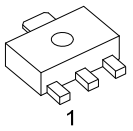
16V LINEAR LED DRIVER WITH ADJUSTABLE CURRENT



SOT-89

■ DESCRIPTION

UTC **ULL12** is a 16V linear LED driver with adjustable current as high as 300mA (limited by heat dissipation of the IC package).

UTC **ULL12** is designed to provide a constant current source determined by an external sense resistor connected between Vsense and Cathode. Less than 2.5% current error is realized when input voltage changes from 1.3V to 16V. This device is designed with a <100ppm temperature coefficient, which leads to a perfect constant current under a wide environment temperature range.

UTC **ULL12** uses the power from the negative terminal of the LED string, an extra power trace from the input power of LED lighting module is not necessary. The number of external component is very limited, only a resistor and a capacitor.

■ FEATURES

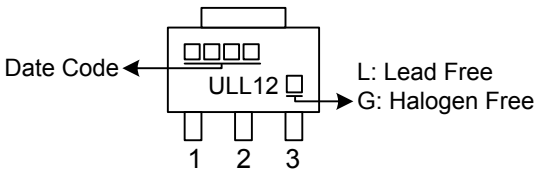
* Wide input voltage 1.3V ~16V
* 1mA~300mA LED Current Driver
* Drive current programmable by external sense resistor
* NTC Function
* <100ppm temperature coefficient
* 3-pin with least peripheral component

■ ORDERING INFORMATION

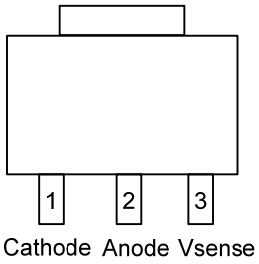
Ordering Number		Package	Packing
Lead Free	Halogen Free		
ULL12L-AB3-R	ULL12G-AB3-R	SOT-89	Tape Reel

ULL12G-AB3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AB3: SOT-89 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	Cathode	Connect to input voltage, this pin can withstand voltage as high as 12V. Please connect a 1uF MLCC capacitor from Anode to Cathode.
2	Anode	The “Ground” pin of this device.
3	Vsense	The sense voltage pin to set the driving current by connecting a sense resistor (Rsense) between this pin and “Cathode” pin. The sense voltage is 1.2V, and current is set by 1.2/Rsense.

■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
ANODE Voltage		16	V
VSENSE Voltage		1.2	V
ANODE to CATHODE Current		Set by Rsense	
Operating Temperature Range	T_{OPR}	-40 ~ +85	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	180	°C/W
Junction to Case	θ_{JC}	50	°C/W

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Voltage across Anode and Cathode	V_{AC}	I_{LED} =20mA	1.3		16	V
LED Driving Current	I_{AC}	V_{AC}=2.2V, Iset=20mA	-2	0	+2	%
Sense Voltage at Vsense Pin	V_{SNS}	V_{AC}=2.2V, Iset=20mA	1.17	1.2	1.23	V

■ TYPICAL APPLICATION CIRCUIT