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REPORT

on

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

ENERGY RECOVERY PRODUCTS (ZHUHAI) CO LTD
Guangdong, China

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DESCRIPTION

PRODUCT COVERED:

USR, CNR - Component LED Driver, Series EVMPPPA-XXXXX-VV-YYY-ZZZ, EWMPPPA-XXXXX-110-YYY-ZZZ, EVBPPPA-XXXXX-VV-YYY-ZZZ and EWBPPPA-XXXXX-110-YYY-ZZZ.

Where "PPP" - Denotes output power (Pout) rating code. If $40W < P_{out} \leq 50W$, "PPP"=050; if $50W < P_{out} \leq 60W$, "PPP"=060; if $60W < P_{out} \leq 70W$, "PPP"=070; if $70W < P_{out} \leq 80W$, "PPP"=080; if $80W < P_{out} \leq 90W$, "PPP"=090; if $90W < P_{out} \leq 100W$, "PPP"=100; if $100W < P_{out} \leq 110W$, "PPP"=110; if $110W < P_{out} \leq 120W$, "PPP"=120; if $120W < P_{out} \leq 130W$, "PPP"=130.

"A" - Denotes input voltage code. If input rated 120Vac, "A"=U; if input rated 120-277Vac, "A"=W; if input rated 277Vac, "A"=V; if input rated 230Vac, "A"=E.

"XXXXX" - Denotes regulated output current or could be blank. Regulated output current is not greater than max output regulated current within the output voltage range. The last X can be "S" or "D", which is for market purpose only and non-safety related.

"VV" - Denotes maximum output voltage. It may be "24", "26", "28", "42", "45", "48", "52", "58", "61", "80", "84" or "100".

"YYY" - Denotes customer code for market purpose only, where "Y" represents 0-9, A-Z or blank.

"ZZZ" - Denotes customer code for market purpose only, where "Z" represents 0-9, A-Z or blank.

Notes: Models EVMPPPA-XXXXX-24-YYY-ZZZ and EVBPPPA-XXXXX-24-YYY-ZZZ have been evaluated as Low voltage Limited energy (LVLE) output.

Notes: Models EVMPPPA-XXXXX-26-YYY-ZZZ, EVMPPPA-XXXXX-28-YYY-ZZZ, EVMPPPA-XXXXX-42-YYY-ZZZ, EVMPPPA-XXXXX-45-YYY-ZZZ, EVMPPPA-XXXXX-48-YYY-ZZZ, EVMPPPA-XXXXX-52-YYY-ZZZ, EVMPPPA-XXXXX-58-YYY-ZZZ, EVBPPPA-XXXXX-26-YYY-ZZZ, EVBPPPA-XXXXX-28-YYY-ZZZ, EVBPPPA-XXXXX-40-YYY-ZZZ, EVBPPPA-XXXXX-42-YYY-ZZZ, EVBPPPA-XXXXX-58-YYY-ZZZ have been evaluated as Low voltage Limited energy (LVLE) output when "PPP"=050; "PPP"=060; "PPP"=070; "PPP"=080; "PPP"=090; "PPP"=100.

ELECTRICAL RATINGS:

Model No.	Input				Output		
	Voltage (Vac)	Frequency (Hz)	Max. Current (A)	Power Factor (PF)	Voltage (Vdc)	Max. Current (mA)	Max. Power (W)
EVMPPPA-XXXXX-24-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	15-24	4100	100
EVMPPPA-XXXXX-26-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	16-26	3850	100
EVMPPPA-XXXXX-28-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	18-28	4000	120
EVM100A-XXXXX-28-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	18-28	3500	100
EVMPPPA-XXXXX-42-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	30-42	2850	120
EVM100A-XXXXX-42-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	30-42	2350	100
EVMPPPA-XXXXX-45-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	39-45	2670	120
EVM100A-XXXXX-45-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	39-45	2150	100
EVMPPPA-XXXXX-48-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	37-48	2500	120
EVM100A-XXXXX-48-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	37-48	2050	100
EVMPPPA-XXXXX-52-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	40-52	2310	120
EVM100A-XXXXX-52-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	40-52	1900	100
EVMPPPA-XXXXX-58-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	50-58	2070	120
EVM100A-XXXXX-58-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	50-58	1700	100
EVMPPPA-XXXXX-80-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	66-80	1625	130
EVMPPPA-XXXXX-84-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	70-84	1550	130
EVMPPPA-XXXXX-100-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	84-100	1300	130
EVMPPPA-XXXXX-61-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	50-61	2130	130
EWMPPPA-XXXXX-110-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.5	>0.9	80-110	1180	130

ELECTRICAL RATINGS (CONT'D):

Model No.	Input				Output		
	Voltage (Vac)	Frequency (Hz)	Current (A)	Power Factor (PF)	Voltage (Vdc)	Max. Current (mA)	Max. Power (W)
EVBPPPA-XXXXX-24-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	17-24	4100	100
EVBPPPA-XXXXX-26-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	16-26	3850	100
EVBPPPA-XXXXX-28-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	18-28	4000	120
EVB100A-XXXXX-28-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	18-28	3500	100
EVBPPPA-XXXXX-40-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	30-40	3000	120
EVB100A-XXXXX-40-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	30-40	2450	100
EVBPPPA-XXXXX-42-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	30-42	2850	120
EVB100A-XXXXX-42-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	30-42	2350	100
EVBPPPA-XXXXX-58-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	50-58	2070	120
EVB100A-XXXXX-58-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	50-58	1700	100
EVBPPPA-XXXXX-100-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	84-100	1300	130
EVBPPPA-XXXXX-61-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	50-61	2130	130
EWBPPPA-XXXXX-110-YYY-ZZZ	120, 120-277, 277, 230	50/60	1.4	>0.9	80-110	1180	130

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.

*The output for Models EVMPPPA-XXXXX-24-YYY-ZZZ, EVBPPPA-XXXXX-24-YYY-ZZZ, EVMPPPA-XXXXX-26-YYY-ZZZ, EVMPPPA-XXXXX-28-YYY-ZZZ, EVMPPPA-XXXXX-42-YYY-ZZZ, EVMPPPA-XXXXX-45-YYY-ZZZ, EVMPPPA-XXXXX-48-YYY-ZZZ, EVMPPPA-XXXXX-52-YYY-ZZZ, EVMPPPA-XXXXX-58-YYY-ZZZ, EVBPPPA-XXXXX-26-YYY-ZZZ, EVBPPPA-XXXXX-28-YYY-ZZZ, EVBPPPA-XXXXX-40-YYY-ZZZ, EVBPPPA-XXXXX-42-YYY-ZZZ, EVBPPPA-XXXXX-58-YYY-ZZZ have been evaluated as Low voltage Limited energy, Section 8.14, when "PPP"=050; "PPP"=060; "PPP"=070; "PPP"=080; "PPP"=090; "PPP"=100.

CNR - Indicates investigation to the Canadian Standard for: Light emitting Diode (LED) Equipment for Lighting Applications, CAN/CSA-C22.2 No. 250.13.

*The output for Models EVMPPPA-XXXXX-24-YYY-ZZZ, EVBPPPA-XXXXX-24-YYY-ZZZ, EVMPPPA-XXXXX-26-YYY-ZZZ, EVMPPPA-XXXXX-28-YYY-ZZZ, EVMPPPA-XXXXX-42-YYY-ZZZ, EVMPPPA-XXXXX-45-YYY-ZZZ, EVMPPPA-XXXXX-48-YYY-ZZZ, EVMPPPA-XXXXX-52-YYY-ZZZ, EVMPPPA-XXXXX-58-YYY-ZZZ, EVBPPPA-XXXXX-26-YYY-ZZZ, EVBPPPA-XXXXX-28-YYY-ZZZ, EVBPPPA-XXXXX-40-YYY-ZZZ, EVBPPPA-XXXXX-42-YYY-ZZZ, EVBPPPA-XXXXX-58-YYY-ZZZ have been evaluated as Low voltage Limited energy, Annex A, when "PPP"=050; "PPP"=060; "PPP"=070; "PPP"=080; "PPP"=090; "PPP"=100.

These devices were additionally investigated to UL 2097, Reference Standard for Double Insulation Systems for Use in Electronic Equipment and CSA C22.2 No. 0.1, General Requirements for Double-Insulated Equipment.

These products been evaluated for the following characteristics.

Model No. [x] applies to all models			Product is rated	Type HL (c)	Type TL (d)
EVMPPPA-XXXXX-24-YYY-ZZZ, EVBPPPA-XXXXX-24-YYY-ZZZ, EVMPPPA-XXXXX-26-YYY-ZZZ, EVMPPPA-XXXXX-28-YYY-ZZZ, EVMPPPA-XXXXX-42-YYY-ZZZ, EVMPPPA-XXXXX-45-YYY-ZZZ, EVMPPPA-XXXXX-48-YYY-ZZZ, EVMPPPA-XXXXX-52-YYY-ZZZ, EVMPPPA-XXXXX-58-YYY-ZZZ, EVBPPPA-XXXXX-26-YYY-ZZZ, EVBPPPA-XXXXX-28-YYY-ZZZ, EVBPPPA-XXXXX-40-YYY-ZZZ, EVBPPPA-XXXXX-42-YYY-ZZZ, EVBPPPA-XXXXX-58-YYY-ZZZ. (Notes: when "PPP"=050; "PPP"=060; "PPP"=070; "PPP"=080; "PPP"=090; "PPP"=100)	Input type- [x] Branch Circuit (Mains)	Output type- [x] CC Output is [x] Isolated [x] LVLE (b)	Dry or Damp	No	No
EWMPPPA-XXXXX-110-YYY-ZZZ, EWBPPPA-XXXXX-110-YYY-ZZZ	Input type- [x] Branch Circuit (Mains)	Output type- [x] CC Output is [x] Non-isolated	Dry or Damp	No	No
Other models	Input type- [x] Branch Circuit (Mains)	Output type- [x] CC Output is [x] Isolated	Dry or Damp	No	No

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

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

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

Conditions of Acceptability:

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

1. Rated output loading for these products was achieved using electronic loads.

2. The products have been tested in a still oven required the case temperature (Tc) achieve 90°C with rated load. Tc location as shown in ILL. 22 for series EVMPPPA-XXXXX-VV-YYY-ZZZ and EWMPPPA-XXXXX-110-YYY-ZZZ, Tc location as shown in ILL. 23 for series EVBPPPA-XXXXX-VV-YYY-ZZZ and EWBPPPA-XXXXX-110-YYY-ZZZ. And the oven ambient listed in the table accordingly for information. Acceptable operation at a higher temperature should be determined in end products.

Model No.	Oven ambient (Ta) / °C		Case temperature (Tc)/ °C	
	Test	Corrected Value	Test	Corrected to Tc
EVMPPPA-XXXXX-24-YYY-ZZZ	40	45.9	84.1	90
EVMPPPA-XXXXX-28-YYY-ZZZ	40	46.5	83.5	90
EVMPPPA-XXXXX-58-YYY-ZZZ	40	40.7	89.3	90
EVMPPPA-XXXXX-100-YYY-ZZZ	40	41.3	88.7	90
EVMPPPA-XXXXX-61-YYY-ZZZ	40	49.3	80.7	90
EWMPPPA-XXXXX-110-YYY-ZZZ	40	49.4	80.6	90
EVBPPPA-XXXXX-24-YYY-ZZZ	40	45.4	84.6	90
EVBPPPA-XXXXX-28-YYY-ZZZ	40	46.1	83.9	90
EVBPPPA-XXXXX-58-YYY-ZZZ	40	46.6	83.4	90
EVBPPPA-XXXXX-100-YYY-ZZZ	40	44.6	85.4	90
EVBPPPA-XXXXX-61-YYY-ZZZ	40	46.4	83.6	90
EWBPPPA-XXXXX-110-YYY-ZZZ	40	46.9	83.1	90

3. These products utilize a UL Recognized OBJ2 Class **F (155)** electrical insulation system.

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

5. These products are provided with 18 AWG, stranded, leads, rated 105°C, 300 V minimum for input and output connections. Acceptability of the leads relative to strain relief and secureness, is to be determined as part of the end device evaluation.

6. These products are dimmable using a low voltage 0-10 V proprietary interface. This interface is a source, since the product provides the source of supply. The interface circuits (Purple-grey output wires) of the LED drivers have been evaluated for isolation from primary circuit. The need for evaluating the combination of the drivers and the dimming circuits shall be considered in the end product evaluation.

7. These products are intended for use in dry or damp locations. Acceptable use of location should be determined in end products.

8. Models EVMPPPA-XXXXX-24-YYY-ZZZ and EVBPPPA-XXXXX-24-YYY-ZZZ have been evaluated isolated LVLE output. Output voltages are less than 42.4Vdc. The consideration of end-use application will be determined in the end product evaluation.

8A. Models EVMPPPA-XXXXX-26-YYY-ZZZ, EVMPPPA-XXXXX-28-YYY-ZZZ, EVMPPPA-XXXXX-42-YYY-ZZZ, EVMPPPA-XXXXX-45-YYY-ZZZ, EVMPPPA-XXXXX-48-YYY-ZZZ, EVMPPPA-XXXXX-52-YYY-ZZZ, EVMPPPA-XXXXX-58-YYY-ZZZ, EVBPPPA-XXXXX-26-YYY-ZZZ, EVBPPPA-XXXXX-28-YYY-ZZZ, EVBPPPA-XXXXX-40-YYY-ZZZ, EVBPPPA-XXXXX-42-YYY-ZZZ, EVBPPPA-XXXXX-58-YYY-ZZZ have been evaluated isolated LVLE output when "PPP"=050; "PPP"=060; "PPP"=070; "PPP"=080; "PPP"=090; "PPP"=100. The consideration of end-use application will be determined in the end product evaluation.

9. The housings have not been evaluated as enclosures. Acceptability is to be determined as part of the end device evaluation.

10. These products are intended to be operated in a maximum 20 A branch circuit

11. All models except for models EWMPPPA-XXXXX-110-YYY-ZZZ and EWBPPPA-XXXXX-110-YYY-ZZZ have been evaluated isolated output. Double insulation only apply to primary and secondary circuit for isolated models. Further evaluation shall be determined in end-use application.

12. These products are provided with 22 AWG, stranded leads, rated 105°C, 300 V minimum for purple-grey dimmer leads. Acceptability of the leads is to be determined as part of the end device evaluation.

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 or File number
2. Model designation
3. Factory ID, when more than one factory
4. Optional - Date Code
5. Optional - Electrical Ratings- see electrical ratings table
6. Optional - Output Type- see product characteristics table
7. Optional - "Suitable for dry or damp Locations".
8. Optional - Polarity of the Input and Output Connections
9. Optional - Temperature Measurement Point (Tc): 90°C.
10. Optional - "Dimmable".
11. Optional - "DOUBLE INSULATION", "DOUBLE INSULATED" or symbol:



MODEL DIFFERENCES:

Models EVMPPPA-XXXXX-24-YYY-ZZZ, EVMPPPA-XXXXX-26-YYY-ZZZ, EVMPPPA-XXXXX-28-YYY-ZZZ, EVMPPPA-XXXXX-42-YYY-ZZZ, EVMPPPA-XXXXX-45-YYY-ZZZ, EVMPPPA-XXXXX-48-YYY-ZZZ, EVMPPPA-XXXXX-52-YYY-ZZZ, EVMPPPA-XXXXX-58-YYY-ZZZ utilize the same PWB design, circuit diagram, transformer, enclosure constructions and input/ output connection scheme (via supply leads) except model designation, input and output ratings and component ratings. See ILL. 5 for different component ratings.

Models EVMPPPA-XXXXX-61-YYY-ZZZ, EVMPPPA-XXXXX-80-YYY-ZZZ, EVMPPPA-XXXXX-84-YYY-ZZZ, EVMPPPA-XXXXX-100-YYY-ZZZ are similar to Model EVMPPPA-XXXXX-24-YYY-ZZZ except transformer, model designation, input and output ratings and component ratings. See ILL. 5 for different component ratings.

Model EWMPPPA-XXXXX-110-YYY-ZZZ is similar to Model EVMPPPA-XXXXX-24-YYY-ZZZ except transformer, Y-capacitor, model designation, input and output ratings and component ratings. See ILL. 5 for different component ratings.

Models EVBPPPA-XXXXX-24-YYY-ZZZ, EVBPPPA-XXXXX-26-YYY-ZZZ, EVBPPPA-XXXXX-28-YYY-ZZZ, EVBPPPA-XXXXX-40-YYY-ZZZ, EVBPPPA-XXXXX-42-YYY-ZZZ, EVBPPPA-XXXXX-58-YYY-ZZZ utilize the same PWB design, circuit diagram, transformer, enclosure constructions and input/ output connection scheme (via supply leads) except model designation, input and output ratings and component ratings. See ILL. 15 for different component ratings.

Models EVBPPPA-XXXXX-61-YYY-ZZZ, EWBPPPA-XXXXX-110-YYY-ZZZ are similar to Model EVBPPPA-XXXXX-24-YYY-ZZZ except transformer, model designation, input and output ratings and component ratings. See ILL. 15 for different component ratings.

Model EWBPPPA-XXXXX-110-YYY-ZZZ is similar to Model EVBPPPA-XXXXX-24-YYY-ZZZ except transformer, Y-capacitor, model designation, input and output ratings and component ratings. See ILL. 15 for different component ratings.

Model EVMPPPA-XXXXX-24-YYY-ZZZ - FIGS. 1 - 6

(ALSO REPRESENT TO MODELS EVMPPPA-XXXXX-26-YYY-ZZZ, EVMPPPA-XXXXX-28-YYY-ZZZ, EVMPPPA-XXXXX-42-YYY-ZZZ, EVMPPPA-XXXXX-45-YYY-ZZZ, EVMPPPA-XXXXX-48-YYY-ZZZ, EVMPPPA-XXXXX-52-YYY-ZZZ, EVMPPPA-XXXXX-58-YYY-ZZZ)

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	-	Various	Various	Made by Aluminum, 0.6 mm thick min. Two-part construction, secured together by snap-fit. See ILL. 1 for detailed dimension.	ILL.1
-	Alternate Housing	-	Various	Various	Same as above except alternate the Housing cover with different wiring holes. See ILL. 2 for detailed dimension.	ILL.2
2	Bushing	QMFZ2	-	-	Silicone Rubber, rated min. HB, 105°C. Snap fit to the Housing for Input/ Output leads protection.	-
3	Input/ Output Lead Wire	AVLV2, CN	Various	Various	18 AWG, rated 300 V , 105°C min.	-
4	Dimmer leads	AVLV2, CN	Various	Various	Located at secondary circuit. 22 AWG, rated 300 V , 105°C min.	-
5	Insulation Sheet	QMFZ2	DUPONT TEIJIN FILMS U S L P (E93687)	Mylar A	Two layers provided. Each, Polyethylene Terephthalate (PET) film, rated VIM-2, 105°C, min. 0.25 mm thick. See ILL. 3 for dimension details. Fully wrapped around the LED Driver.	ILL.3
*6	Potting compound	QMFZ2	DONGGUAN ZHAOSHUN SILICONE NEW MATERIAL TECHNOLOGY CO LTD (E329120)	ZS-GF series	Rated V-0, 150°C, gray in color. Fully covered all the components inside housing.	-
7	Printed Wiring Board	ZPMV2	Various	Various	Rated min. V-1, 130°C. Suitable for support of live parts. See ILL. 4 for trace layouts.	ILL.4
8	Fuse (F1)	JDYX2, CN	CONQUER ELECTRONICS CO LTD (E82636)	MST	Rated 300 V, 1.6 A, connected in series with ungrounded supply.	-
-	Alternate Fuse (F1)	JDYX, CN	Various	Various	Rated 300 V, 1.6 A, connected in series with ungrounded supply.	-
9	Varistor (MV1)	VZCA2, CN	Various	Various	Rated Maximum Continuous Operation Voltage min. 320 V ac, 1000 Vpk protection voltage. Type 5, min. 85°C.	-

No.	Item	CCN	Manufacturer (File Number)	Part/Model Number	Description / Technical Data	(F)I G (I)L L
10	X-Capacitor (C2)	FOWX2 , CN	Various	Various	Rated 305 V min., 85°C min, 0.1 μ F max. Located across the line.	-
-	(For models rated 120 V only) Alternate X- Capacitor (C2)	FOWX2 , CN	Various	Various	Rated 250 V min., 85°C min, 0.1 μ F max. Located across the line.	-
11	Y-Capacitor (C22, C85)	FOWX2 , CN	Various	Various	Class Y1. Rated 400 V min., 85°C min, 3300 pF. Bridging Primary to secondary.	-
-	(For models rated 120 V only) Alternate Y- Capacitor (C22, C85)	FOWX2 , CN	Various	Various	Class Y1. Rated 250 V min., 85°C min, 3300 pF. Bridging Primary to secondary.	-
12	Optical Isolator (IC2, IC3)	FPQU2 , CN	LITE-ON TECHNOLOGY CORP (E113898)	LTV-817	Double protection optical isolators providing 5300 Vrms, isolation. Rated 115°C.	-
13	Heat Sink (HS1)	-	Various	Various	Aluminum, nominal 1.9 mm thick, overall measured 34 mm by 30.6 mm by 30 mm high. Used as Heat sink for Q7.	-
14	Heat Sink (HS2)	-	Various	Various	Aluminum, nominal 1.9 mm thick, overall measured 34 mm by 30.6 mm by 30 mm high. Used as Heat sink for D5 and D50.	-

Other critical components - see following for details.

Bridge Diode (D2, D6, D8, D9) - DO-41, PG2010, rated 1000 V, 2 A.

Diode (D49) - SOD123, rated 600V, 1A.

MOSFET (Q7) - TO220FP, rated 650 V, 17 A.

Chip (IC1) - MP44010HS-C537, SOP-8.

Chip (IC10) - AS331K, SOT23-5.

Chip (IC7) - LM393D, SO8.

Chip (IC4) - LM358A, SO8, OPAMP DUAL.

Others - The different parameter of other components among models as ILL.
5.

Winding devices - See below for details.

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F)I G (I)L L
1	Line Filter (L2)	-	-	-	Refer to Ill. 6 for details	ILL. 6
1.1	Core	N/A	N/A	N/A	Ferrite, approximate 10 mm OD by 5 mm ID by 5 mm high.	-
1.2	Winding (Pin 3-4)	OBMW2	Various	Various	Enamel copper wire, rated 130°C min.	-
1.3	Winding (Pin 1-2)	OBJT2	Various	Various	Insulated Winding Wire, rated 130°C min.	-
1.4	Varnish	OBOR2	Various	Various	Rated 130°C min.	-
2	Inductance (L1)	-	-	-	Refer to Ill. 7 for details	ILL. 7
2.1	Core	N/A	N/A	N/A	Ferrite, Column type, 14 mm OD by 19 mm high	-
2.2	Coil	OBMW2	Various	Various	Enamel copper wire, rated 130°C min. Fully covered with electrical tubing.	-
2.3	Varnish	OBOR2	Various	Various	Rated 130°C min.	-
2.4	Tubing	YDPU2, CN	Various	Various	Rated 300 V, 105°C min.	-
3	Line Filter (L3)	-	-	-	Refer to Ill. 8 for details	ILL. 8
3.1	Core	N/A	N/A	N/A	Ferrite, approximate 10 mm OD by 5 mm ID by 5 mm high.	-
3.2	Coil	OBMW2	Various	Various	Enamel copper wire, rated 130°C min.	-
3.3	Varnish	OBOR2	Various	Various	Rated 130°C min.	-

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F) I G (I) L L
4	Transformer (T1)	-	-	-	Refer to Ill. 9 for details	ILL. 9
-	Electrical insulation system	OBJY2, CN	DONGGUAN ZHONGKAI ELECTRONIC CO LTD (E349803)	Tai Hu 155- TM	Rated 155°C (Class F)	-
			ENERGY RECOVERY PRODUCTS (ZHUHAI) CO LTD (E472467)	ERP-155		
4.1	Core	-	-	-	Ferrite.	-
4.2	Bobbin	QMFZ2	SUMITOMO BAKELITE CO LTD (E41429)	PM-9820 or PM-9630	Phenolic, 0.65 mm thick minimum, rated V-0, min. 150°C.	-
4.3	Windings (N1, N5, N6, N7)	OBJS2	NEW ENGLAND WIRE TECHNOLOGIES CORP (E231977)	FEP	Insulated Winding Wire, 155°C min.	-
4.4	Secondary Windings (N2, N3, N4)	OBMW2	-	-	MW 79 or 155°C Polyurethane.	-
4.5	Tape	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	Polyethylene terephthalate film tape, 0.05 mm thick per layer, 2 layers provided.	-
4.6	Primary Crossover Lead Insulation	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	One layer tape	-
4.7	Varnish	OBOR2	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD (E228349)	T-4260(a)	Rated 155°C.	-

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F)I G (I)L L
-	Alternate Electrical insulation system for Transformer (T1)	OBJY2, CN	MAO HSIN ELECTRONIC CO LTD (E182305)	SBI5.1	Rated 155°C (Class F)	-
4.1	Core	-	-	-	Ferrite.	-
4.2	Bobbin	QMFZ2	Various	Various	(for mechanical support only) Phenolic, 0.65 mm thick minimum, rated V-0, 150°C.	-
4.3	Windings (N1, N5, N6, N7)	OBJT2	FURUKAWA ELECTRIC CO LTD (E206440)	TEX-F	Insulated Winding Wire, 155°C min	-
4.4	Secondary Windings (N2, N3, N4)	OBMW2	-	-	MW 80 or 155°C Polyurethane.	-
4.5	Tape	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	Polyethylene terephthalate film tape, 0.05 mm thick per layer, 2 layers provided.	-
4.6	Primary Crossover Lead Insulation	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	One layer tape	-
4.7	Varnish	OBOR2	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC (E75225)	468-2FC (d)	Rated 130°C.	-

Model EVMPPPA-XXXXX-61-YYY-ZZZ

(ALSO REPRESENT TO MODELS EVMPPPA-XXXXX-80-YYY-ZZZ, EVMPPPA-XXXXX-84-YYY-ZZZ, EVMPPPA-XXXXX-100-YYY-ZZZ)

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. Similar to above Model EVMPPPA-XXXXX-24-YYY-ZZZ except following items specifically described.

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F)I G (I)L L
4	Transformer (T1)	-	-	-	Refer to Ill. 10 for details	ILL. 10
-	Electrical insulation system	OBJY2, CN	DONGGUAN ZHONGKAI ELECTRONIC CO LTD (E349803)	Tai Hu 155- TM	Rated 155°C (Class F)	-
			ENERGY RECOVERY PRODUCTS (ZHUHAI) CO LTD (E472467)	ERP-155		
4.1	Core	-	-	-	Ferrite.	-
4.2	Bobbin	QMFZ2	SUMITOMO BAKELITE CO LTD (E41429)	PM-9820 or PM-9630	Phenolic, 0.65 mm thick minimum, rated V-0, min. 150°C.	-
4.3	Windings (N1, N4, N5, N6)	OBJS2	NEW ENGLAND WIRE TECHNOLOGIES CORP (E231977)	FEP	Insulated Winding Wire, 155°C min.	-
4.4	Secondary Windings (N2, N3)	OBMW2	-	-	MW 79 or 155°C Polyurethane.	-
4.5	Tape	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	Polyethylene terephthalate film tape, 0.05 mm thick per layer, 2 layers provided.	-
4.6	Primary Crossover Lead Insulation	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	One layer tape	-
4.7	Varnish	OBOR2	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD (E228349)	T-4260(a)	Rated 155°C.	-

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F)I G (I)L L
-	Alternate Electrical insulation system for Transformer (T1)	OBJY2, CN	MAO HSIN ELECTRONIC CO LTD (E182305)	SBI5.1	Rated 155°C (Class F)	-
4.1	Core	-	-	-	Ferrite.	-
4.2	Bobbin	QMFZ2	Various	Various	(for mechanical support only) Phenolic, 0.65 mm thick minimum, rated V-0, 150°C.	-
4.3	Windings (N1, N4, N5, N6)	OBJT2	FURUKAWA ELECTRIC CO LTD (E206440)	TEX-F	Insulated Winding Wire, 155°C min	-
4.4	Secondary Windings (N2, N3)	OBMW2	-	-	MW 80 or 155°C Polyurethane.	-
4.5	Tape	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	Polyethylene terephthalate film tape, 0.05 mm thick per layer, 2 layers provided.	-
4.6	Primary Crossover Lead Insulation	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	One layer tape	-
4.7	Varnish	OBOR2	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC (E75225)	468-2FC (d)	Rated 130°C.	-

Model EWMPPPA-XXXXX-110-YYY-ZZZ

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. Similar to above Model EVMPPPA-XXXXX-24-YYY-ZZZ except following items specifically described.

No.	Item	CCN	Manufacturer (File Number)	Part/Model Number	Description / Technical Data	(F)I G (I)L L
10	Y-Capacitor (C22, C85)	-	-	-	Blank. No Y-capacitor.	-

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F)I G (I)L L
4	Transformer (T1)	-	-	-	Refer to Ill. 11 for details	ILL. 11
-	Electrical insulation system	OBJY2, CN	DONGGUAN ZHONGKAI ELECTRONIC CO LTD (E349803)	Tai Hu 155- TM	Rated 155°C (Class F)	-
			ENERGY RECOVERY PRODUCTS (ZHUHAI) CO LTD (E472467)	ERP-155		
4.1	Core	-	-	-	Ferrite.	-
4.2	Bobbin	QMFZ2	SUMITOMO BAKELITE CO LTD (E41429)	PM-9820 or PM-9630	Phenolic, 0.65 mm thick minimum, rated V-0, min. 150°C.	-
4.3	Windings (N1, N2, N3)	OBJS2	NEW ENGLAND WIRE TECHNOLOGIES CORP (E231977)	FEP	Insulated Winding Wire, 155°C min.	-
4.4	Secondary Windings (N4)	OBMW2	-	-	MW 79 or 155°C Polyurethane.	-
4.5	Tape	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	Polyethylene terephthalate film tape, 0.05 mm thick per layer, 2 layers provided.	-
4.6	Primary Crossover Lead Insulation	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	One layer tape	-
4.7	Varnish	OBOR2	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD (E228349)	T-4260(a)	Rated 155°C.	-

No.	Item	CCN	Manufacturer (File Number)	Part/Model Number	Description / Technical Data	(F)I G (I)L L
-	Alternate Electrical insulation system for Transformer (T1)	OBJY2, CN	MAO HSIN ELECTRONIC CO LTD (E182305)	SBI5.1	Rated 155°C (Class F)	-
4.1	Core	-	-	-	Ferrite.	-
4.2	Bobbin	QMFZ2	Various	Various	(for mechanical support only) Phenolic, 0.65 mm thick minimum, rated V-0, 150°C.	-
4.3	Windings (N1, N2, N3)	OBJT2	FURUKAWA ELECTRIC CO LTD (E206440)	TEX-F	Insulated Winding Wire, 155°C min	-
4.4	Secondary Windings (N4)	OBMW2	-	-	MW 80 or 155°C Polyurethane.	-
4.5	Tape	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	Polyethylene terephthalate film tape, 0.05 mm thick per layer, 2 layers provided.	-
4.6	Primary Crossover Lead Insulation	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	One layer tape	-
4.7	Varnish	OBOR2	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC (E75225)	468-2FC (d)	Rated 130°C.	-

Model EVBPPPA-XXXXX-24-YYY-ZZZ - FIGS. 7 - 12
(ALSO REPRESENT TO MODELS EVBPPPA-XXXXX-26-YYY-ZZZ, EVBPPPA-XXXXX-28-YYY-ZZZ,
EVBPPPA-XXXXX-40-YYY-ZZZ, EVBPPPA-XXXXX-42-YYY-ZZZ, EVBPPPA-XXXXX-58-YYY-ZZZ)

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	-	Various	Various	Made by Aluminum, 0.6 mm thick min. Two-part construction, secured together by snap-fit. See ILL. 12 for detailed dimension.	ILL. 12
2	Bushing	QMFZ2	-	-	Silicone Rubber, rated min. HB, 105°C. Snap fit to the Housing for Input/ Output leads protection.	-
3	Input/ Output Lead Wire	AVLV2, CN	Various	Various	18 AWG, rated 300 V , 105°C min.	-
4	Dimmer leads	AVLV2, CN	Various	Various	Located at secondary circuit. 22 AWG, rated 300 V , 105°C min.	-
5	Insulation Sheet	QMFZ2	DUPONT TEIJIN FILMS U S L P (E93687)	Mylar A	Two layers provided. Each, Polyethylene Terephthalate (PET) film, rated VTM-2, 105°C, min. 0.25 mm thick. See ILL. 3 for dimension details. Fully wrapped around the LED Driver.	ILL. 13
*6	Potting compound	QMFZ2	DONGGUAN ZHAOSHUN SILICONE NEW MATERIAL TECHNOLOGY CO LTD (E329120)	ZS-GF series	Rated V-0, 105°C, gray color. Fully covered all the components inside housing.	-
*						
7	Printed Wiring Board	ZPMV2	Various	Various	Rated min. V-1, 130°C. Suitable for support of live parts. See ILL. 14 for trace layouts.	ILL. 14
8	Fuse (F1)	JDYX2, CN	CONQUER ELECTRONICS CO LTD (E82636)	MST	Rated 300 V, 1.6 A, connected in series with ungrounded supply.	-
-	Alternate Fuse (F1)	JDYX, CN	Various	Various	Rated 300 V, 1.6 A, connected in series with ungrounded supply.	-
9	Varistor (MV1)	VZCA2, CN	Various	Various	Rated Maximum Continuous Operation Voltage min. 320 V ac, 1000 Vpk protection voltage. Type 5, min. 85°C.	-
10	X-Capacitor (C2)	FOWX2, CN	Various	Various	Rated 305 V min., 85°C min, 0.1 µF max. Located across the line.	-
-	(For models rated 120 V only) Alternate X- Capacitor (C2)	FOWX2, CN	Various	Various	Rated 250 V min., 85°C min, 0.1 µF max. Located across the line.	-

No.	Item	CCN	Manufacturer (File Number)	Part/Model Number	Description / Technical Data	(F)I G (I)L L
11	Y-Capacitor (C22, C85)	FOWX2 , CN	Various	Various	Class Y1. Rated 400 V min., 85°C min, 2200 pF. Bridging Primary to secondary.	-
-	(For models rated 120 V only) Alternate Y- Capacitor (C22, C85)	FOWX2 , CN	Various	Various	Class Y1. Rated 250 V min., 85°C min, 2200 pF. Bridging Primary to secondary.	-
12	Optical Isolator (IC2, IC3)	FPQU2 , CN	LITE-ON TECHNOLOGY CORP (E113898)	LTV-357T	Double protection optical isolators providing 3750 Vrms, isolation. Rated 115°C.	-
13	Heat Sink (HS1)	-	Various	Various	Aluminum, nominal 1.9 mm thick, overall measured 36 mm by 18.4 mm by 23 mm high. Used as Heat sink for Q7.	-
14	Heat Sink (HS2)	-	Various	Various	Aluminum, nominal 1.9 mm thick, overall measured 68 mm by 20.5 mm by 23 mm high. Used as Heat sink for D5 and D51.	-

Other critical components - see following for details.

Bridge Diode (D2, D6, D8, D9) - DO-41, PG2010, rated 1000 V, 2 A.

Diode (D50) - SOD123, rated 600V, 1A.

MOSFET (Q7) - TO220FP, rated 650 V, 17 A.

Chip (IC1) - MP44010HS-C537, SOP-8.

Chip (IC10) - AS331K, SOT23-5.

Chip (IC7) - LM393D, SO8.

Chip (IC4) - LM358A, SO8, OPAMP DUAL.

Others - The different parameter of other components among models as ILL.
15.

Winding devices - See below for details.

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F)I G (I)L L
1	Line Filter (L2)	-	-	-	Refer to Ill. 16 for details	ILL. 16
1.1	Core	N/A	N/A	N/A	Ferrite, approximate 10 mm OD by 5 mm ID by 5 mm high.	-
1.2	Winding (Pin 3-4)	OBMW2	Various	Various	Enamel copper wire, rated 130°C min.	-
1.3	Winding (Pin 1-2)	OBJT2	Various	Various	Insulated Winding Wire, rated 130°C min.	-
1.4	Varnish	OBOR2	Various	Various	Rated 130°C min.	-
2	Inductance (L1)	-	-	-	Refer to Ill. 17 for details	ILL. 17
2.1	Core	N/A	N/A	N/A	Ferrite, Column type, 14 mm OD by 19 mm high	-
2.2	Coil	OBMW2	Various	Various	Enamel copper wire, rated 130°C min. Fully covered with electrical tubing.	-
2.3	Varnish	OBOR2	Various	Various	Rated 130°C min.	-
2.4	Tubing (Optional)	YDPU2, CN	Various	Various	Rated 300 V, 105°C min.	-
3	Line Filter (L3)	-	-	-	Refer to Ill. 18 for details	ILL. 18
3.1	Core	N/A	N/A	N/A	Ferrite, approximate 10 mm OD by 5 mm ID by 5 mm high.	-
3.2	Coil	OBMW2	Various	Various	Enamel copper wire, rated 130°C min.	-
3.3	Varnish	OBOR2	Various	Various	Rated 130°C min.	-

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F)I G (I)L L
4	Transformer (T1)	-	-	-	Refer to Ill. 19 for details	ILL. 19
-	Electrical insulation system	OBJY2, CN	DONGGUAN ZHONGKAI ELECTRONIC CO LTD (E349803)	Tai Hu 155- TM	Rated 155°C (Class F)	-
			ENERGY RECOVERY PRODUCTS (ZHUHAI) CO LTD (E472467)	ERP-155		
4.1	Core	-	-	-	Ferrite.	-
4.2	Bobbin	QMFZ2	SUMITOMO BAKELITE CO LTD (E41429)	PM-9820 or PM-9630	Phenolic, 0.65 mm thick minimum, rated V-0, min. 150°C.	-
4.3	Windings (N1, N5, N6, N7)	OBJS2	NEW ENGLAND WIRE TECHNOLOGIES CORP (E231977)	FEP	Insulated Winding Wire, 155°C min.	-
4.4	Secondary Windings (N2, N3, N4)	OBMW2	-	-	MW 79 or 155°C Polyurethane.	-
4.5	Tape	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	Polyethylene terephthalate film tape, 0.05 mm thick per layer, 2 layers provided.	-
4.6	Primary Crossover Lead Insulation	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	One layer tape	-
4.7	Varnish	OBOR2	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD (E228349)	T-4260(a)	Rated 155°C.	-

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F)I G (I)L L
-	Alternate Electrical insulation system for Transformer (T1)	OBJY2, CN	MAO HSIN ELECTRONIC CO LTD (E182305)	SBI5.1	Rated 155°C (Class F)	-
4.1	Core	-	-	-	Ferrite.	-
4.2	Bobbin	QMFZ2	Various	Various	(for mechanical support only) Phenolic, 0.65 mm thick minimum, rated V-0, 150°C.	-
4.3	Windings (N1, N5, N6, N7)	OBJT2	FURUKAWA ELECTRIC CO LTD (E206440)	TEX-F	Insulated Winding Wire, 155°C min	-
4.4	Secondary Windings (N2, N3, N4)	OBMW2	-	-	MW 80 or 155°C Polyurethane.	-
4.5	Tape	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	Polyethylene terephthalate film tape, 0.05 mm thick per layer, 2 layers provided.	-
4.6	Primary Crossover Lead Insulation	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	One layer tape	-
4.7	Varnish	OBOR2	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC (E75225)	468-2FC (d)	Rated 130°C.	-

Model EVBPPPA-XXXXX-61-YYY-ZZZ

*(ALSO **REPRESENTS** MODEL EVBPPPA-XXXXX-100-YYY-ZZZ)

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. Similar to above Model EVBPPPA-XXXXX-24-YYY-ZZZ except following items specifically described.

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F)I G (I)L L
4	Transformer (T1)	-	-	-	Refer to Ill. 20 for details	ILL. 20
-	Electrical insulation system	OBJY2, CN	DONGGUAN ZHONGKAI ELECTRONIC CO LTD (E349803)	Tai Hu 155- TM	Rated 155°C (Class F)	-
			ENERGY RECOVERY PRODUCTS (ZHUHAI) CO LTD (E472467)	ERP-155		
4.1	Core	-	-	-	Ferrite.	-
4.2	Bobbin	QMFZ2	SUMITOMO BAKELITE CO LTD (E41429)	PM-9820 or PM-9630	Phenolic, 0.65 mm thick minimum, rated V-0, min. 150°C.	-
4.3	Windings (N1, N4, N5, N6)	OBJS2	NEW ENGLAND WIRE TECHNOLOGIES CORP (E231977)	FEP	Insulated Winding Wire, 155°C min.	-
4.4	Secondary Windings (N2, N3)	OBMW2	-	-	MW 79 or 155°C Polyurethane.	-
4.5	Tape	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	Polyethylene terephthalate film tape, 0.05 mm thick per layer, 2 layers provided.	-
4.6	Primary Crossover Lead Insulation	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	One layer tape	-
4.7	Varnish	OBOR2	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD (E228349)	T-4260(a)	Rated 155°C.	-

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F)I G (I)L L
-	Alternate Electrical insulation system for Transformer (T1)	OBJY2, CN	MAO HSIN ELECTRONIC CO LTD (E182305)	SBI5.1	Rated 155°C (Class F)	-
4.1	Core	-	-	-	Ferrite.	-
4.2	Bobbin	QMFZ2	Various	Various	(for mechanical support only) Phenolic, 0.65 mm thick minimum, rated V-0, 150°C.	-
4.3	Windings (N1, N4, N5, N6)	OBJT2	FURUKAWA ELECTRIC CO LTD (E206440)	TEX-F	Insulated Winding Wire, 155°C min	-
4.4	Secondary Windings (N2, N3)	OBMW2	-	-	MW 80 or 155°C Polyurethane.	-
4.5	Tape	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	Polyethylene terephthalate film tape, 0.05 mm thick per layer, 2 layers provided.	-
4.6	Primary Crossover Lead Insulation	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	One layer tape	-
4.7	Varnish	OBOR2	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC (E75225)	468-2FC (d)	Rated 130°C.	-

Model EWBPPPA-XXXXX-110-YYY-ZZZ

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. Similar to above Model EVBPPPA-XXXXX-24-YYY-ZZZ except following items specifically described.

No.	Item	CCN	Manufacturer (File Number)	Part/Model Number	Description / Technical Data	(F)I G (I)L L
10	Y-Capacitor (C22, C85)	-	-	-	Blank. No Y-capacitor.	-

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F)I G (I)L L
4	Transformer (T1)	-	-	-	Refer to Ill. 21 for details	ILL. 21
-	Electrical insulation system	OBJY2, CN	DONGGUAN ZHONGKAI ELECTRONIC CO LTD (E349803)	Tai Hu 155-TM	Rated 155°C (Class F)	-
			ENERGY RECOVERY PRODUCTS (ZHUHAI) CO LTD (E472467)	ERP-155		
4.1	Core	-	-	-	Ferrite.	-
4.2	Bobbin	QMFZ2	SUMITOMO BAKELITE CO LTD (E41429)	PM-9820 or PM-9630	Phenolic, 0.65 mm thick minimum, rated V-0, min. 150°C.	-
4.3	Windings (N1, N2, N3)	OBJS2	NEW ENGLAND WIRE TECHNOLOGIES CORP (E231977)	FEP	Insulated Winding Wire, 155°C min.	-
4.4	Secondary Windings (N4)	OBMW2	-	-	MW 79 or 155°C Polyurethane.	-
4.5	Tape	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	Polyethylene terephthalate film tape, 0.05 mm thick per layer, 2 layers provided.	-
4.6	Primary Crossover Lead Insulation	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	One layer tape	-
4.7	Varnish	OBOR2	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD (E228349)	T-4260(a)	Rated 155°C.	-

No.	Item	CCN	Manufacturer (File Number)	Part Number	Rating	(F)I G (I)L L
-	Alternate Electrical insulation system for Transformer (T1)	OBJY2, CN	MAO HSIN ELECTRONIC CO LTD (E182305)	SBI5.1	Rated 155°C (Class F)	-
4.1	Core	-	-	-	Ferrite.	-
4.2	Bobbin	QMFZ2	Various	Various	(for mechanical support only) Phenolic, 0.65 mm thick minimum, rated V-0, 150°C.	-
4.3	Windings (N1, N2, N3)	OBJT2	FURUKAWA ELECTRIC CO LTD (E206440)	TEX-F	Insulated Winding Wire, 155°C min	-
4.4	Secondary Windings (N4)	OBMW2	-	-	MW 80 or 155°C Polyurethane.	-
4.5	Tape	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	Polyethylene terephthalate film tape, 0.05 mm thick per layer, 2 layers provided.	-
4.6	Primary Crossover Lead Insulation	OANZ2	3M COMPANY ELECTRICAL MARKETS DIV (EMD) (E17385)	1350T-1	One layer tape	-
4.7	Varnish	OBOR2	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC (E75225)	468-2FC (d)	Rated 130°C.	-