use in such applications, unless it receives an adequate "product liability indemnification insurance agreement". **Supertex** does not assume responsibility for use of devices described and limits its liability to the replacement of the devices determined defective due to workmanship. No responsibility is assumed for possible omissions or inaccuracies. Circuitry and specifications are subject to change without notice. For the latest product specifications, refer to the **Supertex** website: <http://www.supertex.com>.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

#### Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помошь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помошь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: [org@eplast1.ru](mailto:org@eplast1.ru)

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.