

Certificate No. S 50434230 0007 Report No. 02-Xiongcar-50232182 006 Appendix No. 1


**Constructional Data Form (CDF) for Electrical Appliances**

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License holder : **Huizhou Zhongbang Electronics Co., Ltd.**  
 No.2 Pingnan Mid-road, Pingnan Industrial District, Huizhou, 516006 Guangdong, P.R. China

Factory : **Huizhou Zhongbang Electronics Co., Ltd.**  
 No.2 Pingnan Mid-road, Pingnan Industrial District, Huizhou, 516006 Guangdong, P.R. China  
**CONG TY TNHH ZBPOWER VIETNAM**  
 No.3, Road No.9, Tan Duc Industrial Park, X. Duc Hoa Ha, 800010 H. Duc Hoa, Long An Province, Vietnam.

Type of Appliance : Power Supply

Type Designation : ZB-Hxxxxyyy\_z+, MC120-aVbA, MC140-aVbA, E-Power 24SF (xxx, yyy, a, b, z and + are variables, see table A on page 2 for details) (Trade mark: )

Rating : I/P: 100-240Vac, 50-60Hz, 1.6A  
 O/P: see table B on page 2 for details

Protection against moisture/dust : IP20

Protection Class : Class II

Time of operation : Continuous operation

Short-circuit protection : Non-inherently short-circuit proof

Supply connection :  fixed power cord  
 permanent connection  
 appliance inlet  
 direct plug in  
 built-in



Additional information :

The specified maximum ambient temperature is 30°C

Altitude: 2000m

Degree of protection: IP20

Short-circuit protection: non-inherently short-circuit proof

TÜV Rheinland Group

May 20, 2022 Carol Xiong

*Carol Xiong*

May 20, 2022



Date Printed Name Signature Date Printed Name Signature of licenseholder

(Name of authorized person)

**Table A: Definition of variables:**

Variable:	Range of variable:	Content:
ZB-Hxxxxyyy_z+, MC120-aVbA, MC140-aVbA		
xxx	240 or 290	3 digit number which represents 10 times of output voltage in V, for example, 240 represents the output voltage is 24.0V.
yyy	015-021	3 digit number which represent 10 times of output voltage in A and in a step of 0.1A, for example, 015 represents the output current is 1.5A, 021 represents the output current is 2.1A.
a	24 or 29	2 digit number which represents the output voltage, for example, 24 represents the output voltage is 24.0V.
b	1.5-2.1	1 or 2 digit number which represents the output current, for example, 1.5 represents the output current is 1.5A, 2 represents the output current is 2.0A.
z	A, B or T	One letter represents the enclosure shape.
+	Z, a-z, 0-9 or blank	One letter or digit or blank, for marketing purpose.

**Table B: Model list and output rating:**

Model no.	Input	Output (Vdc)	Output current (A)	Max.Power (W)	Transformer
ZB-Hxxxxyyy_z+, MC120-aVbA, MC140-aVbA	100-240V~, 50-60Hz, 1.6A	24.0	1.5-2.1	50.4	ZB-E290020-A
		29.0	1.5-2.0	58.0	
E-Power 24SF		24.0	2.1	50.4	

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Date Printed Name Stamp & Signature of licenseholder



(name of authorized person)

**Critical Components**

Material: e.g. external enclosure, closed-end connector, sleeves, cord anchorage etc.

Components with winding: e.g. motor, transformer, magnetic coil etc.

Other components: e.g. switch, thermostat, heater, plug, internal wire, capacitor, relay, varistor etc.

Object/part No.	Manufacturer/ trademark	Type/ model	Technical data	Standard	Mark(s) of conformity
Plastic enclosure	COVESTRO DEUTSCHLAND AG [PC RESINS]	6485 + (z)(f1)	PC, V-0115°C, min.1.5 mm thickness	UL 94, UL 746C	UL E41613
Appliance Inlet(CN1)	Zhejiang LECI Electronics Co., Ltd	DB-8	AC 250 V, 2.5A, C8 type	IEC/EN/UL 60320-1	VDE 40032028 UL E302229
Alternative	Zhe Jiang Bei Er Jia	ST-A03-002, ST-A03-005	AC 250 V, 2.5A, C8 type	IEC/EN/UL 60320-1	VDE 40014833 UL E225980
Alternative	Dongguan HUACONN Electronics Co., Ltd.	HC-88-02	AC 250 V, 2.5A, C8 type	IEC/EN/UL 60320-1	VDE 40032611 UL E340249
PCB	XINHUA ELECTRONICS (HUIZHOU) CO LTD	XH1	V-0, 130°C	UL 796	UL E241103
Alternative	GOFORTUNE TECHNOLOGIE S INDUSTRIAL CO LTD	GF-01	V-0, 130°C	UL 796	UL E246338
Alternative	DONGGUAN SHI XINYANG ELECTRONIC CO LTD	XY-C	V-0, 130°C	UL 796	UL E345720
Alternative	DONGGUAN CITY XINRAN ELECTRONIC CO LTD	XR-F003	V-0, 130°C	UL 796	UL E330704
Fuse (F1)	XC Electronics (Shen Zhen) Corp. Ltd.	3T-Serie(s)	T3.15AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE 40019614 UL E249609
Alternative	Dongguan Better Electronics Technology Co., Ltd.	932	T3.15AL, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE 40033369 UL E300003
X-Capacitors (CX1) (Optional)	Dain Electronics Co., Ltd.	MPX	Max. 0.33uF, min.250 V, min. 100°C, X2 type or better	IEC/EN/UL 60384-14	VDE 40018798 UL E147776
Alternative	Carli Electronics Co., Ltd.	MPX	Max. 0.33uF, min.250 V, min. 100°C, X2 type or better	IEC/EN/UL 60384-14	VDE 40008520 UL E120045
Alternative	Ultra Tech Xiphi Enterprise Co. Ltd.	HQX	Max. 0.33uF, min.250 V, min. 100°C, X2 type or better	IEC/EN/UL 60384-14	VDE 40015608, 40024534 UL E183780



Alternative	Farad Electronics Co. Ltd.	PXK	Max. 0.33uF, min.250 V, min. 100°C, X2 type or better	IEC/EN/UL 60384-14	VDE 40014111, 40030152 UL E247953
Alternative	Shenzhen Su Rong Capacitors Co.,Ltd.	MPX/MKP	Max. 0.33uF, min.250 V, min. 100°C, X2 type or better	IEC/EN/UL 60384-14	VDE 40008924 UL E314875
Alternative	Dongguan Easy-gather Electronic Co., Ltd.	MKP-X2	Max. 0.33uF, min.250Vac, min.100°C, X2 type or better	IEC/EN/UL 60384-14	VDE 40022258 UL E252221
Alternative	Dongguan Easy-gather Electronic Co., Ltd.	DCF	Max. 0.33uF, min.250Vac, min.100°C, X1 type or better	IEC/EN/UL 60384-14	VDE 40015758, 40022942 UL E252221
Opto-coupler (U2)	Bright Led Electronics Corp.	BPC-817C	Ext. Cr./Cl.:≥8.0/7.6 mm, Dti.: ≥0.4mm, 110°C	IEC/EN 60747-5-5 UL1557	VDE 40007240 , UL E236324
Alternative	Everlight Electronics Co., Ltd.	EL817	Ext. Cr./Cl.: ≥7.6 mm, Dti.: ≥0.4 mm, 110°C	IEC/EN 60747-5-5 UL1557	VDE 132249 UL E214129
Alternative	Lite-On Technology Corporation	LTV-817	Ext. Cr./Cl: ≥ 7.0 mm, Dti.: ≥0.4 mm, 115°C	IEC/EN 60747-5-5 UL1557	VDE 40015248 UL E113898
Alternative	Sharp Corporation Electronic Components And Devices Division	PC817	Ext. Cr./Cl: ≥ 6.4 mm, Dti.: ≥0.4 mm, 110°C	IEC/EN 60747-5-5 UL1557	VDE 40008087, UL E64380
Alternative	CT Micro International Corporation	CT817	Ext. Cr./Cl: ≥ 7.0mm, Dti.: ≥ 0.4mm, 110°C	IEC/EN 60747-5-5	VDE 40039590
Bridging Capacitors (CY3, CY4) (Optional)	Shantou High- New Technology Dev. Zone Songtian Enterprise Co., Ltd.	CE Series	Max. 2200pF, min.250Vac, Y2 type, min. 125°C	IEC/EN/UL 60384-14	VDE 40025748 UL E208107
Alternative	Shantou High- New Technology Dev. Zone Songtian Enterprise Co., Ltd.	CD-Series	Max. 2200pF, min.250Vac, Y1 type, min. 125°C	IEC/EN/UL 60384-14	VDE 40025754 UL E208107
Alternative	Jya-Nay Co. Ltd.	JN series	Max. 2200pF, min.250Vac, Y1 type, min. 125°C	IEC/EN/UL 60384-14	TUV HN 69250774 UL E201384
Alternative	TDK Corporation	CD	Max. 2200pF, min.250Vac, Y1 type, min. 125°C	IEC/EN/UL 60384-14	VDE 40029780 UL E37861
Alternative	Hsuan Tai Electronic Co. Ltd.	CY	Max. 2200pF, min.250Vac, Y1 type, min. 125°C	IEC/EN/UL 60384-14	VDE 40008912 UL E199069
Alternative	Murata Mfg. Co., Ltd.	KX	Max. 2200pF, min.250Vac, Y1 type, min.125°C	IEC/EN/UL 60384-14	VDE 40002831 UL E37921



Alternative	Dongguan Easy-gather Electronic Co., Ltd.	DCF	Max. 2200pF, min.250Vac, Y1 type, min. 125°C	IEC/EN/UL 60384-14	VDE 40015758, 40022942 UL E252221
Inductor (L1)	SHENZHEN QINXINLONG ELECTRONICS CO., LTD	UT20	N1(pin 1-2)/ N2(pin 4-3): 80.4x1Px50Ts Min. 130°C	IEC/EN 61558-1; -2-16	Test with appliance
- Bobbin	E I DUPONT DE NEMOURS & CO INC	FR530(I)(+)(f1)	PET, V-0, 155°C, min. thickness: 0.71 mm	UL 94, UL 746C	UL E41938
- Base	CHANG CHUN PLASTICS CO LTD	T375J, T200NA, T200HF	Phenolic, V-0, 150°C, min. thickness: 0.7 mm	UL 94, UL 746C	UL E59481
Alternative	SUMITOMO BAKELITE CO LTD	PM-9820	Phenolic, V-0, 150°C, min. thickness: 0.7 mm	UL 94, UL 746C	UL E41429
Transformer (T1)	SHENZHEN QINXINLONG ELECTRONICS CO., LTD	ZB-E290020-A	Class B	IEC/EN 61558-1; IEC/EN 61558-2-16	Test with appliance
Alternative	XSFT ELECTRONICS CO., LTD	ZB-E290020-A	Class B	IEC/EN 61558-1; IEC/EN 61558-2-16	Test with appliance
- Bobbin	SUMITOMO BAKELITE CO LTD	PM-9820	Phenolic, V-0, 150°C, min. thickness: 0.7 mm	UL 94, UL 746C	UL E41429
Alternative	CHANG CHUN PLASTICS CO LTD	T375J, T200NA, T200HF	Phenolic, V-0, 150°C, min. thickness: 0.7 mm	UL 94, UL 746C	UL E59481
- Magnet wire	DONG GUAN XIN YOU LIAN COPPER CO LTD	2UEW	130°C	UL 1446	UL E222363
Alternative	BOLUO COUNTY XIN LONG ELECTRICIAN DATA CO LTD	xUEWF	155°C	UL 1446	UL E229423
Alternative	DONG GUAN YIDA INDUSTRIAL CO LTD	xUEW/130	130°C	UL 1446	UL E344055
Alternative	DONG GUAN YIDA INDUSTRIAL CO LTD	xUEW/155	155°C	UL 1446	UL E344055
Alternative	HUIZHOU ZHAOXINYUAN ELECTRONICS TECHNOLOGY CO LTD	*UEW, xUEW	130°C	UL 1446	UL E344738
- Magnet wire	DONG GUAN XIN YOU LIAN COPPER CO LTD	2UEW	130°C	UL 1446	UL E222363
- Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT* (c)(g), CT* (b)(g), CT-280B	Rated 130°C	UL 510A	UL E165111
- Tube	FLUO TECH INDUSTRIES CO LTD	TFT	200°C	UL 224	UL E175982
Alternative	Great Holding Industrial Co., Ltd.	TFL	200°C	UL 224	UL E156256



Alternative	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-TT-L, CB-TT-T, CB-TT-S	200°C, VW-1	UL 224	UL E180908
- Varnish	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	468-2 (d)	130°C	UL 1446	UL E75225
Alternative	ZHUHAI CHANGXIAN NEW MATERIALS TECHNOLOGY CO LTD	E962	130°C	UL 1446	UL E335405
Alternative	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD	T-4260(a)	130°C	UL 1446	UL E228349
- Triple insulated wire	Furukawa Electric Co., Ltd.	TEX-E	Reinforced insulation wire, rated 130°C min.	IEC/EN 60950-1, IEC/EN 61558-2-16	VDE 006735
Alternative	Rubadue Wire Co., Inc	TCA 3	Reinforced insulation wire, rated 130°C min.	IEC/EN 60950-1, IEC/EN 61558-2-16	VDE 40000223
Alternative	Rubadue Wire Co., Inc.	Tefzel 210 Serie(s)	Reinforced insulation wire, rated 130°C min.	IEC/EN 60950-1, IEC/EN 61558-2-16	VDE 136743
Alternative	Great Leoflon Industrial Co., Ltd.	TRW(B)-M TRW(F)-M	Reinforced insulation wire, rated min. 130°C	IEC/EN 60950-1, IEC/EN 61558-2-16	VDE 136581
Output cord (for model ZB-Hxxxxxyy_A+, ZB-Hxxxxxyy_T+, MC120-aVbA)	ZHONGSHANC ITY HONGSHANCH UAN ELECTRICAL EQUIPMENTS CO LTD	NISPT-1	FT-1, min.300V, min. 18AWG, min.105°C	UL 62	UL E470030
(Alternative)	YUTONG ELECTRONICS (HUI ZHOU) CO LTD	NISPT-1	FT-1, min.300V, min. 18AWG, min.105°C	UL 62	UL E466769
Plastic material used on DC output terminal	NAN YA PLASTICS CORP PLASTICS 3RD DIV	1400G3	PBT V-0	UL 746	UL E130155
Alternative	DONGGUAN BEST PLASTIC CO LTD	PBT301-G20	PBT, V-0	UL 746	UL E320069
Alternative	CHANG CHUN PLASTICS CO LTD	4815	PBT, V-0	UL 746	UL E59481
Internal secondary wire (for model ZB-Hxxxxxyy_B+,MC140-aVbA)	SHENZHEN CITY DE XING LONG ELECTRIC CO LTD	1007, 1015	Rated 300V, min.80°C, min. 20AWG for output wire; 24AWG for battery wire, VW-1 or FT-1.	UL 758	UL E328945
Thermistor (R18)	Nanjing Shiheng Electronics Co., Ltd.	MF11-104x	Rated 100K ohms at 25°C	IEC/EN 60539-1	TUV R 50245892



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**Constructional Data Form (CDF) for Electrical Appliances**

Discharge resistances (R1, R1A, R2, R2A, R3, R3A, R4, R4A)	TA-I TECHNOLOGY CO LTD	RH10 series	Each max.0.82 MΩ, min. 1/8W	IEC/EN 61558-1; -2-16	Test with appliance
Rectifier bridge (DB1)	CHONGQING PINGWEI ENTERPRISE CO.,LTD	1N4007	Min. 600 V, min. 2A.	IEC/EN 61558-1; -2-16	Test with appliance
Electrolytic Capacitor (C5)	Aihua Group	ERK2GM470M2 0C30T	47-120uF, min. 400V, 105°C	IEC/EN 61558-1; -2-16	Test with appliance
Transistor (Q3)	CHONGQING PINGWEI ENTERPRISE CO.,LTD	Q3	Min. 600 V, min. 6A.	IEC/EN 61558-1; -2-16	Test with appliance
Current-limiting resistors (R16, R19, R13, R20, R25)	TA-I TECHNOLOGY CO LTD	RH10 series	Each min. 1.0 Ω, Min. 1/4W	IEC/EN 61558-1; -2-16	Test with appliance
Glue (fixing output wire and components)	ShenZhen Anpin Silicone Material Co Ltd	AP-607, AP-608	V-0, 105°C	UL 746	UL E257078
Resistor (R37, R38, R39, R40, R41)	TA-I TECHNOLOGY CO LTD	RH10 series	Each rated 9.1Mohm, min. 1/4W	IEC 60065 clause 14.1 a) UL 62368-1	Test with appliance UL E494441

**TÜV Rheinland Group**

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May 20, 2022



Date Printed Name Signature

Date Printed Name Stamp & Signature of licenseholder

(name of authorized person)

**Functional Components**

Components which are required for performance purposes and not directly addressed by a component standard or product standard: Ripple capacitors, Mosfets, PCB, etc.

Object/part No.	Type/ model (optional)	Technical data
Alternative of Magnet wire of (T1)	Interchangeable	Min. 130°C
Alternative of Internal secondary wire (for model ZB-Hxxxxyy_B+, MC140-aVbA )	Interchangeable	Rated 300V, min.80°C, min. 20AWG for output wire; 24AWG for battery wire, VW-1 or FT-1.
Alternative of Discharge resistances (R1, R1A, R2, R2A, R3, R3A, R4, R4A)	Interchangeable	Each max.0.82 MΩ, min. 1/8W
Alternative of Rectifier bridge(DB1)	Interchangeable	Min. 600 V, min. 2A.
Alternative of Electrolytic Capacitor (C5)	Interchangeable	47-120uF, min. 400V, 105°C
Alternative of Transistor (Q3)	Interchangeable	Min. 600 V, min. 6A.
Alternative of Current-limiting resistors (R16, R19, R13, R20, R25)	Interchangeable	Each min. 1.0 Ω, Min. 1/4W
Alternative of Glue (fixing output wire and components)	Interchangeable	Min. V-2, min.105°C

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