



Driver LCA 60W 300–1050mA 1–10 V C ADV OTD

advanced Outdoor series

Product description

- Dimmable built-in LED Driver
- Constant current LED Driver
- Dimmable via 1 ... 10 V
- Output dimmed analogue (current amplitude)
- Dimming range from 10 to 100 % (absolute minimum 105 mA)
- For luminaires of protection class I and protection class II
- Temperature protection as per EN 61347-2-13 C5e
- Potted version
- Output current adjustable between 300 – 1,050 mA
- Max. output power 60 W
- Nominal life-time up to 100,000 h
- 5-year guarantee



Housing properties

- Type of protection IP20

Functions

- Adjustable output current (I-SELECT resistor)
- Overload protection
- Short-circuit protection
- No-load protection
- Burst protection voltage up to 6 kV
- Surge protection voltage up to 6 kV (L to N)
- Surge protection voltage up to 6 kV (L/N to earth)



Standards, page 4

Wiring diagrams and installation examples, page 5

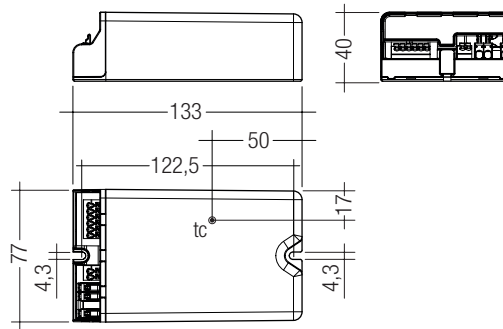
IP20 SELV 

Driver LCA 60W 300–1050mA 1–10 V C ADV OTD

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Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Typ. current (at 230 V, 50 Hz, full load)	116 – 306 mA
λ at full load ^①	> 0.9
Max. input power	68.2 W
THD	< 20 %
Output current tolerance ^②	± 7.5 %
Max. peak output current	≤ output current + 40 %
Typ. current ripple (at 230 V, 50 Hz, full load)	± 5 %
Leakage current (PE)	< 0.5 mA
Starting time	< 1.5 s
Turn off time	< 0.5 s
Hold on time at power failure	< 0.5 s
Max. output voltage	80 V
Burst / surge peaks output side against PE	< 2 kV
Ambient temperature t_a	-40 ... +55 °C
Max. casing temperature t_c (output current < 700 mA)	75 °C
Max. casing temperature t_c (output current > 700 mA)	80 °C
Storage temperature t_s	-40 ... +85 °C
Dimensions L x W x H	133 x 77 x 40 mm



Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
LCA 60W 300-1050mA 1-10V C ADV OTD	87500389	15 pc(s).	390 pc(s).	0.535 kg

Specific technical data

Type	Output current ^②	Min. forward voltage ^①	Max. forward voltage ^①	Max. output power	Input power (at 230 V, 50 Hz, full load)	Input current (at 230 V, 50 Hz, full load)	Efficiency (at 230 V, 50 Hz, full load)	λ (at 230 V, 50 Hz, full load)	t_c point	t_c/t_a for ≥ 100.000 h	I-SELECT 2 resistor value
LCA 60W 300-1050mA 1-10V C ADV OTD	300 mA	20 V	57.1 V	17.1 W	22.3 W	116 mA	77.0 %	0.83	75 °C	70 / 50 °C	open circuit
	500 mA	20 V	57.1 V	28.6 W	34.9 W	166 mA	82.2 %	0.92	75 °C	70 / 50 °C	10.0 kΩ
	700 mA	20 V	57.1 V	40.0 W	47.0 W	216 mA	85.3 %	0.95	75 °C	70 / 50 °C	7.1 kΩ
	900 mA	20 V	57.1 V	51.4 W	58.9 W	266 mA	87.3 %	0.96	80 °C	75 / 50 °C	5.6 kΩ
	1,050 mA	20 V	57.1 V	60.0 W	68.2 W	306 mA	87.5 %	0.97	80 °C	75 / 50 °C	short circuit

^① Test result at 230 V, 50 Hz without dimmer connected.

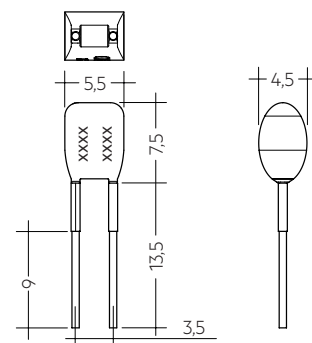
^② Output current is mean value.

Product description

- Ready-for-use resistor to set output current value
- Compatible with LED Driver featuring I-SELECT 2 interface;
not compatible with I-SELECT (generation 1)
- Resistor is base isolated
- Resistor power 0.25 W
- Current tolerance $\pm 2\%$ additional to output current tolerance
- Compatible with LED Driver series PRE and EXC

Example of calculation

- $R [k\Omega] = 5 V / I_{out} [mA] \times 1000$
- E96 resistor value used
- Resistor value tolerance $\leq 1\%$; resistor power $\geq 0.1 W$;
base isolation necessary
- When using a resistor value beyond the specified range, the
output current will automatically be set to the minimum value
(resistor value too big), respectively to the maximum value
(resistor value too small)



Ordering data

Type	Article number	Colour	Marking	Current	Resistor value	Packaging bag	Weight per pc.
I-SELECT 2 PLUG 300MA BL	28001108	Blue	0300 mA	300 mA	16.50 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 325MA BL	28001109	Blue	0325 mA	325 mA	15.40 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 350MA BL	28001110	Blue	0350 mA	350 mA	14.30 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 375MA BL	28001111	Blue	0375 mA	375 mA	13.30 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 400MA BL	28001112	Blue	0400 mA	400 mA	12.40 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 425MA BL	28001251	Blue	0425 mA	425 mA	11.80 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 450MA BL	28001113	Blue	0450 mA	450 mA	11.00 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 475MA BL	28001252	Blue	0475 mA	475 mA	10.50 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 500MA BL	28001114	Blue	0500 mA	500 mA	10.00 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 525MA BL	28001960	Blue	0525 mA	525 mA	9.53 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 550MA BL	28001115	Blue	0550 mA	550 mA	9.09 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 600MA BL	28001116	Blue	0600 mA	600 mA	8.25 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 650MA BL	28001117	Blue	0650 mA	650 mA	7.68 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 700MA BL	28001118	Blue	0700 mA	700 mA	7.15 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 750MA BL	28001119	Blue	0750 mA	750 mA	6.65 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 800MA BL	28001120	Blue	0800 mA	800 mA	6.19 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 850MA BL	28001121	Blue	0850 mA	850 mA	5.90 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 900MA BL	28001122	Blue	0900 mA	900 mA	5.62 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 950MA BL	28001123	Blue	0950 mA	950 mA	5.23 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1000MA BL	28001124	Blue	1000 mA	1000 mA	4.99 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1050MA BL	28001125	Blue	1050 mA	1050 mA	4.75 k Ω	10 pc(s).	0.001 kg
I-SELECT 2 PLUG MAX BL	28001099	Blue	MAX	MAX	0.00 k Ω	10 pc(s).	0.001 kg

Standards

EN 55015	EN 61547
EN 61000-3-2	EN 62384
EN 61000-3-3	
EN 61347-1	
EN 61347-2-13	

Overload protection

If the output voltage range is exceeded, the LED Driver reduces the LED output current. After elimination of the overload, the nominal operation is restored automatically.

Overtemperature protection

The LED Driver is protected against temporary thermal overheating. If the temperature limit is exceeded, the output current is reduced to protect the device. It restarts automatically.

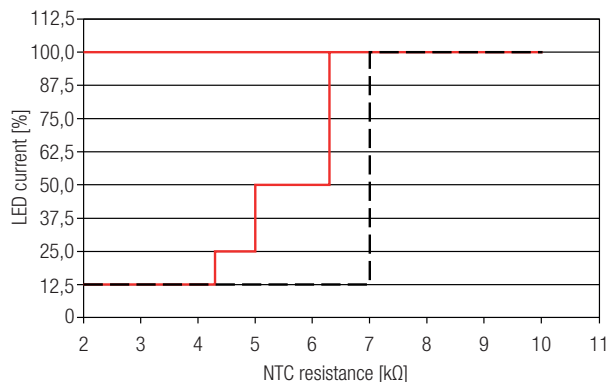
Short-circuit behaviour

In case of a short circuit the LED Driver will continue providing the output current. There will be no damage to the LED Driver.

No-load operation

The LED Driver detects the open load condition and shuts the output down. There will be periodically restart attempts whereby the specified max. DC output voltage will not be exceeded.

External temperature protection (ETM)



NTC resistance	Reaction
< 6.3 kΩ	System is reducing output current to 50 % or stable condition between 50 and 100 %
< 5.0 kΩ	System is reducing output current to 25 % or stable condition between 25 and 100 %
< 4.3 kΩ	System is reducing output current to 12.5 % or stable condition between 12.5 and 100 %
> 7.0 kΩ	Output current is slowly reset to 100 %

Dimming

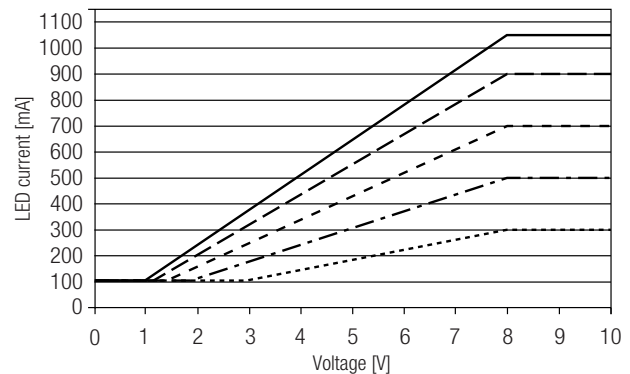
Dimming range 10 % to 100 % (absolute minimum 105 mA)

Control with

- Potentiometer
- 1 ... 10 V
- Output current range: 400 – 550 μA

1 ... 10 V function

The light intensity of the LEDs vary proportionally to the signal sent to the terminal.



- 1050 mA
- - - 900 mA
- - - 700 mA
- . - . 500 mA
- 300 mA

Function: adjustable current (I-SELECT 2)

"I-SELECT resistor 2"

Adjustable range	300 – 1,050 mA
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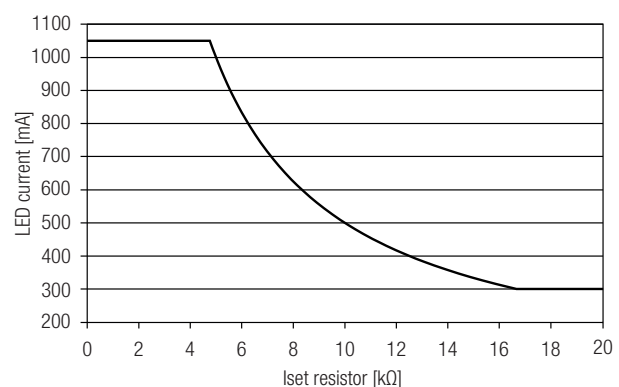
By inserting a suitable resistor into the I-SELECT 2 interface, the current value can be adjusted. The relationship between output current and resistor value can be found in the chapter "Accessories I-SELECT 2 Plugs". If the resistor is connected by wires, ensure a consistent base isolation. Furthermore, a max. wire length of 2 m may not be exceeded. Avoid potential interferences.



Please note that the resistor values for I-SELECT 2 are not compatible with I-SELECT (generation 1). Installation of an incorrect resistor may cause irreparable damage to the LED module(s).

Resistors for the main output current values can be ordered from Tridonic (see accessories).

$$I_{out} [A] = 5 V / R_{set} [\Omega] \times 1000$$



Humidity: 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

The devices have to be within the specified temperature range (ta) before they can be operated.

Expected life-time

Type	Output current	ta	40 °C	50 °C	55 °C
LCA 60W 300-1050mA 1-10V C ADV OTD	300 – 700 mA	tc	60 °C	70 °C	75 °C
		Life-time	>100,000 h	>100,000 h	80,000 h
	> 700 – 1,050 mA	tc	65 °C	75 °C	80 °C
		Life-time	>100,000 h	>100,000 h	80,000 h

The LED Driver is designed for a life-time stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design.

If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I _{max} Time
LCA 60W 300-1050mA 1-10V C ADV OTD	9	11	15	20	18	23	35	55	50 A 130 µs

Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LCA 60W 300-1050mA 1-10V C ADV OTD	< 20	< 11	< 4	< 3	< 2	< 1

Installation instructions

The LED module and all contact points within the wiring must be sufficiently insulated against 2 kV surge voltage.

Air and creepage distance must be maintained.

Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 10 seconds
4. Connect LED module again

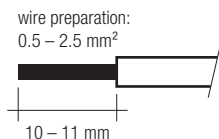
Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

Wiring type and cross section

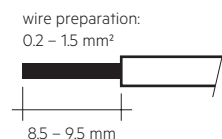
The input wiring can be stranded wires with ferrules with a cross section of 0.5 – 1.5 mm² or with solid wires with a cross section of 0.5 – 2.5 mm². Strip 10 – 11 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.

The output wiring can be done with a cross section of 0.2 – 1.5 mm². Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.

Input wiring



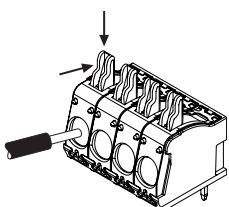
Output / interface wiring



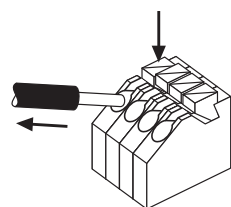
Release of the wiring

Press down the “push button” and remove the cable from front.

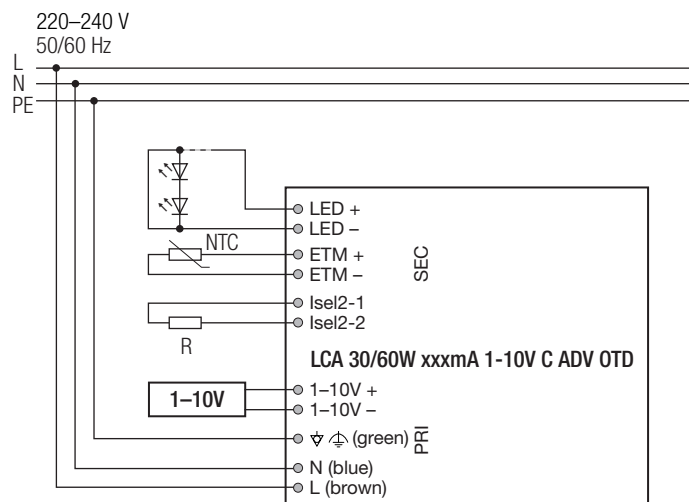
Input terminal



Output / interface terminal



Wiring diagram



Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Mains leads should be kept apart from LED Driver and other leads (ideally 5 – 10 cm distance)
- Max. length of output wires is 2 m.
- Secondary switching is not permitted.
- Incorrect wiring may damage LED modules.
- To avoid the damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

Insulation	Input wires	LED output / ITM	1 ... 10 V
Input wires	–	Double	Double
LED output / ITM	Double	–	Double
1 ... 10 V	Double	Double	–

Earth connection

The earth connection is conducted as function earth (FE). There is no earth connection required for the functionality of the LED Driver. Earth connection is recommended to improve following behaviour:

- Electromagnetic interferences (EMI)
- LED glowing at standby
- Transmission of mains transients to the LED output

External I-SELECT 2 resistors on LED modules

LED modules with on-board I-SELECT 2 resistors may cause irreparable damages, caused by surge / burst peaks.

Isolation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an isolation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The isolation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V_{AC} (or 1.414 x 1500 V_{DC}). To avoid damage to the electronic devices this test must not be conducted.

Additional information

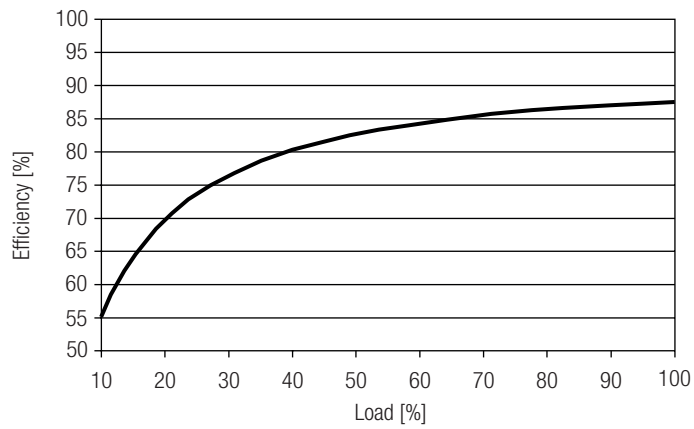
Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

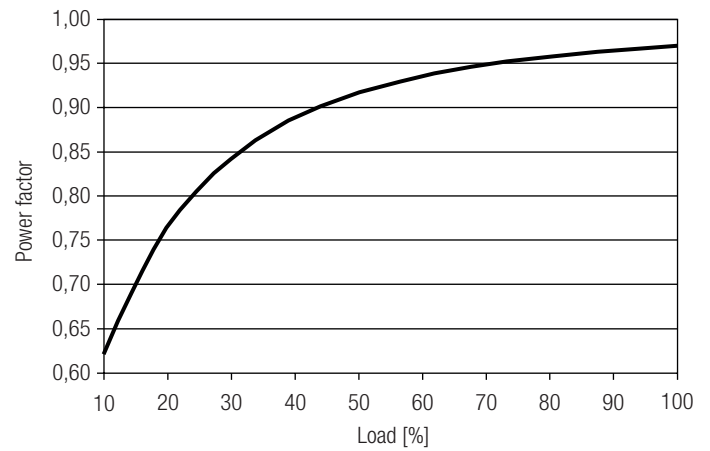
Life-time declarations are informative and represent no warranty claim.
No warranty if device was opened.

Diagrams LCA 60W 300-1050mA 1-10V C ADV

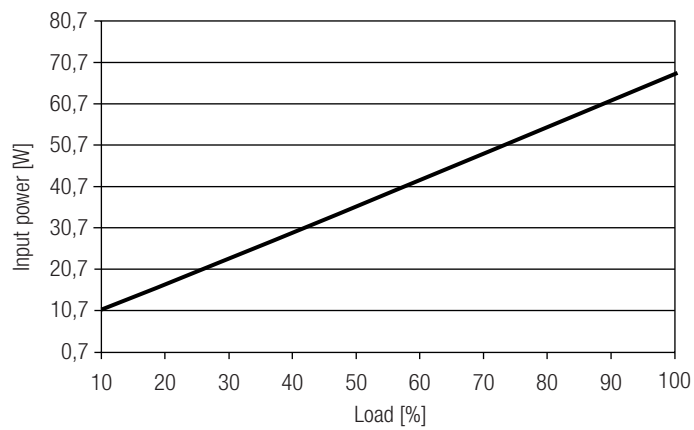
Efficiency vs load



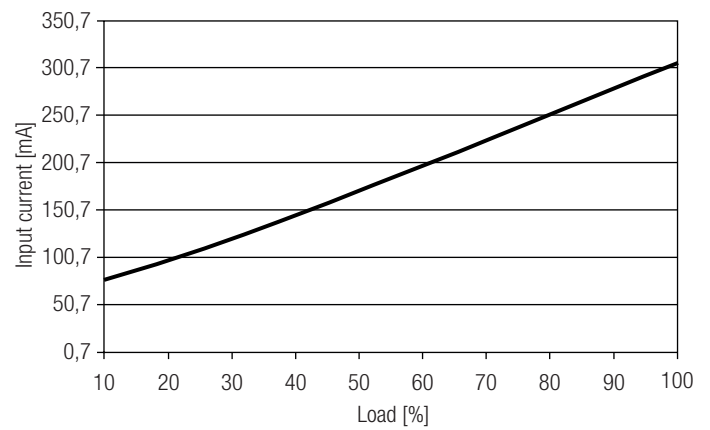
Power factor vs load



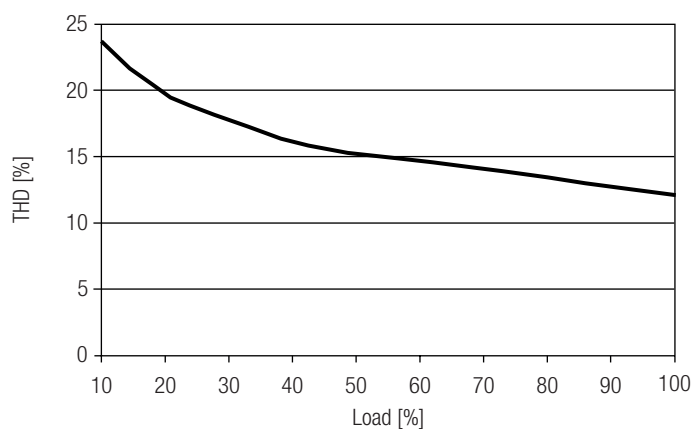
Input power vs load



Input current vs load



THD vs load



Output current	Load range
350 mA	10 – 29 %
500 mA	17 – 48 %
700 mA	23 – 68 %
900 mA	30 – 87 %
1,050 mA	35 – 100 %