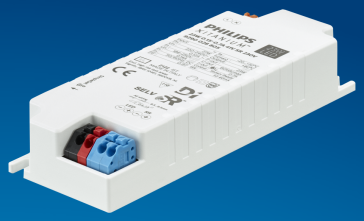
PHILIPS

Xitanium

LED driver



Datasheet

LED drivers – Extreme Small

Xitanium 12W 0.08-0.5A 25V SR 230V

9290 028 80406

Enabling future-proof LED technology

Xitanium LED drivers are designed to operate LED solutions for general lighting applications. Reliability is enhanced by features that protect the connected LED module, e.g. hot wiring, reduced ripple current and thermal derating. Most drivers feature central DC operation. In the coming years LEDs will continue to increase in efficiency, creating challenges for OEMs. With Xitanium LED drivers, flexibility in luminaire design is assured thanks to an adjustable output current. Application-oriented operating windows offer stable lumen output and light quality levels that specifiers and architects demand. The adjustable output current also enables operation of various LED PCB solutions from different manufacturers.

Features

- Configurable operating window (AOC) via SimpleSet
- Wide range of power ratings
- Housing for independent use with strain relief and loop through or built-in for Spot- and down-lighting

Benefits

- High reliability underpinned by 5 year warranty
- Future-proof flexibility - application-oriented operating windows enable LED generation and complexity management
- Compatibility - can also be used for other manufacturers' modules or OEMs' own PCB designs

Application

- Retail
- Office

Logistical data

Specification item	Value
Product name	Xitanium 12W 0.08-0.5A 25V SR 230V
EOC	871951435727300
Logistic code 12NC	9290 028 80406
EAN1 (GTIN)	8719514357273
EAN3 (box)	8719514357280
Pieces per box	48

Electrical input data

Specification item	Value	Unit	Condition
Rated input voltage range	220…240	V_{ac}	Performance range
Rated input voltage	230	V_{ac}	
Rated input frequency	50…60	Hz	Performance range
Rated input current	0.07	A	@ rated output power @ rated input voltage
Max. input current	0.08	A	@ rated output power @ min. performance input voltage
Rated input power	14.5	W	@ rated output power @ rated input voltage
Power factor performance range	≤ 0.96		@ rated output power @ rated input voltage@ rated output power @ rated input voltage
Total harmonic distortion	8	%	@ rated output power @ rated input voltage
Efficiency	82.6	%	@ rated output power @ rated input voltage @ max. Iout
Rated input voltage DC	186…250	V_{dc}	Performance range
Rated input current DC	0.08	A_{dc}	Performance range
Input voltage AC	198…264	V_{ac}	Safety operational range
Input frequency AC	45…66	Hz	Safety operational range
Input voltage DC	168…275	V_{dc}	Safety operational range
Standby Power (no load)	0.5	W	Excl. consumption by sensors connected to the DA bus
Isolation input to output	SELV		

Electrical output data

Specification item	Value	Unit	Condition
Regulation method	Constant Current		
Output voltage	8…25	V_{dc}	
Output voltage max.	60	V	Maximum voltage at open load
Output current	80…500	mA	
Output current min programmable	80	mA	
Min output current	3.5	mA	
Output current tolerance ±	5	%	@full load
Output current ripple LF	≤ 4	%	Ripple = peak / average < 3kHz
Output P_{st}^{LM}	≤ 0.6		In entire operating window
Output SVM	≤ 0.1		In entire operating window
Output power	3.6…12.0	W	

Control interfaces

Specification item	Value	Unit	Condition
Control method	SR		Output current amplitude dimming. See design-in guide at www.philips.com/oem for more controllability details.
Dimming range	1...100	%	Acc. D4i. See www.digitalilluminationinterface.org/products
Isolation controls input to output	Supplementary		acc. IEC61347-1
SR Power Supply max voltage.	22.5	V	
SR output current	52	mA	
SR Power Supply max current source	60	mA	

Wiring and Connections

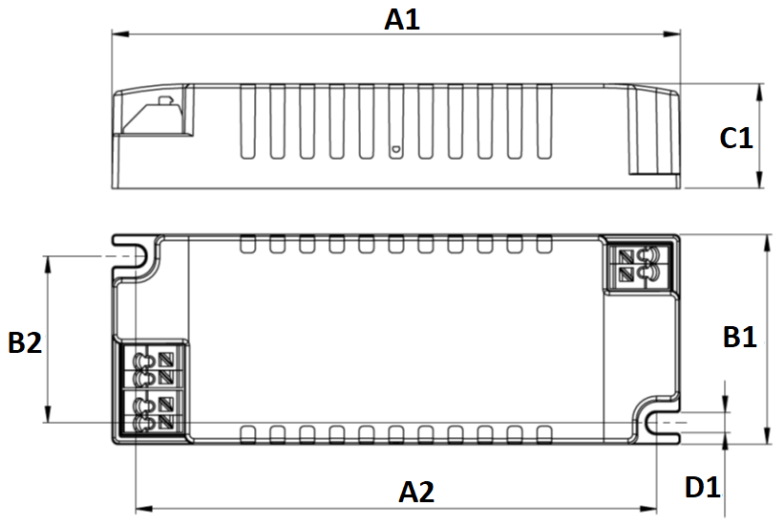
Specification item	Value	Unit	Type
Input wire cross-section	0.5...1.5 / 20...16	mm^2 / AWG	solid / stranded wire
Input wire strip length	8.5...9.5	mm	
Output wire cross-section	0.5...1.5 / 20...16	mm^2 / AWG	solid / stranded wire
Output wire strip length	8.5...9.5	mm	
Control wire cross-section	0.5...1.5 / 20...16	mm^2 / AWG	solid / stranded wire
Control wire strip length	8.5...9.5	mm	
Maximum cable length	0.6	m	CISPR15: between driver and LED module

Isolation

Insulation per IEC61347-1	Mains	LED	DA
Mains	-	SELV	Reinforced
LED	SELV	-	Supplementary
DA	Reinforced	Supplementary	-

Dimensions and weight

Specification item	Value	Unit	Tolerance (mm)
Length (A1)	115	mm	
Mounting hole distance (A2)	108	mm	
Width (B1)	42.2	mm	
Width (B2)	33.5	mm	
Height (C1)	21	mm	
Mounting hole diameter (D1)	4.1	mm	
Weight	75	gram	
Housing color	White (RAL 9016)		

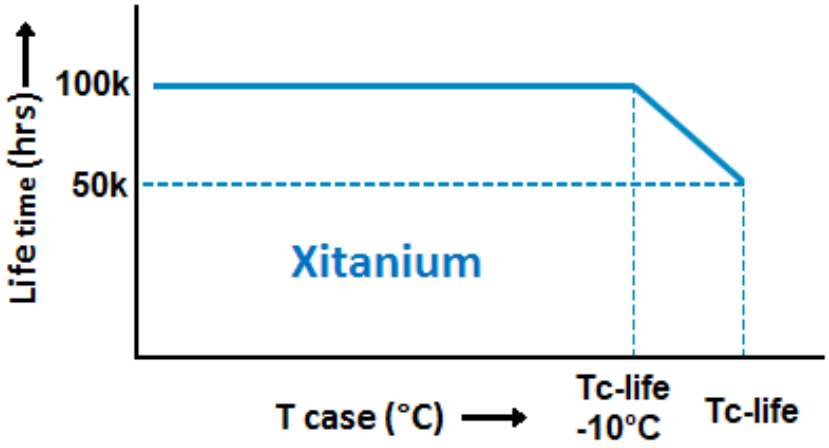


Operational temperatures and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-20…+50	°C	Higher ambient temperature allowed as long as Tcase-max is not exceeded
Tcase-max	75	°C	Maximum temperature measured at T_{case}-point
Tcase-life	75	°C	Measured at T_{case}-point
Maximum housing temperature	110	°C	In case of a failure, inherent by design
Relative humidity	10…90	%	Non-condensing

Lifetime

Specification item	Value	Unit	Condition
Driver lifetime	50,000	hours	Measured temperature at Tcase-point is Tcase-life. Maximum failures = 10%



Maximum failures = 10%

Temperature [°C]	Lifetime	Unit	Condition
75	50000	hr	Temperature measured @Tc point
70	>50000	hr	
65	>50000	hr	

Storage temperature and humidity

Specification item	Value	Unit	Condition
Ambient temperature	-25…+85	°C	
Relative humidity	5…95	%	Non-condensing

Programmable features

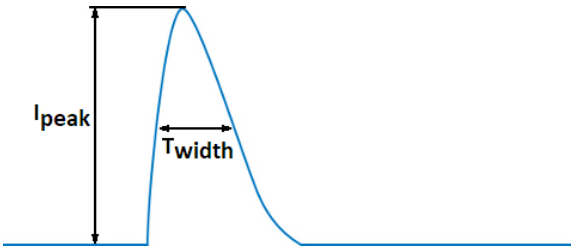
Specification item	Available	Default setting	Condition
Set Adjustable Output Current (AOC)	Programmable, SimpleSet	80 mA	Place SimpleSet tool at top of the driver
Adjustable Light Output (ALO)	Yes	OFF	
Adjustable Light Output (ALO) min level	Yes	OFF	
Constant Light Output (CLO)	Yes	OFF	
Min Dim Level	Yes	1 %	
DC emergency (DCemDim)	Yes	ON	Default level: 15%. EOFx range = 1 .. 100%.
DALI control supported at DC operation	Yes	OFF	
OEM Write Protection (OWP)	Yes	OFF	
DALI Power Supply (DALI part 250)	Yes	ON	
Luminaire Info (DALI part 251)	Yes	—	
Luminaire maintenance (DALI part 253)	Yes	—	

Non-programmable features

Specification item	Value		Condition
Open load protection	Yes		Automatic recovering
Short circuit protection	Yes		Automatic recovering
Over power protection	Yes		Automatic recovering
Hot wiring	No		
Suitable for fixtures with protection class	I and II		per IEC60598
Energy metering (DALI part 252)	Yes		Accuracy = 4%
Diagnostics (DALI part 253)	Yes		
Diagnostics via Signify tool	Yes		SR diagnostics

Inrush current

Specification item	Value	Unit	Condition
Inrush current	8.1	A	Input voltage 230V
Inrush peak width	27	µs	Input voltage 230 V, measured at 50% height
Drivers / MCB 16A type B @230V AC	≤ 40	pcs	Input voltage 230V



Please refer to the driver design in guide if you use other MCB-types.

If several mini circuit breakers are used directly side-by-side (without distance pieces) a correction factor of 80% has to be applied to the rated current

Driver touch current / protective conductor current / earth leakage current

Specification item	Value	Unit	Condition
Typical Touch Current (ins. Class II)	0.7	mA peak	Acc. IEC61347-1. LED module contribution not included

Surge immunity

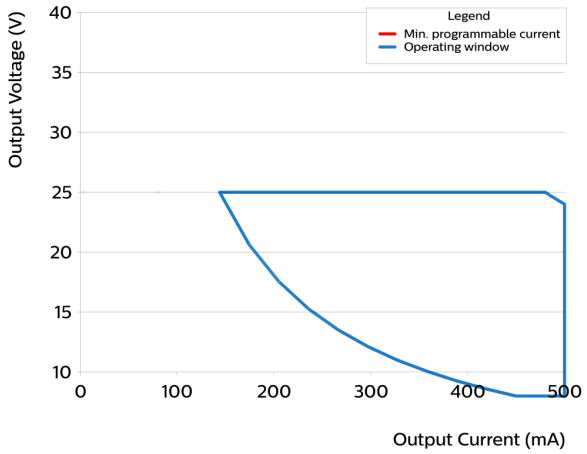
Specification item	Value	Unit	Condition
Mains surge immunity (diff. mode)	1	kV	L-N acc. IEC61000-4-5. 2 Ohm, 1.2/50us, 8/20us
Mains surge immunity (comm. mode)	2	kV	L/N - EQUI: acc. IEC61000-4-5. 12 Ohm, 1.2/50us, 8/20us

Application Info (Approbation)

Specification item	Value
Approval marks and Certifications	CCC / CE / D4i / Double-insulated Built-In / EL / ENEC / RCM / SELV / SR / UKCA / WEEE
Ingress Protection classification (IP)	20
Noise and hum dB(A)	20
Application	Indoor Point
Mounting Type	Built-in

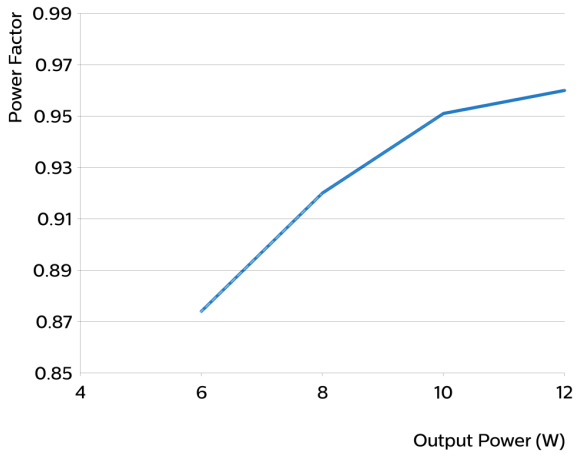
Graphs

Operating window

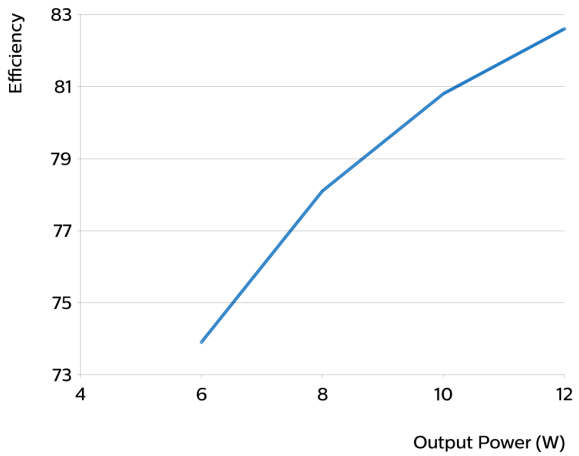


Type	Output current (mA)	Min. output voltage (V)	Max. output voltage (V)	Max. output power (W)
Xitanium 12W 0.08-0.5A 25V SR 230V	80	45	25	2
Xitanium 12W 0.08-0.5A 25V SR 230V	130	27	25	3.25
Xitanium 12W 0.08-0.5A 25V SR 230V	180	20	25	4.5
Xitanium 12W 0.08-0.5A 25V SR 230V	230	15	25	5.75
Xitanium 12W 0.08-0.5A 25V SR 230V	280	12	25	7
Xitanium 12W 0.08-0.5A 25V SR 230V	330	10	25	8.25
Xitanium 12W 0.08-0.5A 25V SR 230V	380	9	25	9.5
Xitanium 12W 0.08-0.5A 25V SR 230V	430	8	25	10.75
Xitanium 12W 0.08-0.5A 25V SR 230V	500	8	24	12

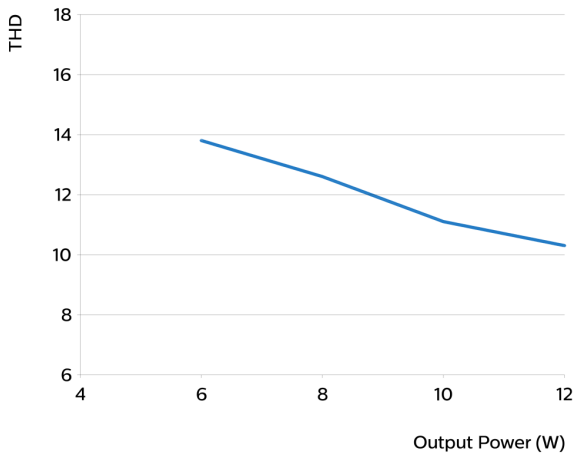
Power factor versus output power



Efficiency versus output power



THD versus output power



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