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REPORT

on

COMPONENT - DRIVERS FOR LIGHT-EMITTING DIODES ARRAYS, MODULES AND CONTROLLERS

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Coopersburg, PA

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DESCRIPTION

PRODUCT COVERED:

USR, CNR - LED Driver, Isolated Output, Non-Class 2, Cat Nos. L3D or LTE, followed by A, followed by 4, followed by U, followed by 1, followed by U, followed by K or M, followed by S or N, followed by (1) where (1) may be a 1 or a single letter V-Z, followed by A or C, followed by 020 through 100, may be followed by suffix CPBXXXX where X can be any number 0 to 9 for commercial reasons.

USR, CNR -LED Driver, Isolated Output, Non-Class 2, Cat Nos. L3D **or** LTE, followed by A, followed by 4 or 5, followed by U, followed by 1, followed by U, followed by K or M, followed by S or N, followed by 1, 2 or 3, followed by A, or B followed by BLK, may be followed by suffix CPBXXXX where X can be any number 0 to 9 for commercial reasons.

LED Driver, Isolated Output, Non-Class 2, Cat No. L3DA5U1UKx-Wy where x is S or N and y is A or C, followed by 071 through 105, may be followed by suffix CPBXXXX where X can be any number 0 to 9 for commercial reasons.

LED Driver, Isolated Output, Non-Class 2, Cat Nos. L3D or LTE, followed by A, followed by 4, followed by U, followed by 1, followed by U, followed by K or M, followed by S or N, followed by (1) where (1) may be a 1 or a single letter V-Z, followed by V, followed by 385 through 600, may be followed by suffix CPBXXXX where X can be any number 0 to 9 for commercial reasons.

TECHNICAL CONSIDERATIONS (NOT FOR UL FIELD REPRESENTATIVE USE):

This component has been judged on the basis of the spacings required in the Standard for Light Emitting Diode (LED) Light Sources for Use In Lighting Products, UL 8750, First Edition, Dated November 18, 2009, which would cover the component itself if submitted for Listing.

USR - Indicates investigation to the United States requirements for the standard for Light Emitting Diode (LED) Light Sources for Use In Lighting Products, UL 8750, First Edition November 18, 2009, and the Standard for Power Units Other Than Class 2, UL 1012, Seventh Edition, Revisions through and including October 1, 2009.

CNR - Indicates investigation to the Canadian Standard for General Use Power Supplies, CAN/CSA-C22.2 No. 107.1-01 dated September 2001 (Reaffirmed 2006).

TECHNICAL CONSIDERATIONS (NOT FOR UL FIELD REPRESENTATIVE USE):

USR - Indicates investigation to the United States requirements for the standard for Light Emitting Diode (LED) Light Sources for Use In Lighting Products, UL 8750.

CNR - Indicates investigation to the Canadian Standard have also been evaluated to CSA standard for Light emitting diode (LED) equipment for lighting applications, CAN/CSA-C22.2 No. 250.13-12 dated June 2012.

These products been evaluated for the following characteristics:

Table 1

Applies to all models	Input type	Output type (a), (b)	Product is rated	Type HL (c)	Type TL (d) - (Y=Yes, N=No) *
L3DA4U1UKx-1ABLK, L3DA4U1UKx-YA020- YA050, L3DA4U1UKx-ZA051- ZA100, L3DA4U1UKx-YC020- YC050, L3DA4U1UKx-ZC051-ZC100	Branch Circuit (Mains)	CC- Constant Current; Output is Isolated Class 2	Dry, Damp	No	(Y), Specified Tref 83° C
L3DA5U1UKx-1BBLK, L3DA5U1UKx-WA071- WA105, L3DA5U1UKx-WC071-WC105	Branch Circuit (Mains)	CC- Constant Current; Output is Isolated Class 2	Dry, Damp	No	(Y), Specified Tref 87° C
L3DA4U1UMx-1ABLK, L3DA4U1UMx-YA020- YA050, L3DA4U1UMx-ZA051- ZA100, L3DA4U1UMx-YC020- YC050, L3DA4U1UMx-ZC051-ZC100	Branch Circuit (Mains)	CC- Constant Current; Output is Isolated Class 2	Dry, Damp	No	(Y), Specified Tref 89° C

Note:

a- As defined in [x] UL 8750, Clause 7.12.1 and CAN/CSA-C22.2 No. 250.13-12, Clause 8.12.1

b- As defined in [x] UL 8750, Section 8.14 and CAN/CSA-C22.2 No. 250.13-12, Annex A

c- Evaluated per UL 8750 requirements for Type HL LED drivers

d- Evaluated per UL 8750 requirements for Type TL LED drivers

These products been evaluated for the following characteristics:

Table 2

Applies to all models	Input type	Output type (a), (b)	Product is rated	Type HL (c)	Type TL (d)- (Y=Yes, N=No)*
LTEA4U1UKx-1ABLK LTEA4U1UKx-YA020-YA050 LTEA4U1UKx-ZA051-ZA100 LTEA4U1UKx-YC020-YC050 LTEA4U1UKx-ZC051-ZC100	Branch Circuit (Mains)	CC - Constant Current Output is Isolated	Dry, Damp	No	(Y), Specified Tref 80°C
LTEA4U1UMx-1ABLK LTEA4U1UMx-YA020-YA050 LTEA4U1UMx-ZA051-ZA100 LTEA4U1UMx-YC020-YC050 LTEA4U1UMx-ZC051-ZC100	Branch Circuit (Mains)	CC - Constant Current Output is Isolated	Dry, Damp	No	(Y), Specified Tref 89°C

Note:

a- As defined in [x] UL 8750, Clause 7.12.1 and CAN/CSA-C22.2 No. 250.13-12, Clause 8.12.1

b- As defined in [x] UL 8750, Section 8.14 and CAN/CSA-C22.2 No. 250.13-12, Annex A

c- Evaluated per UL 8750 requirements for Type HL LED drivers

d- Evaluated per UL 8750 requirements for Type TL LED drivers

ELECTRICAL RATINGS:

Model Series	Input (AC)			Output (DC)		Max. Output Power (W)
	Voltage (V)	Current (A)	Frequency (Hz)	Max Voltage (V)	Max Current (A)	
LTEA4	120	0.4	50/60	60	1	40
L3DA4	120 277	0.4 0.18	50/60	60	1	40
L3DA5U1UKx-Wy	120 277	0.51 0.22	50/60	63	1.05	53
L3DA4U1UKx-1ABLK	120 277	0.41 0.18	50/60	30 - 60	.2 - 1	40
L3DA4U1UMx-1ABLK	120 277	0.41 0.18	50/60	30 - 60	.2 - 1	40
L3DA5U1UKx-1BBLK	120 277	0.52 0.23	50/60	35 - 60	.71 - 1.05	53
LTEA4U1UKx-1ABLK	120 277	0.41 0.18	50/60	30 - 60	.2 - 1	40
LTEA4U1UMx-1ABLK	120 277	0.41 0.18	50/60	30 - 60	.2 - 1	40

Note - x = S or N, y = A or C

See E322469 Appendix Section B for formulas to calculate input current for factory configured LED drivers. Listed above are maximum current ratings

NOMENCLATURE BREAKDOWN:

<u>L3D</u>	<u>A</u>	<u>4</u>	<u>U</u>	<u>1</u>	<u>U</u>	<u>K or</u>	<u>S</u>	<u>2</u>	<u>C</u>	<u>210</u>	<u>CPBXXXX</u>
I	II	III	IV	V	VI	<u>M</u> VII	VIII	IX	X	XI	XII

- I. LED Driver, Control
 L3D - LED Driver, 3-Wire and Digital Ecosystem Dimming Control
 LTE - LED Driver, Trailing Edge Control
- II. Dimming Range
 A - Architectural Dimming (1%)
- III. Maximum Wattage
 4 - 40W
 5 - 50W
- IV. Input Voltage
 U - Universal AC Input Voltage (120-277, 50/60Hz)
- V. Number of Outputs
 1 - Single Channel Output
- VI. Standards
 U - UL/CUL Certified
- VII. Enclosure Style
 K - Compact Enclosure
 M - Stick Enclosure
- VIII. Mechanical Options
 S - Enclosure provided with mounting studs
 N - No mounting studs provided
- IX. Safety Rating
 1 - Isolated non-Class 2
 may be a 1 or a single letter V-Z for commercial purposes only
- X. Output Type (When not followed by BLK)
 C - Constant current, with Pulse Width Modulation dimming
 A - Constant current, with analog dimming
 V - Constant voltage, with Pulse Width Modulation dimming
 Output Type (When followed by BLK)
 A - Bulk operating range A.
 B - Bulk operating range B.

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XI. Output Rating

*020-105 - Amps for Output Type 1A and 1C (from 0.20A-1.05A in
0.01A increments)

385-600 - Volts for Output Type 1V (from 38.5V-60V in 0.5V
increments)

BLK - Bulk LED driver

XII. X can be any number 0 to 9 for commercial reasons.

SPACING OF ELECTRICAL PARTS:

The spacing between uninsulated live parts of opposite polarity, including magnet wire, and between those parts and exposed metal parts that can be contacted shall not be less than the clearance (through-air) and the creepage distance (over an insulating surface) as described:

Locations of live electrical parts and conditions	Minimum spacing, mm		
	Clearance	Creepage Distance for printed wiring boards (CTI < 175)	Creepage Distance for ceramic and other materials (CTI => 600)
Between parts within drivers for indoor (dry), and outdoor (damp or wet) locations (125v)	0.5	1.5	0.75
Between parts within drivers for indoor (dry), and outdoor (damp or wet) locations (300v)	1.5	3.0	1.5
Between parts on a printed wiring board that are soldered in place but can move in production prior to soldering to fixed parts; or between parts on a printed wiring board to the enclosure.	3.0 (for 125v) 3.9 (for 300v)	-	-
Components on a printed wiring board buried in potting compound	-	0.8	0.8

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE)

Use - For use only in (or with) complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Conditions of Acceptability -

Use - For use only in (or with) complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

1. These products are provided with an isolated non-Class 2 output.
2. These products are suitable for use in dry and damp locations only.
3. These products were tested in an elevated ambient oven with the maximum Tc point temperatures as detailed below. The need for additional Temperature Testing shall be determined in the end product.

Model	Maximum Temp "Tc" (°C)
L3DA4U1UKx-1Ayyy	84.7
L3DA4U1UKx-1Cyyy	84.2
L3DA4U1UKx-1Vyyy	83.8
LTEA4U1UKx-1Ayyy	75.4
LTEA4U1UKx-1Cyyy	76.2
LTEA4U1UKx-1Vyyy	73.9
L3DA4U1UMx-1Ayyy	79.6
L3DA4U1UMx-1Cyyy	80.5
L3DA4U1UMx-1Vyyy	77.0
LTEA4U1UMx-1Ayyy	74.0
LTEA4U1UMx-1Cyyy	74.8
LTEA4U1UMx-1Vyyy	73.3
L3DA5U1UKx-WAyyy	86.2
L3DA5U1UKx-WCyyy	86.2

4. These input/output wiring shall be enclosed in the end product in a suitable electrical enclosure.
5. Consideration for connecting the metal enclosure to a suitable grounding point shall be considered in the end product.
6. The products are to be connected to max. 20 A branch circuit.
7. The leads on these products are for factory connection only, not for Field Wiring.
8. These products have been evaluated for use with 3-wire dimmers, Lutron EcoSystem controls and Lutron Forward Phase Controls. Use with any other controls shall be evaluated in the end product.

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9. The Leakage Current Test was performed on these units. The results showed currents greater than 0.5mA but less than 0.75mA. The suitability of these leakage levels shall be determined in the end product.

*10. LED Drivers designated for TL Type rating and tested in a 40°C Ambient are indicated in table below:

TL Type rated models marking:

MODEL	Tref °C	Tref °C (Measured)
L3DA4U1UKx-1ABLK L3DA4U1UKx-YA020-YA050 L3DA4U1UKx-ZA051-ZA100 L3DA4U1UKx-YC020-YC050 L3DA4U1UKx-ZC051-ZC100	83	65
L3DA5U1UKx-1BBLK L3DA5U1UKx-WA071-WA105 L3DA5U1UKx-WC071-WC105	85	71
L3DA4U1UMx-1ABLK L3DA4U1UMx-YA020-YA050 L3DA4U1UMx-ZA051-ZA100 L3DA4U1UMx-YC020-YC050 L3DA4U1UMx-ZC051-ZC100	89	72
LTEA4U1UKx-1ABLK LTEA4U1UKx-YA020-YA050 LTEA4U1UKx-ZA051-ZA100 LTEA4U1UKx-YC020-YC050 LTEA4U1UKx-ZC051-ZC100	80	72
LTEA4U1UMx-1ABLK LTEA4U1UMx-YA020-YA050 LTEA4U1UMx-ZA051-ZA100 LTEA4U1UMx-YC020-YC050 LTEA4U1UMx-ZC051-ZC100	89	74

11. LED models carrying a suffix of "BLK" are bulk models which are capable of having their output characteristics configured by authorized parties. When the output is configured, an additional marking must be applied to the driver that denotes the newly configured output setting.