Repubblica di San Marino
Autorità per l'Omologazione
Republic of San Marino
Authority for Homologation

Via Consiglio dei Sessanta, 99
47891 Dogana - Repubblica di San Marino

Comunicazione
Communication

E57	Concernente [2/] *Concerning* [2/]	**Il rilascio dell'omologazione** ***Approval granted*** ~~L'estensione dell'omologazione~~ ~~*Approval extended*~~ ~~Il rifiuto dell'omologazione~~ ~~*Approval refused*~~ ~~La revoca dell'omologazione~~ ~~*Approval withdrawn*~~ ~~La cessazione definitiva della produzione~~ ~~*Production definitively discontinued*~~

of a type of ~~electrical~~/electronic sub-assembly [(2)] with regard to Regulation no. 10.06

Omologazione N. ***Approval No.***	**E57*10R06/02*0849**	**Estensione N.** ***Extension No.***	**00**

Marchio di omologazione ***Approval mark***	***See information document No. 12.8V300AH-00***

1. Make (trade name of manufacturer): eleksol
2. Type and general commercial description(s): Type: 12.8V300AH
Commercial description: Lithium battery
3. Means of identification of type, if marked on the ~~vehicle~~/component/~~separate technical unit~~ [(2)]: Letters and digits

3.1 Location of that marking: Silk screen on the housing

4. Category of vehicle: M, N, O

5.	Name and address of manufacturer:	DISTRIBUCIONES SOLARES DEL PRINCIPADO, SL PG PROMOGRANDA (PEROGRAN), NUM 22 33199 SIERO - (ASTURIAS)
6.	In the case of components and separate technical units, location and method of affixing of the approval mark:	Silk screen on the housing
7.	Address(es) of assembly plant(s):	Jiangxi Jingjiu Power Energy Co.,Ltd. Building 6 of Industrial Real Estate Phase lll, No.1988, Dongxing Road, High-tech Development Zone, Xinyu City, Jiangxi, P.R.China
8.	Additional information (where applicable):	See appendix below
9.	Technical Service responsible for carrying out the tests:	**AUTOMOTIVE TECHNICAL SERVICE S.r.l.** Via Consiglio dei Sessanta, 99 47891 – DOGANA Repubblica di San Marino
10.	Date of inspection report:	16/07/2024
11.	No. of inspection report:	ATS-SM-IR-10-13755
12.	Remarks (if any):	See appendix below
13.	Place:	DOGANA – Repubblica di San Marino
14.	Date:	30/07/2024
15.	Signature:	AUTORITA' PER L'OMOLOGAZIONE E57 Repubblica di San Marino Ing. Marco Conti Direttore Generale General Director
16.	The index to the information package lodged with the Approval Authority, which may be obtained on request, is attached.	
17.	Reasons for extension:	Not Applicable

(2) Strike out what does not apply.

Appendix to type-approval communication form No. E57*10R06/02*0849*00 concerning the type-approval of an ~~electrical~~/electronic sub-assembly under Regulation No. 10

1. Additional information:

1.1. Electrical system rated voltage:	DC 12V ~~pos.~~/neg. ground(2)
1.2. This ESA can be used on any vehicle type with the following restrictions:	No restriction
1.2.1. Installation conditions, if any:	No restriction
1.3. This ESA can be used only on the following vehicle type:	No restriction
1.3.1. Installation conditions, if any:	No restriction
1.4. The specific test method(s) used and the frequency ranges covered to determine immunity were: (Please specify precise method used from Annex 9):	Measured by bulk current injection (20 MHz – 400 MHz) and in the anechoic chamber (400 MHz -2 GHz) as described in annex 9 of ECE-Regulation No. 10.
1.5. Laboratory accredited to ISO 17025 and recognised by the Approval Authority responsible for carrying out the tests:	Zhejiang Huachen Inspection and Testing Co., Ltd. Building 23, No.1336, Hangfu Road, Chongfu Town, Tongxiang City, Jiaxing City, Zhejiang Province, China

2. Remarks: None

(2) Strike out what does not apply.

Allegato *Enclosure*				
Al certificato di omologazione ECE N. *To ECE approval certificate No.*		**E57*10R06/02*0849*00**		
Indice del fascicolo di omologazione *Index to the information package*				
Data *Date of issue*	**30/07/2024**	**Data ultima modifica** *Last amendment date*	--	
1.	***Clausole di garanzia e istruzioni sul diritto di presentare ricorso*** *Collateral clauses and instruction on right to appeal*			
2.	**Rapporto(i) Finale di Ispezione No.** *Test report(s) No.*	**ATS-SM-IR-10-13755**	**Data** *Date*	**16/07/2024**
3.	**Scheda informativa N.** *Information document No.*	**12.8V300AH-00**	**Data** *Date*	**11/06/2024**
			Data ultima modifica *Last amendment date*	**--**

Clausole di garanzia e istruzioni sul diritto di presentare ricorso

Clausole di garanzia

La produzione in serie deve essere esattamente conforme ai documenti di omologazione. Le variazioni di produzione in serie sono consentite solo con il consenso espresso del **Autorità per l'Omologazione**.

Le variazioni del nome della società, l'indirizzo e lo stabilimento di produzione, nonché una delle parti che hanno l'autorità alla consegna o eventuali rappresentanti nominati al momento del rilascio dell'omologazione, devono essere immediatamente comunicate al **Autorità per l'Omologazione**. La violazione di queste regole può portare al ritiro dell'omologazione ed inoltre può essere legalmente perseguita.

L'omologazione decade se viene restituita o ritirata o se il tipo omologato non è più conforme ai requisiti di legge. La revoca può essere fatta se non esistono più i requisiti richiesti per il rilascio e la continuazione dell'omologazione, se il titolare dell'omologazione viola gli obblighi dettati dall'omologazione, anche nel caso in cui gli obblighi derivino dalle condizioni assegnate all'interno dell'omologazione, o se è accertato che il tipo approvato non è conforme ai requisiti di sicurezza del traffico e di tutela dell'ambiente.

L'**Autorità per l'Omologazione** può verificare la corretta applicazione della delega conferita rilasciata nella presente omologazione, in qualsiasi momento. In particolare, questo include la verifica della produzione, che sia conforme, nonché le misure di controllo di conformità della produzione. Per questo, possono essere presi dei campioni dalla produzione. I dipendenti o rappresentanti dell'**Autorità per l'Omologazione** possono avere accesso senza ostacoli agli impianti di produzione e stoccaggio.

La delega conferita contenuta nella presente omologazione non è trasferibile. I diritti del marchio di terzi non sono interessati da questa omologazione.

Istruzione su diritto di ricorso

Questa omologazione è appellabile entro un mese dalla notifica. Il ricorso deve essere presentato per iscritto o come una domanda inviata all' **Autorità per l'Omologazione** - Via Consiglio dei Sessanta, 99 - 47891 Dogana - Repubblica di San Marino.

********** **********

Collateral clauses and instruction on right to appeal

Collateral clauses

*The individual production of serial fabrication must be in exact accordance with the approval documents. Changes in the individual production are only allowed with express consent of the **Authority for Homologation**.*

*Changes in the name of the company, the address and the manufacturing plant as well as one of the parties given the authority to delivery or authorized representative named when the approval was granted is to be immediately disclosed to the **Authority for Homologation**. Breach of this regulation can lead to recall of the approval and moreover can be legally prosecuted.*

The approval expires if it is returned or withdrawn or if the type approved no longer complies with the legal requirements. The revocation can be made if the demanded requirements for issuance and the continuance of the approval no longer exist, if the holder of the approval violates the duties involved in the approval, also to the extent that they result from the assigned conditions to this approval, or if it is determined that the approved type does not comply with the requirements of traffic safety or environmental protection.

*The **Authority for Homologation** may check the proper exercise of the conferred authority taken from this approval at any time. In particular this means the compliant production as well as the measures for conformity of production. For this purpose samples can be taken or have taken. The employees or the representatives of the **Authority for Homologation** may get unhindered access to the production and storage facilities.*

The conferred authority contained with issuance of this approval is not transferable. Trade mark rights of third parties are not affected with this approval.

Instruction on right to appeal

*This approval can be appealed within one month after notification. The appeal is to be filed in writing or as a transcript at the **Authority for Homologation** - Via Consiglio dei Sessanta, 99 - 47891 Dogana - Repubblica di San Marino.*

Inspection Report No.:	ATS-SM-IR-10-13755
Of:	16/07/2024
Type:	12.8V300AH
Manufacturer:	DISTRIBUCIONES SOLARES DEL PRINCIPADO, SL

Inspection Report

No. ATS-SM-IR-10-13755

Inspection concerning ~~vehicles~~ / components with regard to:

Electromagnetic Compatibility (EMC) for M, N, O, L vehicle categories

performed according to

ECE Regulation No. 10

as last amended by

06 series of amendments (supplement no. 02)

of the Economic Commission for Europe

Approval status	
ECE	Number of approval
	E57*10R06/02*0849*00

0. General information

0.1.	Make (trade name of manufacturer):	eleksol
0.2.	Type:	12.8V300AH
0.2.1.	Variants:	12.8V280AH, 12.8V230AH, 12.8V200AH, 12.8V180AH, 12.8V165AH, 12.8V150AH, 12.8V100AH
0.3.	Name and address of manufacturer:	DISTRIBUCIONES SOLARES DEL PRINCIPADO, SL PG PROMOGRANDA (PEROGRAN), NUM 22 33199 SIERO - (ASTURIAS)
0.3.1	Name and address of manufacturer's authorized representative:	N/A
0.3.2.	Production plant(s) address(es):	Jiangxi Jingjiu Power Energy Co.,Ltd. Building 6 of Industrial Real Estate Phase lll, No.1988, Dongxing Road, High-tech Development Zone, Xinyu City, Jiangxi, P.R.China
0.4.	Information document:	
	No.	12.8V300AH-00
	Date of issue:	11/06/2024
	Date of last change:	--
0.5.	Position of the approval mark:	Silk screen on the housing
0.6	Vehicle category:	M, N, O

Inspection Report No.:	ATS-SM-IR-10-13755
Of:	16/07/2024
Type:	12.8V300AH
Manufacturer:	DISTRIBUCIONES SOLARES DEL PRINCIPADO, SL

1. Test Condition

1.1.	Test sample:	The model of test report is according to customer's requirements. Performance criterion A: During and after the test, EUT work normally, the EUT properly.
1.2.	Test procedures used:	According to ECE Regulation No. 10.06
1.3.	Specimen submitted to test on:	11/06/2024
1.4.	Place of test:	Zhejiang Huachen Inspection and Testing Co., Ltd. Building 23, No.1336, Hangfu Road, Chongfu Towr Tongxiang City, Jiaxing City, Zhejiang Province China
1.5.	Date of test:	12/06/2024

2. Test records

2.1.	Equipment for measuring and testing:	The test equipment used were in testing compliance with the test requirements. List of main equipment see Appendix 4.
2.2	Conformity with the technical sheet and attached drawings:	SI / *YES* [X] NO / *NO* [ ] NR / *NA* [ ]
2.3	**Test results**	
2.3.1	Broadband electromagnetic interference generated by ESAs	
2.3.1.1	Method of measurement:	Measured by the method described in Annex 7 of ECE Regulation No. 10.
2.3.1.2	Results:	Conform /~~Not Conform~~ (Test data see Appendix 2)
2.3.2.	Narrowband electromagnetic interference generated by ESAs	
2.3.2.1.	Method of measurement:	Measured by the method described in Annex 8 of ECE Regulation No. 10.
2.3.2.2.	Results:	Conform /~~Not Conform~~ (Test data see Appendix 2)
2.3.3	Immunity of ESAs to electromagnetic radiation:	
2.3.3.1.	Method of measurement:	Measured by bulk current injection (20 MHz ~ 400 MHz) and in the anechoic chamber (400 MHz ~ 2 GHz) as described in annex 9 of ECE Regulation No. 10.
2.3.3.2.	Performance criteria:	No degradation of function by testing with 60 mA (bulk current injection) and 30 V/m (anechoic chamber).
2.3.3.3.	Results:	Conform /~~Not Conform~~ (Test data see Appendix 2)

2.3.4.	Immunity of ESAs to transient disturbances	
2.3.4.1.	Method of measurement:	Measured by the method described in Annex 10 of ECE Regulation No. 10.
2.3.4.2.	Results:	Conform / ~~Not Conform~~ (Test data see Appendix 2)
2.3.5.	Emission of transient conducted disturbances generated by ESAs	
2.3.5.1.	Method of measurement:	Measured by the method described in Annex 10 of ECE Regulation No. 10.
2.3.5.2.	Results:	Conform / ~~Not Conform~~ (Test data see Annex 2)
3.	**Remark concerning tested object(s)**	N/A

4. Other information

Place of inspection:	Zhejiang Huachen Inspection and Testing Co., Ltd. Building 23, No.1336, Hangfu Road, Chongfu Town, Tongxiang City, Jiaxing City, Zhejiang Province, China	
Date of inspection:	12/06/2024	
Technical service representative:	**Senior Inspector** Ms. Yi Shujuan	**Junior Inspector (if applicable)** N/A
Manufacturer's representative:	N/A	
Remarks:	None	

4.1 Appendix

1. List of modifications
2. Test Data
3. Sample Photo(s)
4. List of main equipment (S)

4.2 Enclosures

Information Folder	No. 12.8V300AH-00 Date: 11/06/2024

5. Statement of conformity

The information document as given in paragraph 0.4 and the type described there are in compliance with the test specification mentioned above.

With regard to the required level of performance to be achieved, the tested items were representative for the type to be approved and cover all variants / versions described in the information folder

The tests were carried out in accordance with the relevant requirements of EN ISO/IEC 17025:2005 and

EN ISO/IEC 17020 / R10-06 ECE/UN.

The tested object complies / ~~not complies~~ with the prescriptions of the R10-06 ECE/UN

The Inspection report comprises pages 1 to 15.

The test results relates only to the product tested.

Dogana, Repubblica di San Marino, 16/07/2024

Number of project and protocol	***Originality Check*** (*) **ATS-SM-PR-13755**	**Automotive Technical Service S.r.l.** ***Inspector*** (Ms. Yi Shujuan) **Automotive Technical Service S.r.l.** ***Deputy Technical Director*** (Eng. Bogdan Nicolae Domnescu)	Automotive Technical Service S.r.l. · Via Consiglio dei Sessanta, 99 · 47891 RSM · ATS Technical Service RSMAO-01

(*) To check the originality of documents, scan the QR Code or connect to the site https://www.ats.sm/originality-control-atp-adr-tyapp/ and follow the instruction in it.

Appendix 1

List of modifications **~~Applicable~~ / Not Applicable** **Appendix 1**

More details for application of **Date :**

Correction of : -

Modification of : -

Addition of : -

Deletion of : -

Appendix 2

Test data		Applicable / ~~Not Applicable~~	Appendix 2
1	**Test object(s)**		
1.1.	Commercial description:	Lithium battery	
1.2.	Type:	12.8V300AH	
1.2.1.	Variants:	12.8V280AH, 12.8V230AH, 12.8V200AH, 12.8V180AH, 12.8V165AH, 12.8V150AH, 12.8V100AH	
1.3.	Technical data of the tested ESA type		
1.3.1.	Electrical system rated voltage:	DC 12V neg. ground	
1.3.2.	This ESA can be used on any vehicle type with the following restrictions:	No restrictions	
1.3.3	Installation conditions:	No restrictions	
1.3.4	This ESA can be used on the following vehicle types:	No restrictions	
1.3.5	Installation conditions	No restrictions	

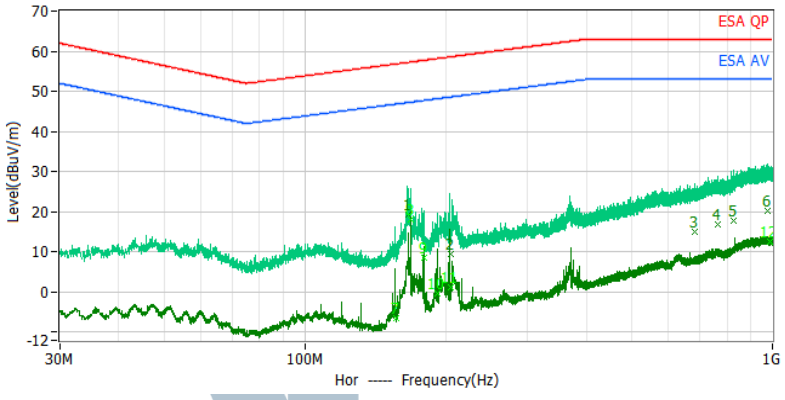
Test data **Appendix 2**

Test results (12V DC)

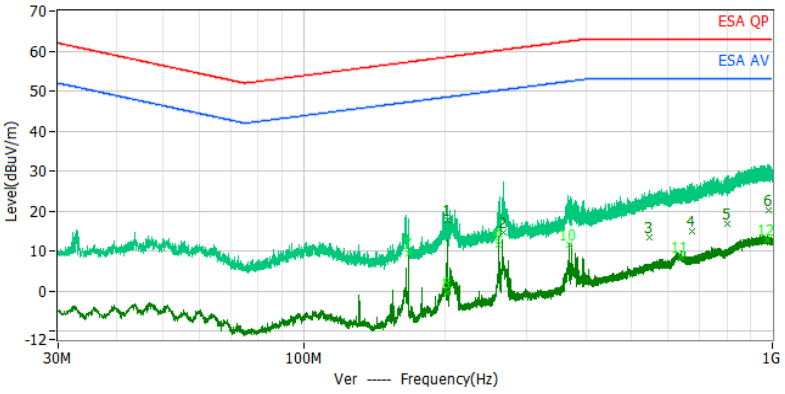
1. Broadband / narrowband electromagnetic interference generated by ESAs

Radiated broadband electromagnetic Emissions	:	as shown in table 1
Radiated narrow band electromagnetic Emissions	:	as shown in table 2
Antenna position	:	horizontal and vertical
Rated voltage	:	DC 12 V

Horizontal Polarity Test Result Diagram (Broadband and Narrow band)



Vertical Polarity Test Result Diagram (Broadband and Narrow band)



Test data **Appendix 2**

Maximum broadband QP value (Horizontal Polarity):

Frequency (MHz)	QuasiPeak (dBuV/m)	Height (cm)	Polarization	Margin (dB)	Limit (dB/m)
166.400MHz	19.42	100.0	H	-37.82	57.24
204.900MHz	9.45	100.0	H	-49.15	58.60
683.150MHz	15.06	100.0	H	-47.94	63.00
762.650MHz	16.89	100.0	H	-46.11	63.00
824.300MHz	17.72	100.0	H	-45.28	63.00
974.850MHz	20.15	100.0	H	-42.85	63.00

Maximum broadband QP value (Vertical Polarity):

Frequency (MHz)	QuasiPeak (dBuV/m)	Height (cm)	Polarization	Margin (dB)	Limit (dB/m)
203.300MHz	17.87	100.0	V	-40.68	58.55
267.450MHz	14.62	100.0	V	-45.73	60.35
546.300MHz	13.48	100.0	V	-49.52	63.00
672.400MHz	15.03	100.0	V	-47.97	63.00
802.400MHz	17.02	100.0	V	-45.98	63.00
984.600MHz	20.14	100.0	V	-42.86	63.00

Maximum narrowband AV value (Horizontal Polarity):

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Margin (dB)	Limit (dB/m)
156.750MHz	-6.53	100.0	H	-53.37	46.84
168.350MHz	18.19	100.0	H	-29.12	47.31
180.350MHz	8.53	100.0	H	-39.24	47.77
192.750MHz	-0.23	100.0	H	-48.43	48.20
204.900MHz	1.08	100.0	H	-47.52	48.60
990.650MHz	12.71	100.0	H	-40.29	53.00

Maximum narrowband AV value (Vertical Polarity):

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Margin (dB)	Limit (dB/m)
167.400MHz	9.46	100.0	V	-37.82	47.28
202.800MHz	-0.26	100.0	V	-48.80	48.54
261.300MHz	11.58	100.0	V	-38.62	50.20
368.900MHz	11.77	100.0	V	-40.70	52.47
637.300MHz	8.51	100.0	V	-44.49	53.00
974.900MHz	12.89	100.0	V	-40.11	53.00

Test data **Appendix 2**

2. Immunity of ESAs to electromagnetic radiation

Test method : ISO 11452-4 3rd edition: 2011
Bulk current injection testing method (from 20 MHz to 400MHz)

ISO 11452-2 2nd edition: 2004
Free field testing method (from 400 MHz to 2000MHz)

Measurement result:

Frequency range (MHz)	Test level	Type of modulation	Test distance	Antenna position	Result
20~400	60mA	AM,80%	150mm	---	Pass*
400~800	30V/m	AM,80%	1m	Vertical	Pass*
800~2000	30V/m	PM,577us	1m	Vertical	Pass*

Remark:
* no degradation of performance of 'immunity-related functions.

3. Immunity of ESAs to transient disturbances

Test method : ISO 7637-2 2nd edition: 2004

Measurement result:

Test pulse	Test level	Number of pulse / test time	Burst cycle / pulse Repetition time	Required minimum function status*	Status of function true value	Result
1	-75V	5000 pulses	0.5s	C	C	Pass
2a	+37V	5000 pulses	0.2s	B	A	Pass
2b	+10V	10 pulses	0.5s	C	C	Pass
3a	-112V	1h	90ms	A	A	Pass
3b	+75V	1h	90ms	A	A	Pass
4	-6V	1 pulse	---	C	C	Pass

Remark:

** Class A: all functions of a device/system perform as designed during and after exposure to disturbance.*

Class B: all functions of a device/system perform as designed during exposure. However, one or more of them can go beyond specified tolerance. All functions return automatically to within normal limits after exposure is removed. Memory functions shall remain class A.

Class C: one or more functions of a device/system do not perform as designed during exposure but return automatically to normal operation after exposure is removed.

Class D: one or more functions of a device/system do not perform as designed during exposure and do not return to normal operation until exposure is removed and the device/system is reset by simple "operator/use" action.

Class E: one or more functions of a device/system do not perform as designed during and after exposure and cannot be returned to proper operation without repairing or replacing the device/system.

Test data **Appendix 2**

2. Emission of transient conducted disturbances generated by ESAs

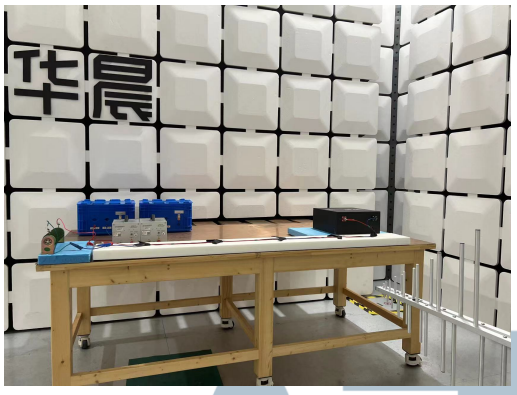
Test method ISO 7637-2 2nd edition: 2004

Polarity of pulse amplitude	Maximum allowed value for vehicles with 12V systems	Measured Pulse amplitude True Value(Fast)	Measured Pulse amplitude True Value(Slow)
Positive	+75V	+16.3 V	+16.9 V
Negative	-100V	-13.5 V	-13.5 V

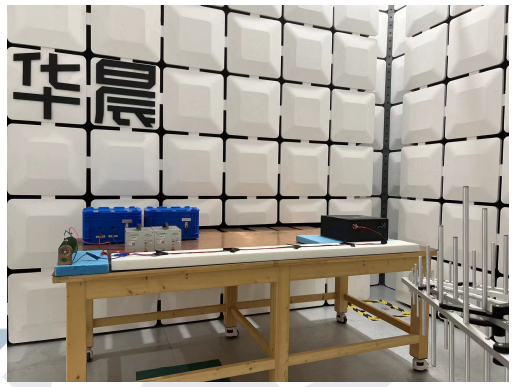
Appendix 3

Sample photos **Applicable / ~~Not Applicable~~** **Appendix 3**

Radiated electromagnetic emissions

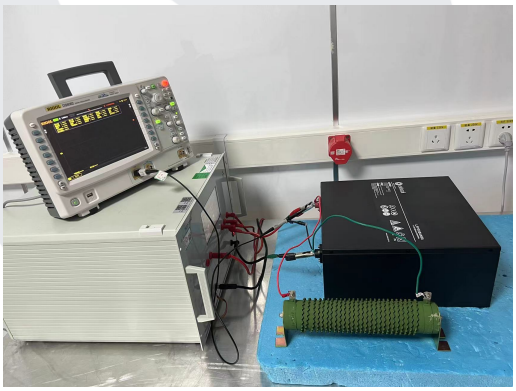


Immunity to electromagnetic radiation:



Immunity of ESAs to transient disturbances

Emission of transient conducted disturbances



Appendix 4

List of main equipment (s) **Applicable / ~~Not Applicable~~** **Appendix 4**

No.	Name	Type	Serial No.	Valid Until
1	3 Meter semi-anechoic chamber	AC-3000	HC-EMC-001	2024.07.30
2	EMI receiver	ESR3	HC-EMC-007	2024.07.30
3	Artificial Network	NNBM 8124	HC-EMC-010	2024.07.30
4	Artificial Network	NNBM 8124	HC-EMC-011	2024.07.30
5	Log-periodic antenna	STLP9128DS	HC-EMC-013	---
6	power sensor	E9304A H18	HC-EMC-014	2024.07.30
7	power sensor	E9304A H18	HC-EMC-015	2024.07.30
8	Field probe	EP601	HC-EMC-017	2024.07.30
9	Signal Generator	DSG836	HC-EMC-025	2024.07.30
10	Current injection	F-120-6A	HC-EMC-026	2024.07.30
11	Power amplifier	NYPA 0140-100	HC-EMC-021	2024.07.30
12	Power amplifier	NYPA 0220-1500/100	HC-EMC-023	2024.07.30
13	Power amplifier	NYPA 0220-1500/100	HC-EMC-024	2024.07.30
14	Digital oscilloscope	DS6062	HC-EMC-031	2024.07.30
15	Pulse Generator	ISO7637-TP1,2a	HC-EMC-034	2024.07.30
16	Pulse Generator	ISO7637-TP3a,3b	HC-EMC-035	2024.07.30
17	Pulse Generator	PRM16750TG	HC-EMC-037	2024.07.30
18	Hybrid antenna	VULB 9163	HC-EMC-047	2025.02.02

All the instruments have been calibrated and are in the period of validity.

APPLICATION FOR APPROVAL

PURSUANT TO THE ECE REGULATION No. 10.06

UNIFORM PROVISIONS CONCERNING THE APPROVAL

OF MOTOR VEHICLES WITH REGARD

TO ELECTROMAGNETIC COMPATIBILITY

For: DISTRIBUCIONES SOLARES DEL PRINCIPADO, SL
Component: Electromagnetic Compatibility
Type: 12.8V300AH

Reason for extension: N/A
Total pages: 14
Signature of a responsible person: PABLO BELARMINO CAMPO
Place: Asturias City
Date: 11/ 06/ 2024

List of documentation

Confirmation

We hereby declare that the product of DISTRIBUCIONES SOLARES DEL PRINCIPADO, SL, type 12.8V300AH submitted for the type approval

1. is compatible with the enclosed documentation

and

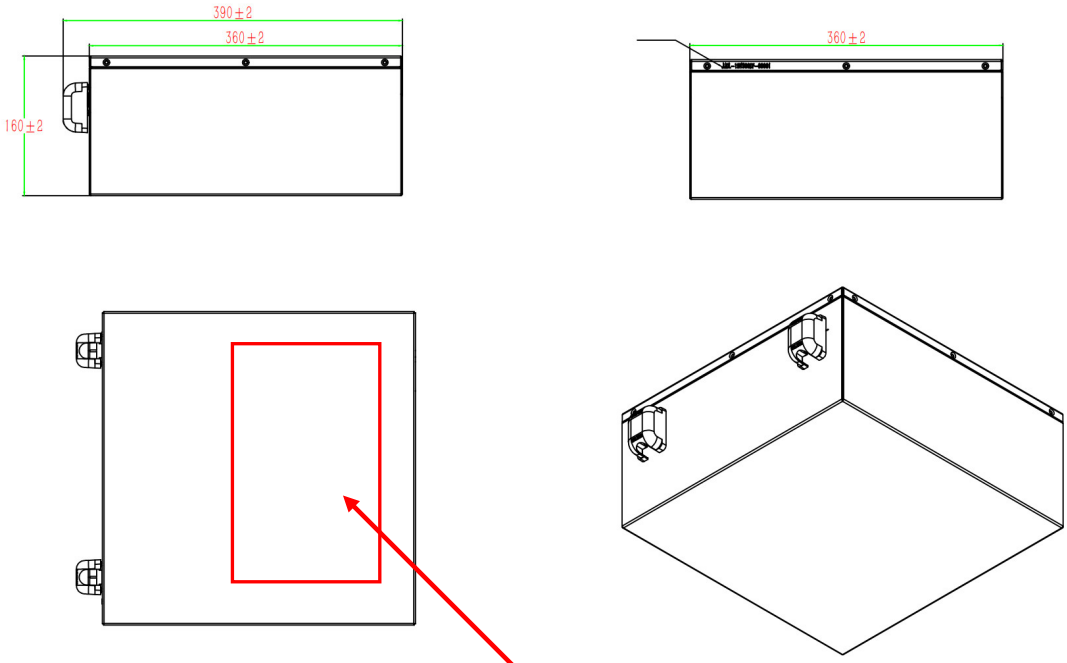
2. has been manufactured under condition of mass production.

INFORMATION DOCUMENT FOR TYPE-APPROVAL OF AN ELECTRIC/ELECTRONIC SUB-ASSEMBLY WITH RESPECT TO ELECTROMAGNETIC COMPATIBILITY ACCORDING ANNEX 2B

1.	Make (trade name of the manufacturer)	:	eleksol
2.	Type	:	12.8V300AH
2.1.	Variants (if applicable)	:	12.8V280AH, 12.8V230AH, 12.8V200AH, 12.8V180AH, 12.8V165AH, 12.8V150AH, 12.8V100AH
2.2.	General commercial description(s)	:	Lithium battery
3.	Means of identification of type if marked on the ~~vehicle~~/component/~~STU~~	:	Letters and digits
3.1.	Location of that marking	:	Silk screen on the housing
4.	Category of vehicle	:	M, N, O
5.	Name and address of the manufacturer	:	DISTRIBUCIONES SOLARES DEL PRINCIPADO, SL PG PROMOGRANDA (PEROGRAN), NUM 22 33199 SIERO - (ASTURIAS)
6.	In the case of components and separate technical units, location and method of affixing of the approval mark	:	Silk screen on the housing
7.	Address(es) of assembly plant(s)	:	Jiangxi Jingjiu Power Energy Co.,Ltd. Building 6 of Industrial Real Estate Phase IIII,No.1988, Dongxing Road, High-tech Development Zone,Xinyu City, Jiangxi,P.R.China
8.	This ESA shall be approved as a	:	Component
9.	Any restrictions of use and conditions for fitting	:	No restrictions
10.	Electrical system rated voltage	:	DC 12V ~~pos.~~/neg. ground (1)
11.	Charger: on board/external	:	N/A
12.	Charging current: DC/AC (number of phases/frequency)	:	N/A
13.	Maximal nominal current (in each mode if necessary)	:	N/A
14.	Nominal charging voltage	:	N/A
15.	Basic ESA interface functions: ex. L1/L2/L3/N/PE/control pilot	:	N/A
16.	Minimum Rsce value (see paragraph 7.11. of this Regulation)	:	N/A
17	Statement for model difference (if applicable)	:	The Variant has the same Circuit diagram, PCB layout and all electrical construction and mechanical construction. The difference is battery capacity
18	Part No.		N/A

List of attachments:

Label Drawing& Dimension Drawing	***Drawing No. 1***
Explosive view	***Drawing No. 2***
Circuit Diagram	***Drawing No. 3***
PCB Layout	***Drawing No. 4-5***
Bill of materials	***Consists of 4 pages***

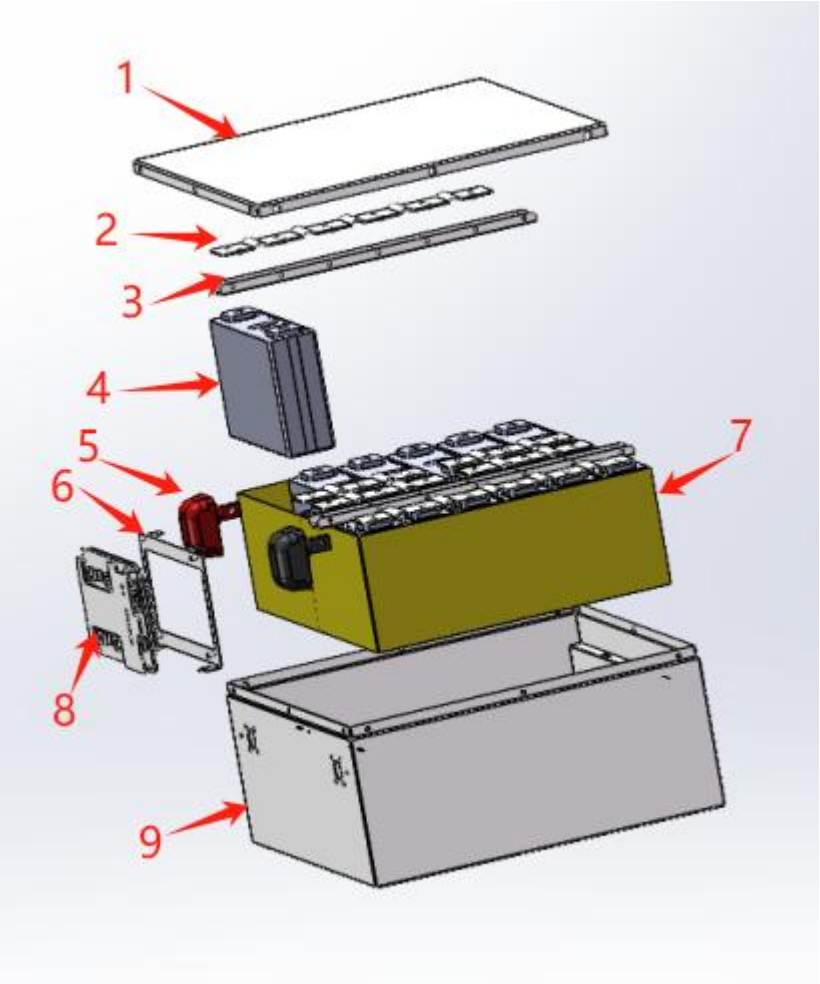


Approval mark

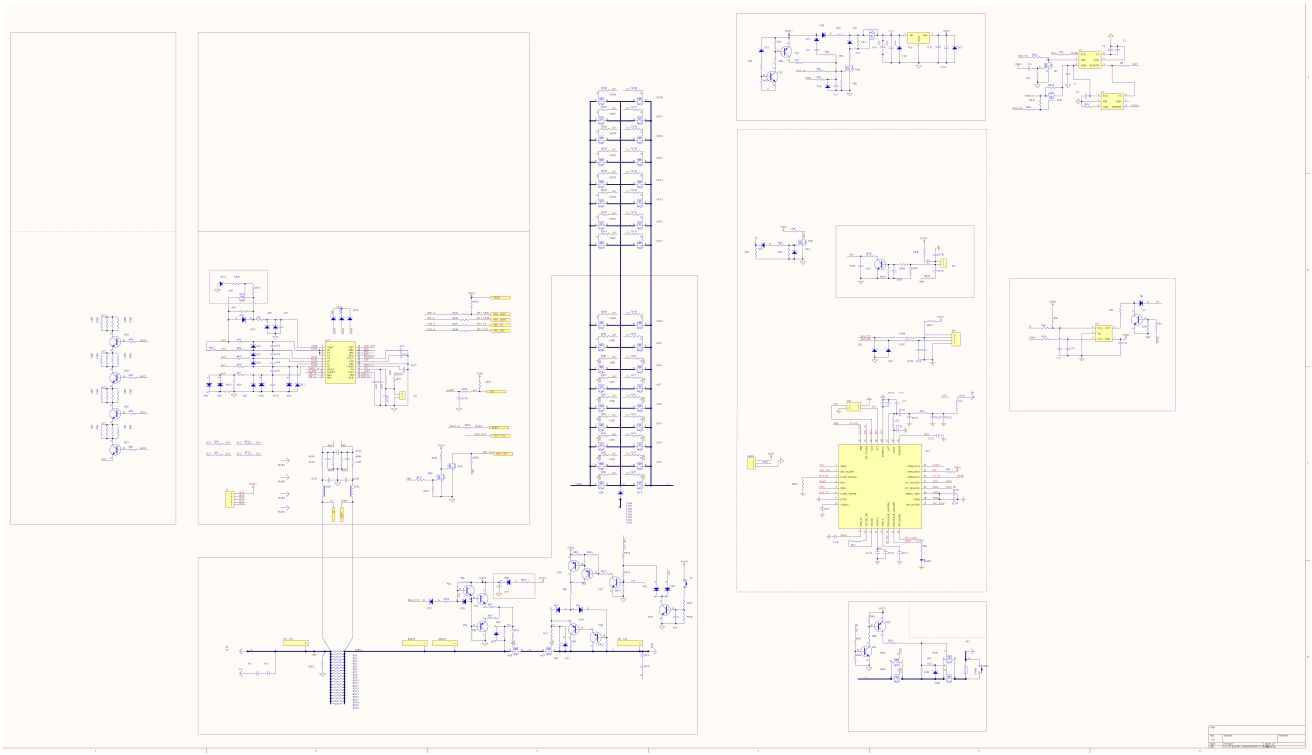
a=6mm min

Approval mark
Trade mark
Type

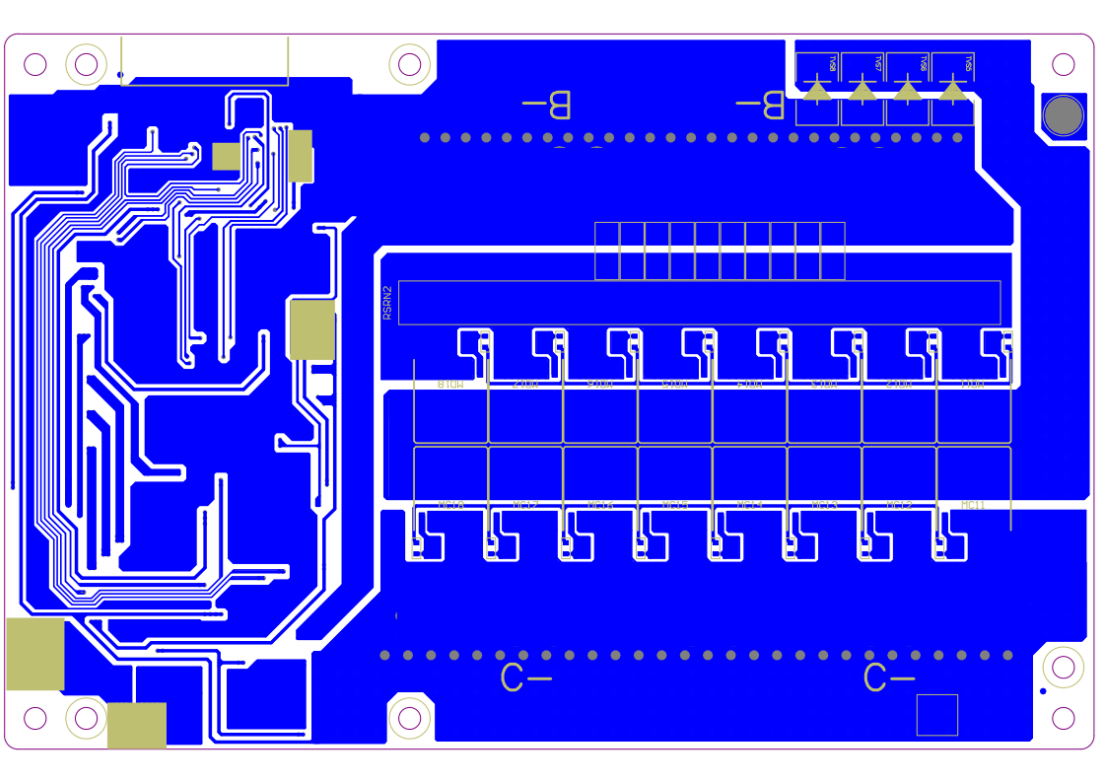
Drawing No. 1 **Label Drawing& Dimension Drawing**



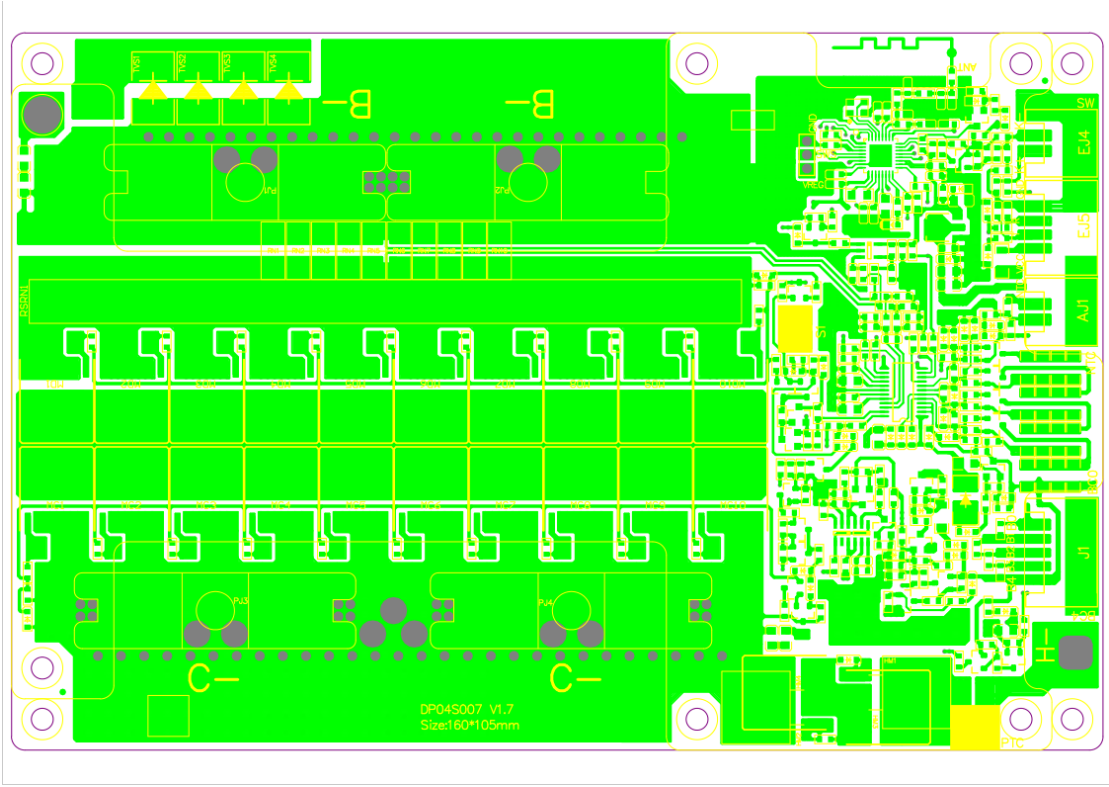
Drawing No. 2 **Explosive view**



Drawing No. 3 **Circuit Diagram**



Drawing No. 4 **PCB Layout**



Drawing No. 5 **PCB Layout**

Bill of Material				
Item No.	**Comment**	**Specification/Description**	**QTY (PC)**	**Position**
1	capacitor	X5R 25V 0805 4.7uF ±10%	AC1, AC3, AC10, EC14, PC7, VC4, VC5	7
2	capacitor	X5R 25V 0603 1uF ±10%	AC5, AC8, EC9, EC10, EC11, EC13, EC21, EC29	8
3	capacitor	X7R 50V 0603 0.01uF ±10%	AC13, PC5	2
4	capacitor	X7R 50V 0603 0.1uF ±10%	C4, AC26, AC29, AC30, C12, C13, C17, EC1, EC12, EC23, EC32, EC34, VC6, VC12, AC2, AC4, AC6, AC7, AC9, AC12	20
5	capacitor	NPO 50V 0603 22pF ±5%	AC27, AC28	2
6	capacitor	NPO 50V 0603 100pF ±5%	AC39, EC33, EC35	3
7	Diode	BAT46WS SOD-323	AD1, AD2, AD3, AD4, AD7, PD1, PD3, PD6, PD7	9
8	Chip inductor	33nH 0603 5%	ALR1, ALR2	2
9	Triode	BSS84AK SOT-23	AM1	1
10	Triode	2N7002K SOT-23	AM2, AM3, EM1	3
11	Resistance	1/8W 0805 100R ±5%	AR2	1
12	Resistance	1/10W 0603 1K ±5%	R12, AR3, AR4, AR5, AR6, AR7, AR8, ER6, ER33, ER37, ER38, ER42, PR8, PR16, PR17	15
13	Resistance	1/10W 0603 100R ±5%	AR9, AR24, AR26, AR27, AR28, AR35, AR36, AR59, AR64, PR6, R98, R101, RC1, RC2, RC3, RC4, RC5, RC6, RC7, RC8, RC9, RC10, RC11, RC12, RC13, RC14, RC15, RC16, RC17, RC18	30
14	Resistance	1/10w 0603 300K ±5%	AR10, AR11	2
15	Resistance	1/10W 0603 10K ±5%	AR12, AR16, AR17, AR37, ER40	5
16	Resistance	1/10W 0603 1M ±5%	AR13, AR19, ER5, ER9, ER35, ER39, ER90, PR1, PR11, PR13, PR19, R30, R34	13
17	Resistance	1/10W 0603 0R ±5%	AR14, VR1, R9, ER13	4
18	IC	IC QFP DVC1006-2 SSOP24	AU1	1

19	Zener tube	MM3Z33 SOD-323	AZ2	1
20	Diode	SMBJ28CA SMB	AZ3	1
21	Patch diode	BZT52C6V8S SOD323	AZ4, AZ5, AZ6, AZ7, AZ8, AZ9	6
22	Diode	BAV21WS SOD-323	AZ10, D8	2
23	Triode	SS8050 SOT-23	BQ1, BQ2, BQ3, BQ4, PQ3	5
24	Resistance	1/10W 0603 510R ±5%	BR1, BR2, BR3, BR4, RD1, RD2, RD3, RD4, RD5, RD6, RD7, RD8, RD9, RD10, RD11, RD12, RD13, RD14, RD15, RD16, RD17, RD18	22
25	Resistance	1/4w 1206 62R ±5%	BR5, BR6, BR7, BR8, BR9, BR10, BR11, BR12, BR13, BR14, BR15, BR16, BR17, BR18, BR19, BR20	16
26	capacitor	NPO 50V 0603 18pF ±5%	EC15	1
27	capacitor	X7R 50V 0603 220pF ±10%	EC16	1
28	capacitor	NPO 50V 0603 1.5pF ±0.25PF	EC19	1
29	capacitor	NPO 50V 0603 2.7pF ±0.25pF	EC2	1
30	capacitor	X7R 100V 0603 0.01uF ±10%	EC37	1
31	Chip inductor	1.2nH 0603 5%	EL1	1
32	Chip inductor	47uH 0805 5%	EL2	1
33	Chip inductor	2.2nH 0603 5%	EL3	1
34	Resistance	1/10W 0603 510K ±5%	ER1	1
35	Resistance	1/10W 0603 100K ±5%	ER3, ER34, PR18, R25	4
36	Resistance	1/10W 0603 3M ±5%	ER4	1
37	Resistance	1/4w 1206 0R ±5%	ER19	1
38	IC	IC TLSR8250F512ET32 QFN32	EU1	1
39	Passive crystal	24MHZ ±10PPM 3225 4P	EX1	1
40	IC	GS8331-TR B SOT23-5	IC1	1
41	SMD LED	603	LED1	1
42	capacitor	X7R 100V 0805 0.1uF ±10%	PC3, PC4	2

43	Diode	1N4148WS SOD-323	PD2, PD4, PD5, VD3	4
44	Triode	SS8550 SOT-23	PQ1	1
45	Resistance	1/10W 0603 10M ±5%	PR2, PR5, PR7	3
46	Resistance	1/10w 0603 51R ±5%	PR4, PR3	2
47	Resistance	1/10W 0603 470K ±5%	PR9, PR10, PR15	3
48	Resistance	1/10w 0603 2M ±5%	PR12, PR14, RP1, RP2	4
49	Resistance	1/10W 0603 499K ±1%	R96	1
50	capacitor	X5R 25V 0805 10uF ±10%	VC9	1
51	Resistance	1/4W 1206 100R ±5%	VR2	1
52	IC	IC QFP HT7533 SO-89 HOLTEK	VU6	1
53	Patch socket HY2.0	2PIN 2.0mm	AJ1,EJ4	2
54	Patch socket HY2.0	5PIN 2.0mm	J1	1
55	Patch socket HY2.0	4PIN 2.0mm	EJ5	1
56	capacitor	NPO 50V 0603 0.5pF ±0.25PF	EL4	1
57	Zener tube	MM3Z6V2 SOD-323	AZ11, EZ1, EZ2, EZ5, VZ3	5
58	Zener tube	BZT52C18S SOD-323	EZ4, PZ1, PZ2, VZ2	4
59	PCB	PCB JBD-DP04S007 160*105*1.6mm 2OZ V1.7 2	---	1
60	IC	IC QFP TPL5010DDCR SOT23-6 TI	U1	1
61	Resistance	1/10w 0603 47K ±5%	ER14	1
62	Triode	LMBT5401LT3G SOT-23 LRC	PQ4, PQ5, PQ6, PQ8	4
63	Triode	LMBT5551LT3G SOT-23 LRC	EQ2, PQ2, PQ7, PQ9, Q7	5
64	MOS	SS018N08LS TOLL-8	MC1, MC2, MC3, MC4, MC5, MC6, MC7, MC8, MC9, MC10, MC12, MC13, MC14, MC15, MC16, MC17, MD1, MD2, MD3, MD4, MD5, MD6, MD7, MD8, MD9, MD10, MD12, MD13, MD14, MD15, MD16, MD17	32

65	Resistance	3W 2512 0.001R ±1%	RN1, RN2, RN3, RN4, RN5, RN6, RN7, RN8, RN9, RN10, RN11, RN12, RN13, RN14, RN15, RN16, RN17, RN18, RN19, RN20	20
66	Copper bar	ZP04S014 40*10*1.5mm V1.0	PJ1, PJ2, PJ3, PJ4	4
67	TVS diode	TVS SMC 5.0J64CA 5000W	TVS1, TVS2, TVS3, TVS4, TVS5, TVS6, TVS7	7

(1) Strike out what does not apply.