

*File **E480967**
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REPORT

on

COMPONENT - Drivers for Light-emitting-diode Arrays, Modules and Controllers
- Component

***SOLUM CO LTD**
***REPUBLIC OF KOREA**

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DESCRIPTION

PRODUCT COVERED:

USR, CNR- Component LED Driver, see electrical ratings table for models.

ELECTRICAL RATINGS:

| Model No. | Input | | | Output | | |
|-------------|---------------|----------------|---------------------------|---------------------------|----------------|---------------------|
| | Voltage (Vac) | Frequency (Hz) | Current (A), Power (W) | Voltage (Vdc) | Frequency (Hz) | Current (mA) |
| PSDV151101* | 100-277 | 50/60 | 2.0 A, 200 W | Ch1. 100-210 CH2. 13.2 | N/A | Ch1. 700 Ch2. 50 |

Note:

`*' - Represent an alphanumeric character on sales purpose.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

USR - Indicates investigation to the United States Standards for Light Emitting Diode (LED) Light Equipment for Use In Lighting Products, UL 8750, 1st Edition.

*CNR - Indicates investigation to the Canadian Standard for:

[x] Light emitting Diode (LED) Equipment for Lighting Applications, CAN/CSA-C22.2 No. 250.13, **2nd Edition**.

Conditions of Acceptability:

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

1. These products been evaluated for the following characteristics.

| Model No. [x] applies to all models | | | Product is rated | Type HL (c) |
|---|--|---|---------------------|-------------|
| PSDV151101* | Input type- [x] Branch Circuit (Mains) | Output type- [x] CC Output is [x] Isolated | [x] Dry [x] Damp | [x] No |

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

2. Rated output loading for these products was achieved using resistive loads. The need for other consideration should be considered in end-use product.

*3. As part of temperature testing, the case temperature at the temperature reference point- identified as Tc on the **outer case (Above Transformer(TM01))**- was monitored. During the normal temperature test of the end product, the temperature at the temperature reference point is to be monitored. The absolute value at the temperature reference point cannot exceed **88.6 °C**.

4. These products are intended for built-in applications. Acceptability of the LED driver with respect to mounting, spacing, casualty, temperature and segregation is to be determined as part of the end product evaluation.

*5. These products are provided with 18 AWG, stranded or solid leads, rated 105 °C, 300 V minimum for input connections.

*6. These products are dimmable using a low voltage 0-10 V interface.

7. The unit is not provided with an external protective grounding connection. Consideration for connecting the metal enclosure to a suitable grounding point shall be considered in the end product.

8. The product was tested while connected to a 20 A branch circuit. If used on a branch circuit greater than 20 A, additional testing may be necessary and shall be considered in the end product.

9. A potting compound inside the enclosure was used to embed all internal parts and input/output leads fully. The Strain Relief test was not considered necessary in the evaluation.

*10. These products utilize a UL Recognized OBJY2 Class 130 (Class B) electrical insulation system.

Conditions of Acceptability (CONT'D):

11. This product marked suitable for dry and damp locations. Additional considerations will be necessary as these LED drivers are integrated into wet rated end devices (i.e. input and output supply connection means, accessibility of the output based on maximum voltage restrictions for wet rated Class 2 circuits, acceptability of markings, etc.).

CONSTRUCTION DETAILS:

Corrosion Protection - Ferrous metal parts are protected against corrosion by plating or painting.

Soldered Connections - All soldered connections are mechanically secured before soldering.

Printed Wiring Boards - Suitable for the solder time and temperature used by the manufacturer.

"CN" indicates the component has been evaluated to Canadian requirements and the component shall have a Canadian UL certification Mark (C-UL) or UL certification Mark and CSA certification Mark when the Applicant's basic product bearing C-UL certification Mark.

Product markings-

1. Recognized company name, File number or trademark (If authorized).
2. Model designation.
3. Factory ID or code, if more than one location.
4. Date of manufacture, see the Section General.

| Mean | Year | Month | Date |
|---------|-------|-----------------|----------|
| Digit | 2 | 1 | 2 |
| Example | 00~99 | 1... 9, A, B, C | 01... 31 |

5. Optional - Electrical Ratings, see electrical ratings table.
6. Optional - Suitable for Dry and Damp locations only.
7. Optional - Polarity of the Input and Output Connections
8. **Optional** - Maximum ambient temperature (T_{ma}): 50 °C. (**Designated by manufacturer**)
9. **Optional** - **Temperature Measurement Point (T_c)**.

Model PSDV151101* - FIG. 1 THRU 4.

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described.

| No. | Item | CCN | Manufacturer (File Number) | Part/Model Number | Description / Technical Data | (F)IG (I)LL |
|-----|------------------------------|-----------------------------|--|-----------------------------|---|----------------|
| 1 | Housing Case | - | Various | Various | Aluminum, measured approx. 211.0 mm by 60.0 mm by 32.0 mm (L x W x H), 1.2 mm thick minimum. Secured to two Side Case by four screws. | I1 |
| 2 | Side Case | - | Various | Various | Two provided, aluminum, each measured approx. 60.0 mm by 32.0 mm by 11.4 mm (L x W x H), 1.5 mm thick minimum. Each secured to Housing Case by four screws. | I2 |
| 3 | Input Cord | ZJCZ or AVLV2, CN | Various | Various | Two conductors jacketed cord, minimum No. 18 AWG, rated minimum 300 V, 105 °C, VW-1. | |
| 4 | Output Lead Wire (LED) | AVLV2, CN | Various | Various | Two conductors jacketed, minimum No. 24 AWG, rated minimum 300 V, 105 °C, VW-1. | |
| 5 | Output Lead Wire (Signal) | AVLV2, CN | Various | Various | Five conductors jacketed, minimum No. 24 AWG, rated minimum 30 V, 80 °C, VW-1. | |
| 6 | Connector (CON1) | ECBT2, CN | JOWLE TECHNOLOGY CO LTD (E144544) | B2513 | Wire to board connector, rated 1 A, 95 °C | |
| 7 | Insulation sheet | QMFZ2 | TORAY INDUSTRIES INC (E86511) | Lumirror (#) | Rated 105 °C, VTM-2, double layers, minimum 0.18 mm total thickness, provided around the inside the Case. | I3 |
| * | Alternate | QMFZ2 | SKC CO LTD (E74359) | SH71S, SG00L, SR50, SR53 | Rated 105 °C, minimum 0.18 mm total thickness, provided around the inside the Case. | I3 |
| 8 | Potting Compound | QMFZ2 | DOW CORNING CO LTD (E40195) | 170# | Silicone (RTV), General thermal index 105 °C, furnished as two liquid components. Completely surrounds circuit board in Case. | |
| 9 | Printed Wiring Board | ZPMV2, CN | Various | Various | Rated minimum 105 °C, V-1. Measured approx. 200.0 mm by 53.5 mm (L x W), 1.5 mm thick. | I4 |
| 10 | Fuse (FS101) | JDYX2, CN | LITTELFUSE WICKMANN WERKE (E67006) | 369+ | Rated 5.0 A, 300 Vac, connected in series with ungrounded supply. | |
| *11 | Capacitor (CX101S) | FOKY2 or FOWX2, CN | Various | Various | Rated minimum 300 Vac, 110 °C, 330 nF. Located across the line. | |
| 12 | Capacitor (CY106S) | FOWX2, CN | Various | Various | Rated minimum 300 Vac, 125 °C, 3.3 nF, Class Y1. Located primary to secondary. | |

Model PSDV151101* - FIG. 1 THRU 4 (CONT'D)

| No. | Item | CCN | Manufacturer (File Number) | Part/Model Number | Description / Technical Data | (F)IG (I)LL |
|-----|--|-----------------------------|-------------------------------|----------------------|---|----------------|
| 13 | Capacitor (CY201S) | FOWX2, CN | Various | Various | Rated minimum 300 Vac, 125 °C, 3.3 nF, Class Y1. Located secondary to ground. | |
| 14 | Varistor (VX101S) | VZCA2, CN | Various | Various | Rated minimum 300 V ac, intended use type 3 SPD applications. | |
| *15 | Thermistor (NT101S) | XGPU2, CN | Various | Various | Rated minimum 240 Vac, 2.5 A. | |
| 16 | Optical Isolators (PC101S, PC102S) | FPQU2, CN | Various | Various | Rated minimum 3000 Vac, 110 °C operating temperature. | |
| 17 | Bridge Diode (BD101) | - | Various | Various | Rated 600 V Min., 25 A Max. | |
| 18 | Diode (DP172) | - | Various | Various | Rated 600 V Min., 10 A Max. | |
| *19 | FET (QP101) | - | Various | Various | Rated 600 V Min., 15 A Max. | |
| 20 | Heat Sink for DP172, QP101 | - | Various | Various | Aluminum, measured overall 52.0 mm by 51.0 mm by 20.0 mm (W x L x H), 2.0 mm thick. | I5 |
| 21 | FETs (QM102, QM103) | - | Various | Various | Rated 600 V Min., 13 A Max. | |
| 22 | Diodes (DM201, DM202) | - | Various | Various | Rated 300 V Min., 10 A Max. | |
| 23 | Electrolytic Capacitor (CP151) | - | Various | Various | Rated 100 uF, minimum 500 V, 105 °C. | |
| 24 | Electrolytic Capacitor (CM207) | - | Various | Various | Rated 100 uF, minimum 50 V, 105 °C. | |
| 25 | Electrolytic Capacitors (CM201, CM202) | - | Various | Various | Rated 22 uF or 15 uF, minimum 400 V, 105 °C. | |
| 26 | Capacitor (CX102S) | FOKY2 or FOWX2, CN | Various | Various | Rated minimum 300 Vac, 110 °C, 220 nF. Located across the line. | |

Winding devices - See below for details.

| No. | Item | CCN | Manufacturer (File Number) | Part Number | Rating | (F)IG (I)LL |
|----------|---|-------|-------------------------------|-------------|--|----------------|
| 1 | Line Filter (LX101S) - Primary | - | - | - | Refer to Ill. 6 for details | I6 |
| 1.1 | Core | - | - | - | Ferrite, toroidal type, overall 16.0 mm by 10.0 mm by 7.0 mm (OD x ID x H). | |
| 1.2 | Coil | OBMW2 | Various | Various | Enameled copper wire, rated 130 °C minimum. | |
| *1. 3 | Core Cover/ Coil Separator | QMFZ2 | Various | Various | Rated minimum 155 °C, minimum 0.35 mm thick. NC, BK Color only. | |
| *1. 4 | Base | QMFZ2 | Various | Various | Phenolic, 0.46 mm thick minimum, rated minimum 130 °C. | |
| *1. 5 | Tube | YDPU2 | Various | Various | Rated minimum 200 °C, 300 V, VW-1, located at pins #2 and #4. | |
| 2 | Line Filter (LX102S) - Primary | - | - | - | Refer to Ill. 7 for details | I7 |
| 2.1 | Core | - | - | - | Ferrite, toroidal type, overall 16.0 mm by 10.0 mm by 7.0 mm (OD x ID x H). | |
| 2.2 | Coil | OBMW2 | Various | Various | Enameled copper wire, rated 130 °C minimum. | |
| *2. 3 | Core Cover | QMFZ2 | Various | Various | Rated minimum 105 °C, minimum 0.4 mm thick. | |
| *2. 4 | Coil Separator | QMFZ2 | Various | Various | Rated minimum 105 °C, minimum 0.75 mm thick. | |
| 2.5 | Base | QMFZ2 | Various | Various | Phenolic, 0.46 mm thick minimum, rated minimum 130 °C. | |
| 2.6 | Tube | YDPU2 | Various | Various | Rated minimum 200 °C, 300 V, VW-1, located at pins #2 and #4. | |
| 3 | Inductor (LQ01) - Primary | - | - | - | Refer to Ill. 8 for details | I8 |
| 3.1 | Core | - | - | - | Ferrite, drum type, measured overall 6.5 mm by 7.5 mm (diameter x height). | |
| 3.2 | Coil | OBMW2 | Various | Various | Enameled copper wire, rated 130 °C minimum, wire ends secured to PWB by soldering. | |
| 3.3 | Base | QMFZ2 | Various | Various | Phenolic, 0.46 mm thick minimum, rated minimum 130 °C. | |
| *3. 4 | Heat shrink tube | YDPU2 | Various | Various | Rated minimum 125 °C, 600 V, VW-1, intended to wrap round a body. | |

Winding devices - See below for details (CONT'D)

| No. | Item | CCN | Manufacturer (File Number) | Part Number | Rating | (F)IG (I)LL |
|------|--|----------------------|-------------------------------|-----------------|---|----------------|
| 4 | Inductor (L02) - Secondary | - | - | - | Refer to Ill. 9 for details | I9 |
| 4.1 | Core | - | - | - | Ferrite, drum type, measured overall 6.5 mm by 7.5 mm (diameter x height). | |
| 4.2 | Coil | OBMW2 | Various | Various | Enameled copper wire, rated 130 °C minimum, wire ends secured to PWB by soldering. | |
| 4.3 | Base | QMFZ2 | Various | Various | Phenolic, 0.46 mm thick minimum, rated minimum 130 °C. | |
| *4.4 | Heat shrink tube | YDPU2 | Various | Various | Rated minimum 125 °C, 600V, VW-1, intended to wrap round a body. | |
| *5 | Line Filters (L01 - (Secondary), LX103S - (Primary)) | - | - | - | Refer to Ill. 10 for details | I10 |
| 5.1 | Core | - | - | - | Ferrite, toroidal type, overall 8.1 mm by 4.1 mm by 3.1 mm (OD x ID x H). | |
| 5.2 | Winding | OBMW2 | Various | Various | Enameled Copper wire, random wound on Core, rated 130 °C minimum, each end secured to PWB by soldering. | |
| | Winding | OBJT2 or AVLV2 | Various | Various | Insulated Winding Wire, rated minimum 130 °C. | |
| 5.3 | Base | QMFZ2 | Various | Vacrious | Phenolic, 0.43 mm thick minimum , rated minimum 130 °C. | |
| *5.4 | Tube | YDPU2 | Various | Various | Rated minimum 200 °C, 600 V, VW-1, located at pins #2 and #4. | |
| 6 | PFC Coil (LP01) - Primary | - | - | - | Refer to Ill. 11 for details. | I11 |
| 6.1 | Core | - | - | - | Ferrite, PQ type, measured overall 26.5 mm by 19.0 mm by 19.0 mm (L x W x H). | |
| 6.2 | Bobbin | QMFZ2 | Various | Various | Phenolic (PF), rated minimum 130 °C, 0.51 mm thick minimum. | |
| 6.3 | Winding | OBMW2 | Various | Various | Enameled copper wire, rated 130 °C minimum. | |
| | Winding | OBJT2 | Various | Various | Insulated Winding Wire, rated 130 °C minimum . | |
| 6.4 | Insulation Tape | OANZ2 | Various | Various | Polyethylene terephthalate film tape, rated minimum 130 °C. | |
| 6.5 | Varnish | OBOR2 | Various | Various | Rated minimum 130 °C. | |

Winding devices - See below for details (CONT'D)

| No. | Item | CCN | Manufacturer (File Number) | Part Number | Rating | (F)IG (I)LL |
|----------|--|-------|--|---|--|----------------|
| 7 | Transformer (PM101) - Primary | - | - | - | Refer to Ill. 12 for details. | I12 |
| 7.1 | Core | - | - | - | Ferrite, EE type, measured overall 10.3 mm by 11.5 mm by 4.75 mm (L x W x H). | |
| 7.2 | Bobbin | QMFZ2 | Various | Various | Phenolic (PF), rated minimum 130 °C, 0.51 mm thick minimum. | |
| 7.3 | Winding | OBMW2 | Various | Various | Enameled copper wire, rated 130 °C minimum. | |
| 7.4 | Insulation Tape | OANZ2 | Various | Various | Polyethylene terephthalate film tape, 0.025 mm thick minimum . Rated minimum 130 °C. | |
| 7.5 | Varnish | OBOR2 | Various | Various | Rated minimum 130 °C. | |
| 7.6 | Tube | YDFU2 | Various | Various | Rated minimum 200 °C, 150 V, VW-1, located at pin #3. | |
| | Alternate | QMFZ2 | Various | Various | Rated minimum 180 °C, V-0, located at pin #3. | |
| 8 | Transformer (TM01) - isolated primary to secondary | - | - | - | Refer to Ill. 13 and 14 for details. | |
| * | Electrical insulation system | OBYJ2 | LITE-ON TECHNOLOGY CORP (E140167) | LSE-B11 | Rated Class 130 (Class B). | I13 |
| | Alternate | OBYJ2 | CLOVER HI-TECH CO LTD (E167514) | SC-04B | Same as above. | I14 |
| *8. 1 | Core | - | - | - | Ferrite, EER type, measured overall 40.0 mm by 35.2 mm by 11.3 mm (L x W x H). | |
| *8. 2 | Bobbin | QMFZ2 | SUMITOMO BAKELITE CO LTD (E41429) | PM-9820 | Phenolic (PF), 0.65 mm thick Min., rated 150 °C. | |
| *8. 3 | Cap | QMFZ2 | NAN YA PLASTICS CORP PLASTICS 4TH DIV (E130155) | 1403G6 | Polybutylene Terephthalate (PBTP), 0.75 mm thick Min., rated V-0, 130 °C. | |
| *8. 4 | Winding | OBMW2 | Belong to electrical insulation system | Belong to electrical insulation system | Enameled copper wire, rated 130 °C Min. | |
| 8.5 | Core Fixing Tape | OANZ2 | Belong to electrical insulation system | Belong to electrical insulation system | Polyethylene terephthalate film tape, 0.025 mm thick min. , 130 °C min. | |
| *8. 6 | Varnish | OBOR2 | Belong to electrical insulation system | Belong to electrical insulation system | Rated 130 °C min. | |