

Constant Voltage LED Drivers

35W & 50W for Outdoor



DATA SHEET



Product information

TungSRAM's new Constant Voltage LED Drivers are designed for lighting used for signage and landscape illumination. The drivers have built-in active PFC, multiple protections, and 6KV surge immunity, with 12V, 24V, 36V, 48V output voltage. The range has a robust design with high reliability and long lifetime.

Product Features

- Constant voltage output
- High power factor >0.96 (230VAC & full load)
- Universal input voltage 90~305VAC
- Protections: Short circuit, Over temperature, Over voltage, Over load
- Surge immunity: line-line 4KV, line-earth 6KV
- IP67, fully potted with silicon glue, suitable for wet, damp & dry locations
- Ambient temperature: -40°C - 60°C

Application area

- Suitable for landscape lighting

Specification summary

Max Output Power(W)	Output Voltage Range (Vdc)	Output Current Range (A)	Typical Efficiency	Model	Product Code
35	12	0~2.90	85%	LPS Sign 35/12 90-305V 67/B	93106751
	24	0~1.46	87%	LPS Sign 35/24 90-305V 67/B	93106750
	36	0~0.97	87%	LPS Sign 35/36 90-305V 67/B	93110175
	48	0~0.73	88%	LPS Sign 35/48 90-305V 67/B	93110174
50	12	0~4.17	85%	LPS Sign 50/12 90-305V 67/B	93106749
	24	0~2.08	88%	LPS Sign 50/24 90-305V 67/B	93106748
	36	0~1.39	89%	LPS Sign 50/36 90-305V 67/B	93110173
	48	0~1.04	89%	LPS Sign 50/48 90-305V 67/B	93110172

All performance parameters are measured at 25C ambient temperature, 230VAC input, full load conditions, except for those specified

INPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90VAC	100-277VAC	305VAC	
Input Frequency	47HZ	50/60	63Hz	
Leakage Current	-	-	0.75mA	277VAC/50Hz
Input AC Current	35W	-	0.5A	100-277VAC & full load
	50W	-	0.8A	
Power Factor	0.95	0.96	-	230VAC; 100% load
Total Harmonic Distortion	35W	-	20%	
	50W	-	15%	

OUTPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%	-	5%	Full load
Output Voltage Ripple Max (pk-pk, full load)	35W	-	3%	Full load with additional parallel 0.1uF ceramic and 10uF electrolytic capacitor. Measured by 20 MHz bandwidth oscilloscope
	50W	-	2%	
Output overshoot	-	-	10%	When the power is on
Line Regulation	-	-	3%	25C±10C ambient temperature, 100% load, change input from 90VAC to 305VAC.
Load Regulation	-	-	3%	25C±10C ambient temperature, 230VAC input voltage, change load from 50 % to 100 %
Turn-on Delay Time	35W	-	3S	100V-277VAC, 100% load
	50W	-	1S	

GENERAL SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes	
Efficiency 230VAC Vo=12V Vo=24V Vo=36V Vo=48V	35W 83% 85% 85% 86%	50W 83% 86% 87% 86%	35W 85% 87% 87% 88%	50W 85% 88% 89% 88%	Measured at full load and 25C ambient temperature
Dielectric Strength	Input-Output	-	3750VAC	-	10mA/60S
	Input-PE	-	1600VAC	-	
	Output- PE	-	1600VAC	-	
Grounding Resistance	-	-	0.1Ω		25A/60S
Insulation Resistance	100MΩ	-	-		Input-Output, Input-PE, Output-PE, 500VDC, 60S, 25C, 70%RH
MTBF	-	200000 Hours	-		230VAC, 80% load (MIL-HDBK-217F)
Lifetime	-	50000 Hours	-		230VAC & 100% load, 70C Case temperature, see to Lifetime vs Tc curve
Tc_S - Operating Case Temperature for Safety	-40C	-	+85C		
Tc_W - Operating Case Temperature for Warranty	-40C	-	+60C		
Storage Temperature	-40C	-	+85C		20%-95% RH, non-condensing

RECOMMENDED NUMBER OF DRIVERS PER MCB TYPE

Driver	Inrush Current (A) Measured at 230VAC	Inrush Current (A) Claimed Max at 230VAC	Inrush Current (A) 50% peak pulse duration (µs)	Input Current (A) at 230V	Proof factor (k)	Recommended number of Drivers per MCB					
						Type B 10A	Type B 16A	Type B 25A	Type C 10A	Type C 16A	Type C 25A
35W	45.6	50	68	0.5	15	7	11	17	11	18	28
50W	45.0	50	64	0.8	15	7	11	17	11	18	28

Recommended number of Drivers per MCB = $(I_{hold}/I_{inrush}) \times 25\%$ de-rating, where I_{hold} = Proof factor (k) x non-tripping current. 25% de-rating accounts for unknown variables of installation wiring, load, thermal conditions, etc.

Recommendations are a guide only and based on standard twin+earth installation cable at 1.5mm². Consideration has been made to ensure these data are conservative and safe, since other external factors may affect the number of drivers that can be connected to a circuit breaker and these factors are beyond the control of Tungfram. We accept no responsibility for consequential damages or losses resulting from using these guidelines.

FEATURES

Parameter	Notes
Short Circuit Protection	Driver power is decreased if there is a short-circuit on output side. Automatic recovery when fault condition is removed
Over Current Protection	Driver into protection status at >1.6x (50W) or > 2.0x (35W) max Load Current. Automatic recovery when fault condition is removed
Over Voltage Protection	Shut-down into protection status at > 1.1-1.5x rated load voltage. Automatic recovery when fault condition is removed
Hot Wire	Yes
Insulation Class	Class I

SAFETY STANDARDS

Safety Category	Country / Territory	Standards
CE	Europe	EN61347-1, EN61347-2-13
CB	CB Countries	IEC61347-1, IEC61347-2-13

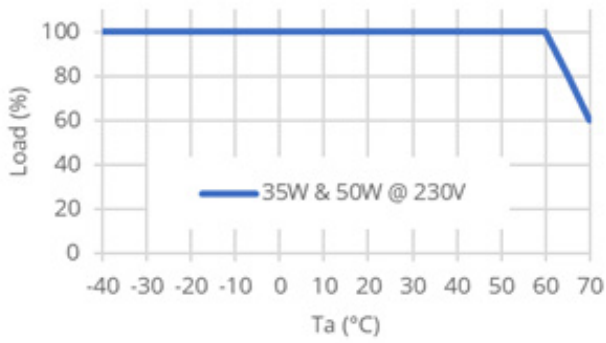
EMC COMPLIANCE

Safety 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 EN61547

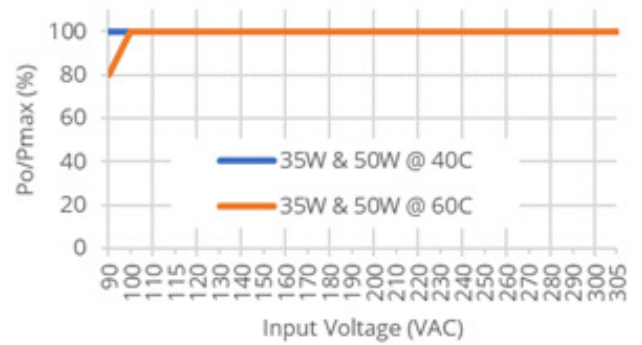
This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

Charts

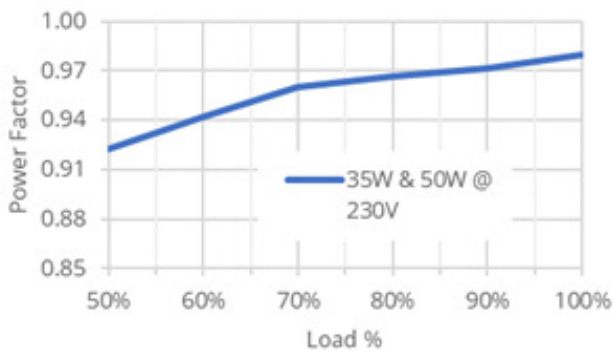
Load vs Ambient Temperature



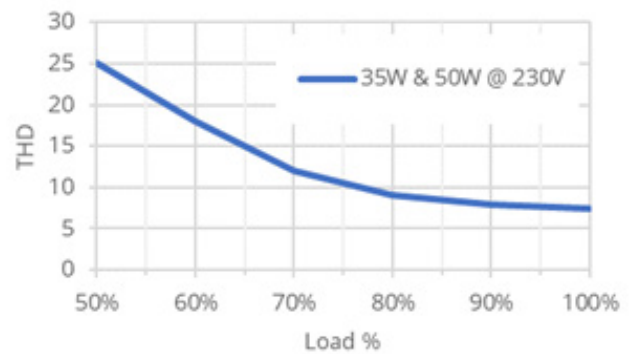
Output Power vs Input Voltage



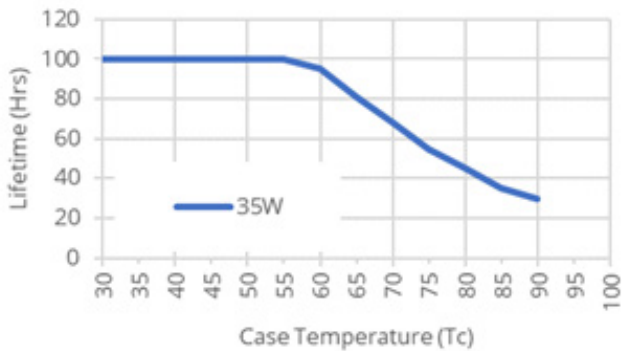
Power Factor vs Load



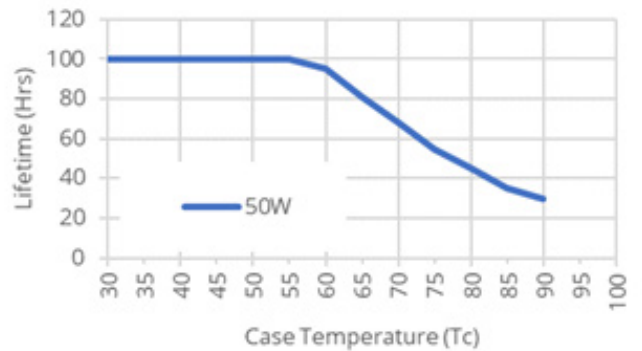
Total Harmonic Distortion vs Load



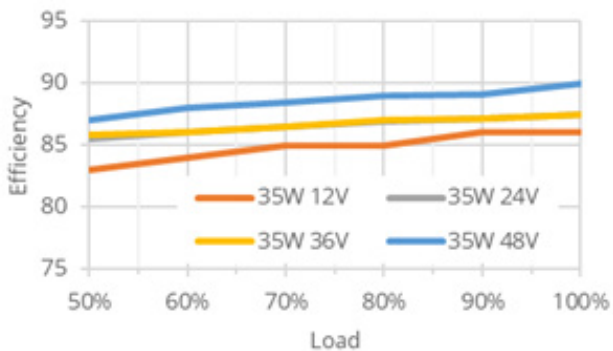
Lifetime vs Case Temperature



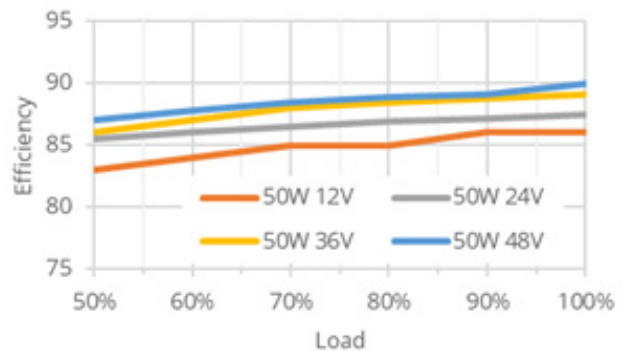
Lifetime vs Case Temperature



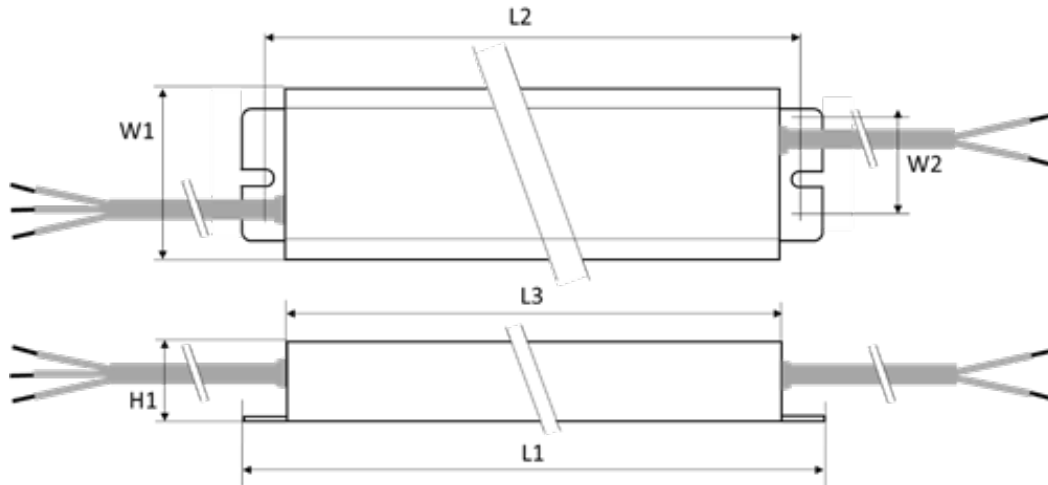
Efficiency vs Load



Efficiency vs Load



DIMENSIONS



Parameter	Unit	35W 12/24/36/48V	50W 12/24/36/48V
Total Length - L1	mm	199	199
Total Width - W1	mm	42.5	42.5
Total Height - H1	mm	34	34
Screw-hole Min Length - L2	mm	188.5	188.5
Screw-hole Max Length - L2	mm	188.5	188.5
Screw-hole Width - W2	mm	-	-
Housing length - L3	mm	175	175
AC Input wire gauge	mm ²	3x 1	3x 1
AC Input wire length	mm	300	300
DC Output wire gauge	mm ²	2x 1	2x 1
DC Output wire length	mm	300	300
Default stripped wire length	mm	50 +/-3	50 +/-3
Default bare wire length	mm	5 +/-1	5 +/-1
Net weight	grams	510+/-50	510+/-50
Shipping Carton quantity	units	15	15
Shipping Carton L*W*H	mm	410*255*200	410*255*200