

60W Constant Voltage Driver

VTS-60-XX IP67 L-I

Features

- High efficiency up to 89%
- Built-in active PFC function
- All-Around Protection: OLP,SCP,OTP
- Compact plastic Case, Free Air Convection
- Waterproof(IP67) and UL Dry/Damp/Wet Location
- Input Surge Protection:2kV line-line
- High Reliability & Long Lifetime & 3 Years Warranty



Description

The VTS-60-XX IP67 L-I series is a 60W, constant-Voltage IP67 LED driver that operates from 176-264Vac input with excellent power factor and THD feature. It is created for consisting of LED lamps, lampion, architecture and billboard lights. The high efficiency of these drivers and compact plastic case enable them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, output over voltage, short circuit, and over temperature.

Models

Model	Input Voltage Range	Output Voltage	Output Current Range	Max output Power	Power Factor	Typical Efficiency
VTS-60-12 IP67 L-I	176~264Vac	12V	0~5A	60W	0.95	86.5%
VTS-60-24 IP67 L-I	176~264Vac	24V	0~2.5A	60W	0.95	89.0%

Note:

1. Test condition: 230Vac/50Hz, at full Load;

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Input Specifications

Parameter	Min.	Typ.	Max	Notes
Rated Input Voltage	220V	-	240V	
Range of input voltage	176V	-	264V	
Input Frequency	47Hz	-	63Hz	
Leakage Current	-	-	0.7mA	240Vac
Input Current	-	-	0.43A	176Vac, at full load condition
Inrush Current	-	-	50A	230Vac/50Hz, 90° degree phase, full load, cold start, 50%I _{pk} ~50%I _{pk} , duration=380μS
No Load Loss	-	-	0.5W	220Vac/50Hz, no load
Power Factor	0.9	0.95	-	220Vac/50Hz, at full load condition
THD	-	5%	10%	220Vac, 100%Load, 25°C

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Voltage				
VTS-60-12 IP67 L-I	-	12V	-	At full load condition
VTS-60-24 IP67 L-I	-	24V	-	
Output Voltage Tolerance	-5%	-	5%	At full load condition
Total Output Voltage Ripple	-	-	2%	At full load condition, PK-PK
Startup Overshoot Voltage	-	-	10%	At full load condition
Load Regulation	-3%	-	3%	0%~100% Load
Line Regulation	-3%	-	3%	220Vac~240Vac, full load
Startup times	-	0.5S	1S	

Note:

- 1) All parameters NOT specially mentioned are measured at 230Vac input and 25°C of ambient temperature.
- 2) Ripple & Noise are measured at 20MHz of bandwidth by using a 300mm twisted pair-wire terminated with a 0.1uF & 47 μF parallel capacitor.

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General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 230Vac input:				Measured at 230Vac,full load and steady –state temperature in 25℃ ambient
VTS-60-12 IP67 L-I	84.5%	86.5%	-	
VTS-60-24 IP67 L-I	87.0%	89.0%	-	Efficiency will be about 2.0% lower if measured immediately after startup
MTBF	-	250,000 Hours	-	Measured at 230Vac input, 80% Load and 25 ℃ ambient temperature (MIL-HDBK-217F)
Ambient Temperature	-40℃	-	+70℃	Refer to derating curve for the details.
Operating Case Temperature for Safety Tc_s	-40℃	-	+90℃	
Operating Case Temperature for Warranty Tc_w	-40℃	-	+75℃	Case temperature for 3 years warranty. Humidity: 10% RH to 100% RH.
Lifetime	-	30,000 Hours	-	Measured at 230Vac input, 100%Load and 80℃ case temperature; See lifetime vs. Case Temperature curve for the details
Storage Temperature	-40℃	-	+85℃	Humidity: 5% RH to 100% RH.
Dimensions	162.5X42.5X32mm			With mounting ear, See Mechanical Outline for the detail

Safety Standards

Safety Category	Country / Territory	Standards
CE, ENEC	Europe	EN61347-1, EN61347
CB	Internation	IEC61347

EMC Compliance

EMC Category	Country / Territory	Standards
CE	Europe	EN 55015, EN 61000-3-2, EN 61000-3-3
		EN61000-4-2,3,4,5,6,8,11
		EN 61547

Note :

- 1) This LED driver meets the EMI specifications above, but EMI performance of a lighting fixture also depends on the other devices on the fixture.
- 2) When the withstand voltage test is performed, the gas discharge tube grounding/disconnecting device (nut and metal lock piece) located on the driver input should be temporarily removed to prevent the gas discharge tube inside the driver from functioning(refer to IEC60598-1-10.2).After the test is completed, the nut and metal lock piece must be reinstalled to restore the power line to the ground surge protection function and ensure

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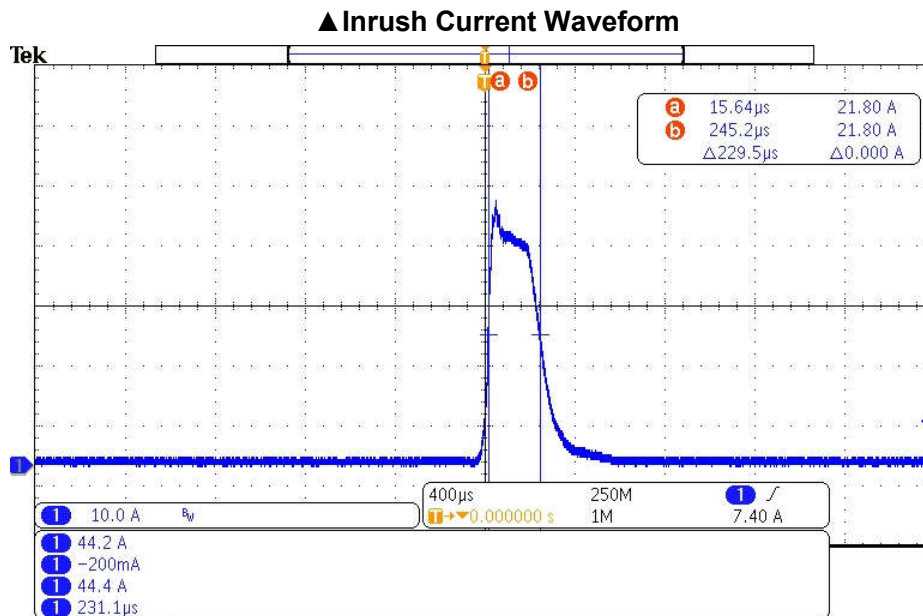
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reliable contact between the metal lock piece and the end cover.

Protection Functions

Parameter	Min.	Typ.	Max.	Note
Over Load Protection	110%	-	150%	Hiccup, Auto Recovery
Short Circuit Protection	-	-	-	Hiccup, Auto Recovery
Over Temperature Protection	-	-	-	Hiccup, Auto Recovery

Curve @VTS-60-24 IP67 L-I

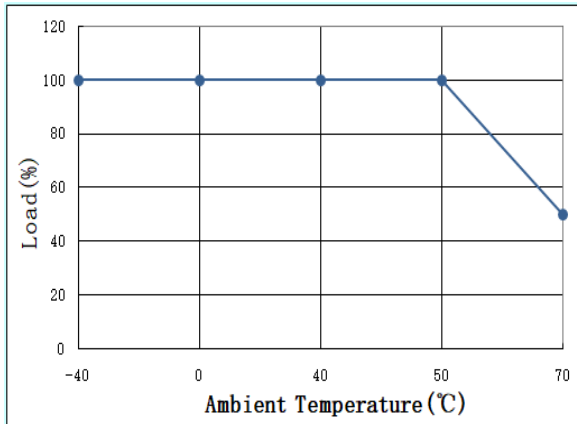


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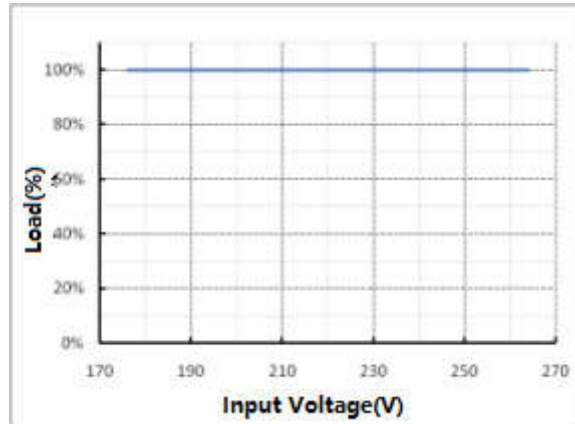
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▲ Derating

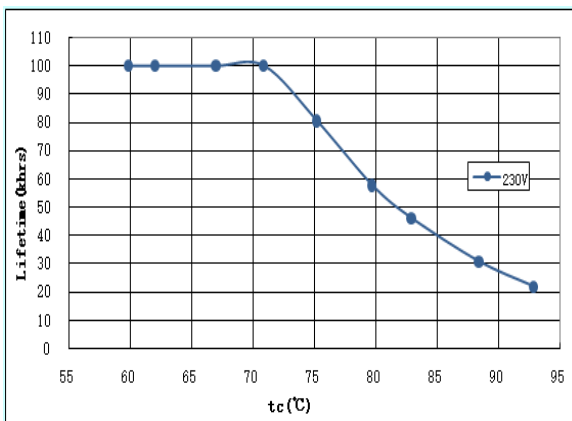
Output Power-Temperature



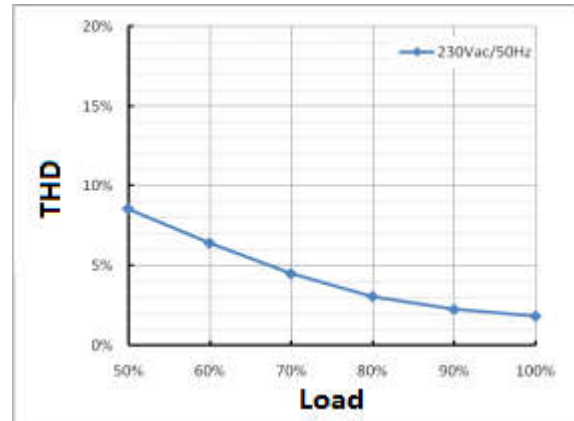
Output Power-Input Voltage



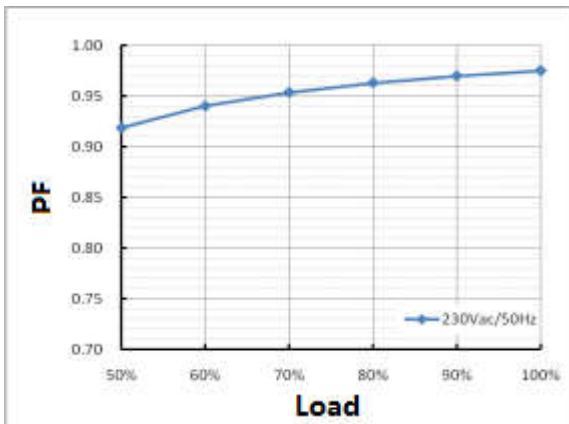
▲ Lifetime



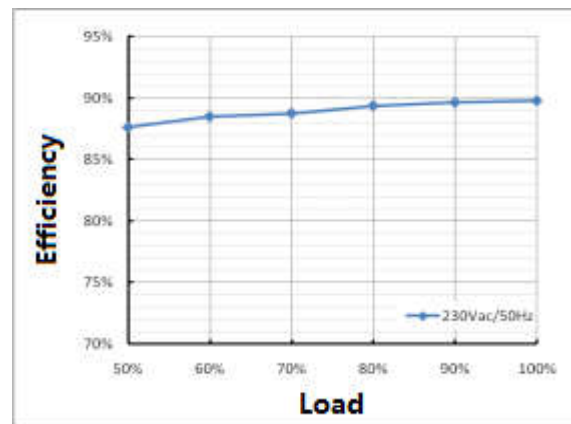
▲ Total Harmonic Distortion



▲ Power Factor



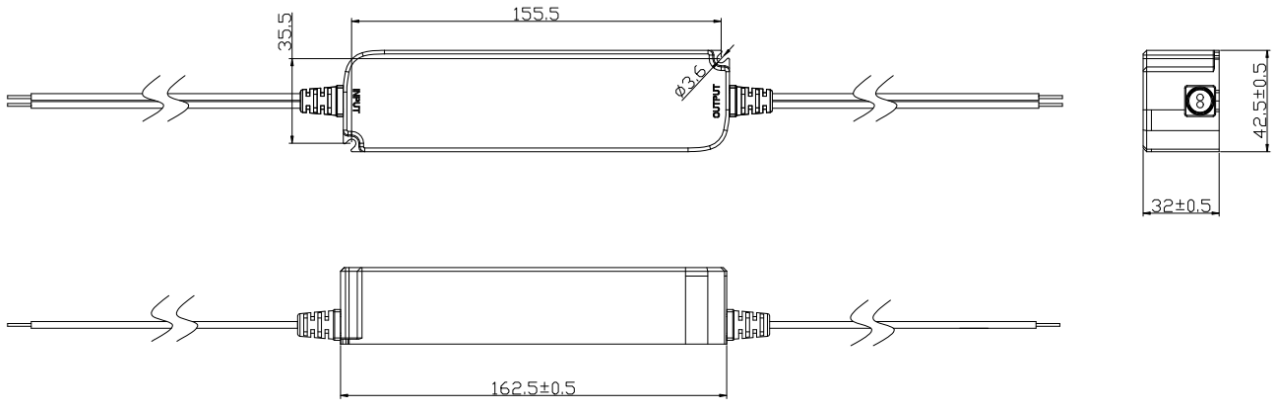
▲ Efficiency



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Mechanical Outline



Note: Wire length of input and output can be changed as customer's requirement

TYPE	Total Length	Outside Color	Inside Wires Color	Wire Model/Diameter
Input wire	0.60M	Brown/Blue	Brown/Blue	AWG18
Output wire	0.60M	Red/Black	Red/Black	AWG18