Test Report

Report No.: GTS2510201173EN **Job No.:** 77005 **Date:** October 29, 2025

Applicant	:	Yueqing Langir Electric Co.,Ltd
Address	:	2F, NO.10 LONGHE EAST ROAD, LIUSHI, YUEQING, ZHEJIANG, CHINA
Sample Name	:	Push Button Switch And Indicator
Sample Model	:	PZ25,L16T,CP16
Model reference	:	CP19,CP22,CP25,PZ12,PZ16,PZ19,PZ22,PZ30,PP22,PI PVSeries,V12, V16,V19,VS19,V22,L12,L16,LS16,L19,L19A,LS19,L19M,L19B,L19Y,L22, L22A,L22M,L22B,L25,LF19,L19T,L22T Series,L29S,L22S,L12U,L16U, L19U,L22U,L25U,L30U,L35U,L40U,L19C,L16D,L19D,ES Series, LT Series,L30,L40
Sample Receiving date	:	2025-10-20
Test period	:	2025-10-20---2025-10-29
Test Requirement	:	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, RoHS Directive 2011/65/EU and its amendment Directive (EU) 2015/863.
Test Method	:	Please refer to next page(s).
Test Result	:	Please refer to next page(s).
Conclusion	:	Please refer to next page(s).
Note	:	Applicant,address,sample name and model,model reference information have been provided by the customer.GTS is not responsible for its authenticity.

For and on behalf of
Shanghai Global Testing Services Co., Ltd.

Authorized Signature:

Edna Yang
Approved Signatory -GTS/SHO

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A. Pb, Cd, Cr(VI), Hg, PBBs&PBDEs

Test Method:

1. Disassembly, disjointment and mechanical sample preparation
   －Ref. to IEC 62321-2: 2021, Disassembly, disjointment and mechanical sample preparation.
2. With reference to IEC 62321-1: 2013, tests were performed for the samples indicated by the photos in this report.

(1) Screening – Lead, mercury, cadmium, total chromium and total bromine
   －Ref. to IEC 62321-3-1: 2013, Screening for Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry.

(2) Wet chemical test method
   a. Total Lead, Cadmium, Chromium and Mercury content
   －Ref. to IEC 62321-4: 2013+AMD1:2017, determination of Mercury in polymers, metals and electronics by ICP-OES.
   －Ref. to IEC 62321-5: 2013, determination of Cadmium, lead and chromium in polymers and electronics and cadmium and lead in metals by ICP-OES.
   b. Chromium (VI) content
   －For Colourless and coloured corrosion-protected coatings on metals, Ref. to IEC 62321-7-1: 2015, determination of presence of hexavalent chromium (Cr(VI)) in colourless and coloured corrosion-protected coatings on metals by the colorimetric method.
   －For polymers and electronics, Ref. to IEC 62321-7-2: 2017, determination of hexavalent chromium (Cr(VI)) in polymers and electronics by the colorimetric method.
   c. PBBs, PBDEs
   －Ref. to IEC 62321-6: 2015, determination of polybrominated biphenyls and polybrominated diphenyl ethers in polymers by gas chromatograhy -mass spectrometry (GC-MS).

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Test result(s):

Part No.	Part Description	Results of EDXRF					Chemical confirmation results (mg/kg)	Conclusion
		Pb	Cd	Hg	Cr	Br		
1	Sealing ring	BL	BL	BL	BL	BL	---	Pass
2	Metal shell	BL	BL	BL	IN	---	CrVI: Negative	Pass
3	Heat shrink tubing	22 (BL)	BL	BL	BL	BL	---	Pass
4	Solder	OL	BL	BL	BL	---	Pb: 51487^4	Pass
5	Wire core	BL	BL	BL	BL	---	---	Pass
6	Red wire sheath	BL	BL	BL	BL	BL	---	Pass
7	Black wire sheath	BL	BL	BL	BL	BL	---	Pass
8	Green wire sheath	BL	BL	BL	BL	BL	---	Pass
9	Blue wire sheath	BL	BL	BL	BL	BL	---	Pass
10	Grey plastic	BL	BL	BL	BL	BL	---	Pass
11	White plastic	BL	BL	BL	BL	BL	---	Pass
12	Metal sheet	BL	IN	BL	IN	---	Cd: N.D. CrVI: Negative	Pass
13	Copper metal sheet	BL	BL	BL	IN	---	CrVI: Negative	Pass
14	R-series component	IN	BL	BL	BL	BL	Pb: 763	Pass
15	PCB board	BL	19 (BL)	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
16	Q-series component	BL	BL	BL	BL	BL	---	Pass
17	PCB board	63 (BL)	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
18	Light bead	BL	BL	BL	BL	BL	---	Pass
19	Black component	52 (BL)	BL	BL	BL	BL	---	Pass
20	Solder	BL	47 (BL)	BL	BL	---	---	Pass
21	White plastic	BL	BL	BL	BL	BL	---	Pass
22	Black sealing ring	BL	BL	BL	BL	BL	---	Pass
23	Nut	OL	IN	BL	BL	---	Pb: 30443^5 Cd: 49	Pass
24	Metal sheet	BL	BL	BL	IN	---	CrVI: Negative	Pass
25	Shell	BL	BL	BL	IN	---	CrVI: Negative	Pass

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Part No.	Part Description	Results of EDXRF					Chemical confirmation results (mg/kg)	Conclusion
		Pb	Cd	Hg	Cr	Br		
26	Shell	BL	BL	BL	BL	BL	---	Pass
27	Red wire sheath	BL	BL	BL	BL	BL	---	Pass
28	White wire sheath	BL	BL	BL	BL	BL	---	Pass
29	Green wire sheath	BL	BL	BL	BL	BL	---	Pass
30	Black wire sheath	BL	IN	BL	BL	BL	Cd: N.D.	Pass
31	Wire core	BL	BL	BL	BL	---	---	Pass
32	Terminal	BL	BL	BL	BL	---	---	Pass
33	Light bead	BL	BL	BL	BL	BL	---	Pass
34	202 component	IN	BL	BL	IN	BL	Pb: 433 CrVI: N.D.	Pass
35	Black component 1	BL	BL	BL	BL	BL	---	Pass
36	Black component 2	BL	BL	BL	BL	BL	---	Pass
37	Yellow capacitor	BL	BL	BL	BL	BL	---	Pass
38	Black chip	BL	BL	BL	BL	BL	---	Pass
39	Chip resistor	IN	BL	BL	BL	BL	Pb: 520	Pass
40	PCB board	BL	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
41	Black plastic	BL	BL	BL	BL	BL	---	Pass
42	Silver metal shell	BL	BL	BL	IN	---	CrVI: Negative	Pass
43	White plastic 1	BL	BL	BL	BL	BL	---	Pass
44	White plastic 2	BL	BL	BL	BL	BL	---	Pass
45	White plastic 3	BL	BL	BL	BL	BL	---	Pass
46	White plastic 4	BL	BL	BL	BL	BL	---	Pass
47	Silver metal	BL	BL	BL	IN	---	CrVI: Negative	Pass
48	Silver metal sheet	BL	36 (BL)	BL	BL	---	---	Pass
49	Copper metal	BL	BL	BL	BL	---	---	Pass
50	Light bead	BL	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
51	Metal	BL	BL	BL	IN	---	CrVI: Negative	Pass
52	Fixed shell	BL	BL	BL	BL	BL	---	Pass
53	Silver metal	BL	BL	BL	BL	---	---	Pass
54	Contact point	42	BL	BL	IN	---	CrVI: Negative	Pass

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Part No.	Part Description	Results of EDXRF					Chemical confirmation results (mg/kg)	Conclusion
		Pb	Cd	Hg	Cr	Br		
		(BL)						
55	Metal	130 (BL)	BL	BL	BL	---	---	Pass
56	Metal	BL	BL	BL	BL	---	---	Pass
57	Silver metal	BL	BL	BL	BL	---	---	Pass
58	Copper metal	BL	BL	BL	BL	---	---	Pass
59	Spring	BL	BL	BL	IN	---	CrVI: Negative	Pass
60	Resistor	BL	BL	BL	BL	BL	---	Pass

Remark:

(^1) "---"= Not Applicable;

(^2) (a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr(VI).

(b) The XRF screening test for RoHS elements-The reading may be different to the actual content in the sample be of non-uniformity composition.

(c) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP-OES (for Pb, Cd, Hg), UV-VIS for Cr(VI) and GC/MSD (for PBBs/PBDEs) is recommended to be performed if the concentration exceeds the below warming value according to IEC 62321-3-1: 2013.

Attached table 1, XRF screening limits in mg/kg for regulated elements in various matrices:

Element	Polymer Materials	Metallic Materials	Composite material
Cd	BL≤(70-3σ)< X < (130+3σ) ≤OL	BL≤(70-3σ)< X < (130+3σ) ≤OL	LOD< X < (250+3σ) ≤OL
Pb	BL≤(700-3σ)< X < (1300+3σ) ≤OL	BL≤(700-3σ)< X < (1300+3σ) ≤OL	BL≤(500-3σ)< X < (1500+3σ) ≤OL
Hg	BL≤(700-3σ)< X < (1300+3σ) ≤OL	BL≤(700-3σ)< X < (1300+3σ) ≤OL	BL≤(500-3σ)< X < (1500+3σ) ≤OL
Br	BL≤(300-3σ)< X	N.A.	BL≤(250-3σ)< X
Cr	BL≤(700-3σ)< X	BL≤(700-3σ)< X	BL≤(500-3σ)< X

Note: ① BL "below limit" = the result less than the limit.

② OL "over limit" = the result greater than the limit.

③ IN = inconclusive, the region where need further chemical testing by ICP-OES (for Pb、Cd、Hg), UV-VIS (for Cr(VI)) and GC/MSD (for PBBs, PBDEs).

④ 3σ = Repeability of the analyser at the action level.

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⑤ LOD = Limit of detection.

(^3) (a) mg/kg=ppm=0.0001%; (b) N.D. = Not detected (lower than RL);

(c) Reporting Limit (RL) and Limit of Directive 2011/65/EU.

Parameter	Unit	Limit	Reporting Limit (RL)
Lead (Pb)	mg/kg	1000	10
Cadmium (Cd)	mg/kg	100	10
Mercury (Hg)	mg/kg	1000	10
Chromium VI (Cr VI)	mg/kg	1000	R1
Group PBBs	mg/kg	1000	R2
Group PBDEs	mg/kg	1000	R2

R1: Cr(VI) for metal sample, the reporting limit (RL)= Method Detection Limit (MDL)=0.10 ug/cm^2.
The reporting limit (RL) of Cr(VI) for polymers and electronics is 10mg/kg.

R2: The reporting limit (RL) for single compound of PBBs & PBDEs is 50mg/kg.

(d) According to IEC 62321-7-1: 2015, result on Cr(VI) for metal sample is shown as Negative, Inconclusive or Positive: Negative = Absence of Cr(VI), Inconclusive = Maybe exist Cr(VI), Positive = Presence of Cr(VI).

Colorimetric result (Cr(VI) concentration)	Qualitative result
The sample solution is < the 0.10 ug/cm^2 equivalent comparison standard solution	The sample is negative for Cr(VI)−The Cr(VI) concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating.
The sample solution is ≥ the 0.10 ug/cm^2 and ≤ the 0.13 ug/cm^2 equivalent comparison standard solutions	The result is considered to be inconclusive – Unavoidable coating variations may influence the determination. Recommendation: if addition samples are available, perform a total of 3 trials to increase sampling surface area. Use the averaged result of the 3 trials for the final determination.
The sample solution is > the 0.13 ug/cm^2 equivalent comparison standard solution	The sample is positive for Cr(VI)−The Cr(VI) concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI)

(^4) According to the declaration from the client, Lead (Pb) in specimen 4# is exempted by EU RoHS directive 2011/65/EU based on Annex III/7(a): Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).

(^5) According to the declaration from the client, Lead (Pb) in specimen 23# is exempted by EU RoHS directive 2011/65/EU based on Annex Ⅲ/6(c): Copper alloy containing up to 4% lead by weight.

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B. Phthalates—DBP, BBP, DEHP & DIBP

Test Method: Ref. to IEC 62321-8: 2017

Determination of Phthalates in polymers by Gas Chromatography-Mass Spectrometry (GC-MS)

Test result:

Test item	DBP	BBP	DEHP	DIBP
Maximum Permissible Limit (mg/kg)	1000	1000	1000	1000

Material No.	Test item (mg/kg)				Conclusion
	DBP	BBP	DEHP	DIBP	
1+3	N.D.	N.D.	N.D.	N.D.	Pass
6+7+8+9	N.D.	N.D.	N.D.	N.D.	Pass
10+11	N.D.	N.D.	N.D.	N.D.	Pass
14+15+16+17+18+19	N.D.	N.D.	N.D.	N.D.	Pass
21+26+46	N.D.	N.D.	N.D.	N.D.	Pass
22+27+28+29+30	N.D.	N.D.	N.D.	N.D.	Pass
33+34+35+36+37	N.D.	N.D.	N.D.	N.D.	Pass
38+39+40+50+60	N.D.	N.D.	N.D.	N.D.	Pass
41+43+44+45+52	N.D.	N.D.	N.D.	N.D.	Pass

Remark: 1. Reporting Limit (RL) for BBP, DBP, DEHP, DIBP=50mg/kg.
2. N.D. = Not Detected (<RL).
3. The experimental results are the total result of mixed samples.The test data(s) was/were only given as the informality value and only for reference.

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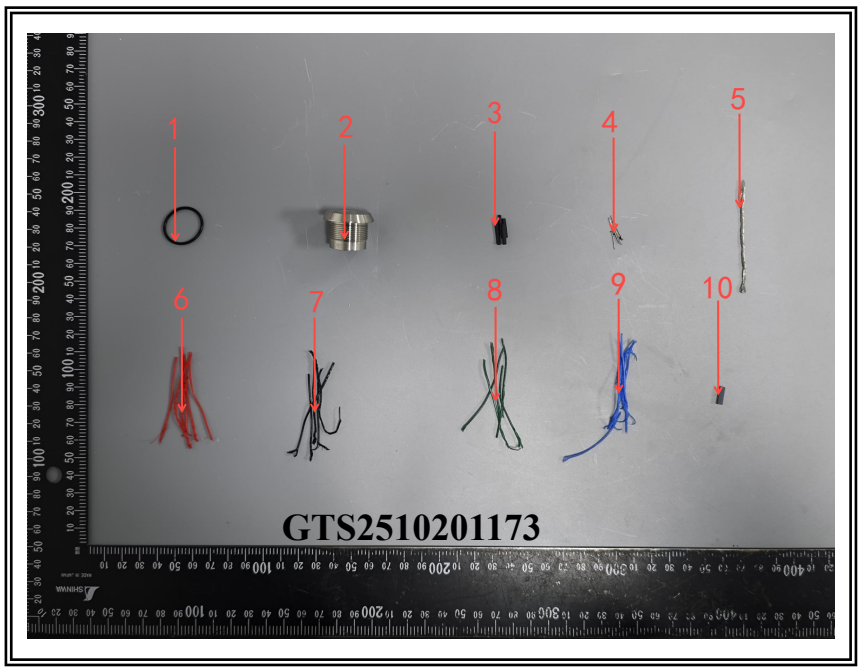
Sample photo(s):

Sample Name : Push Button Switch And Indicator



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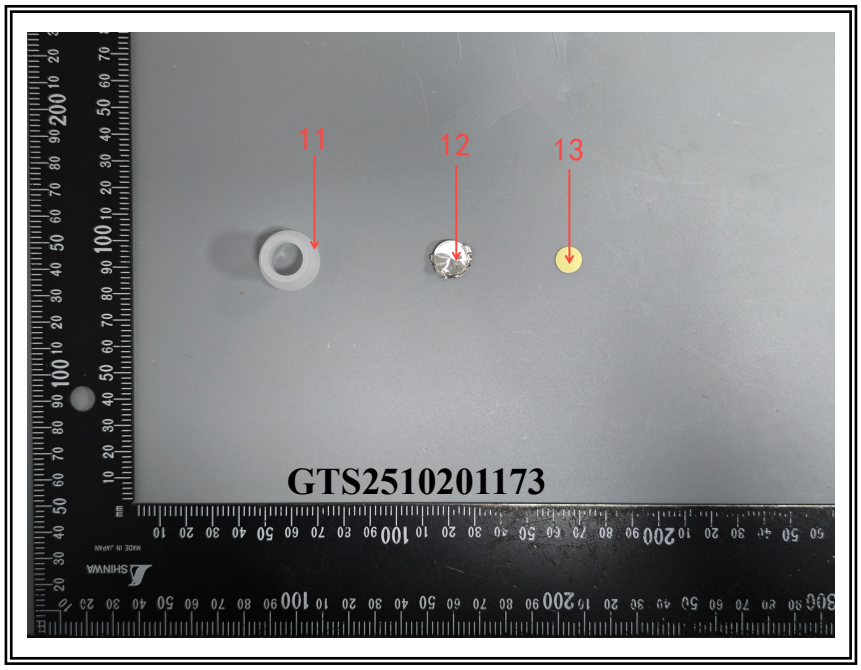

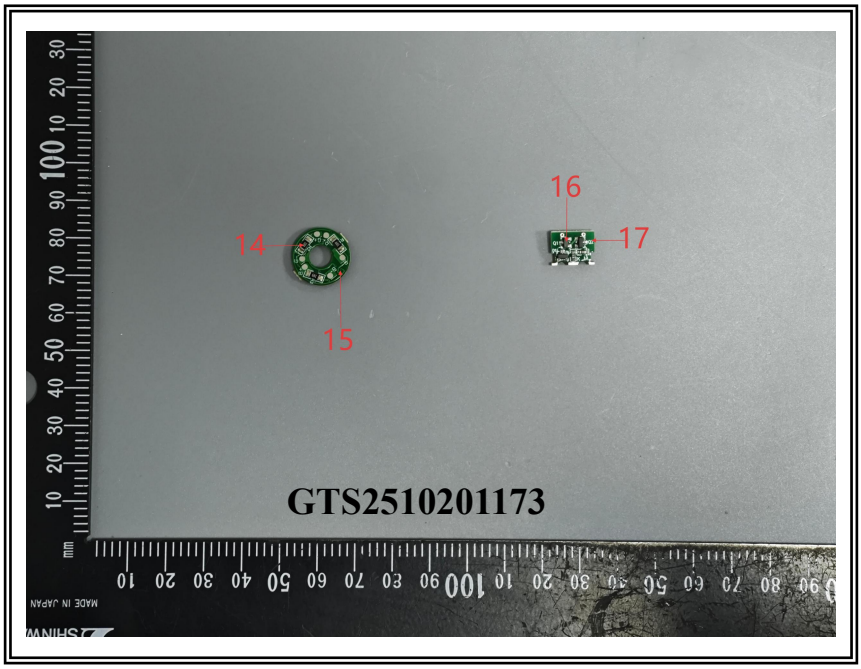

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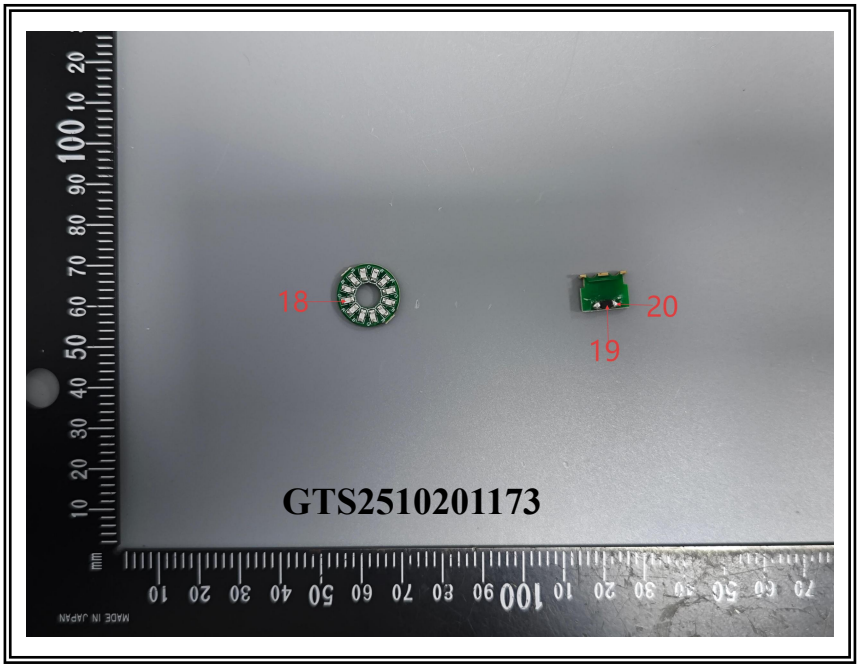

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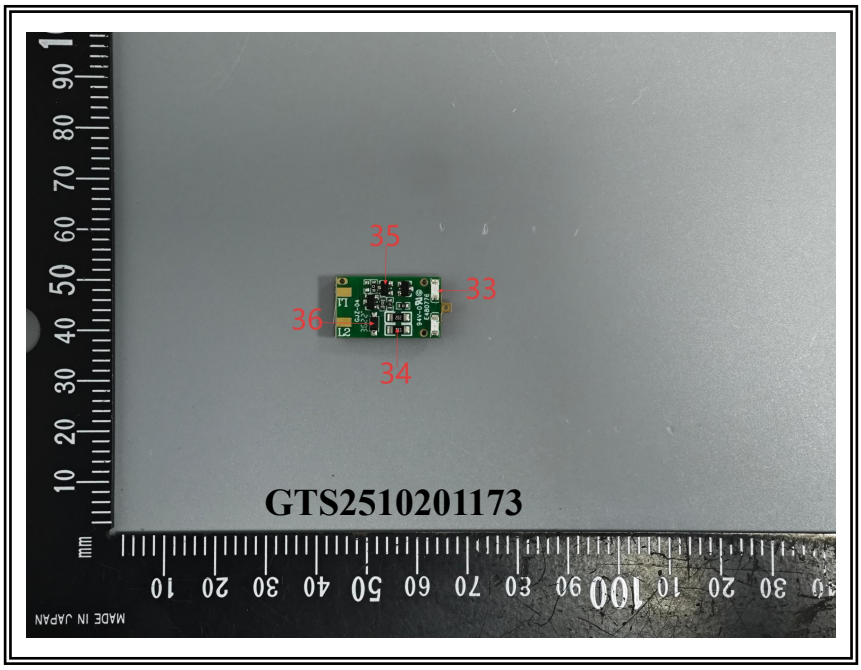

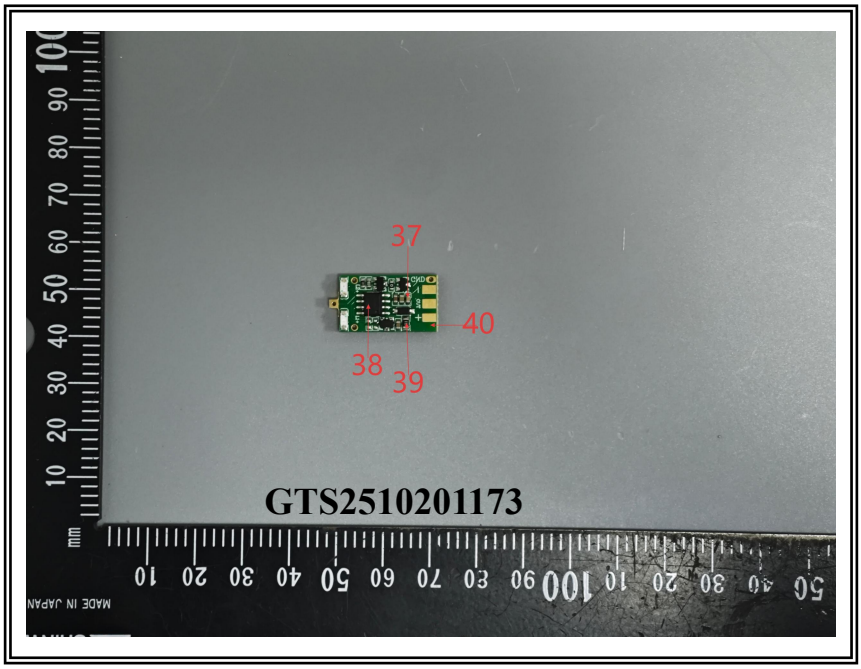

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******End of Report******

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