



Test Report

Report No. A2260672239101001

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Company Name MSEMITEK CO., LTD

shown on Report

Address 16TH FLOOR, BUILDING D, CENTRAL AVENUE, BAOYUAN ROAD, XIXIANG STREET, BAOAN DISTRICT, SHENZHEN

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant

Sample Name MOS/SIC/IGBT /FRD

Sample Received Date Aug. 6, 2026

Testing Period Aug. 6, 2026 to Aug. 8, 2026

Test Conducted:

As requested by the applicant. For details refer to next page(s)



Approved by

Hill Zheng

Date

Aug. 8, 2026

Hill Zheng

Technical Manager

No. R855421980

Centre Testing International Group Co., Ltd.

CTI Building, Xing Dong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, Guangdong Province, P.R. China

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Executive Summary:

TEST REQUEST

CONCLUSION

Annex XVII of European regulation (EC) No. 1907/2006 (REACH) with
Amendment(s)

- | | |
|--|-------------|
| - Organic Tin compounds | PASS |
| - Linear and branched perfluorocarboxylic acids (C9-C14 PFCAs) and their salts &
related substances | PASS |

***** For further details, please refer to the following page(s) *****

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Annex XVII of European regulation (EC) No. 1907/2006 (REACH) with Amendment(s)

▼ **Organic Tin compounds**

Entry 20, annex XVII of European regulation (EC) No. 1907/2006 (REACH) with amendments No.552/2009 & No.276/2010

Test Method: Refer to ISO 17353:2004; Test Equipment: GC-MS

<u>Tested Item(s)</u>	<u>Result</u> [#] (mg/kg)	<u>MDL</u> (mg/kg)	<u>Limit</u> [#] (mg/kg)
	001		
Trimethyltin (TMT)	N.D.	1	--
Tributyl Tins (TBT)	N.D.	2	--
Tripropyltin (TPrT)	N.D.	3	--
Tricyclohexyltin (TCyT)	N.D.	3	--
Trioctyltin (TOT)	N.D.	1	--
Triphenyl Tins (TPhT)	N.D.	2	--
Tri-substituted Organostannic Compounds	N.D.	--	1000
Dibutyl Tins(DBT)	N.D.	3	1000
Dioctyl Tins(DOT)	N.D.	2	1000

Remark:

- MDL = Method Detection Limit
- N.D. = Not Detected (<MDL)
- mg/kg = ppm = parts per million
- 1000 mg/kg = 0.1%
- [#]: The test result(s) & limit are calculated by weight of tin.

▼ **Linear and branched perfluorocarboxylic acids (C9-C14 PFCAs) and their salts & related substances**

Entry 68, annex XVII of European regulation (EC) No. 1907/2006 (REACH) with amendment (EU) 2021/1297

Test Method: Refer to EN 17681-1:2025; Test Equipment: LC-MS-MS&GC-MS-MS

<u>Tested Item(s)</u>	<u>CAS No.</u>	<u>Result</u> (mg/kg)	<u>MDL</u> (mg/kg)	<u>Limit</u> (mg/kg)
		001		
PFUnDA and its salts*	-	N.D.	0.015	--
PFDoDA and its salts*	-	N.D.	0.015	--
PFTrDA and its salts*	-	N.D.	0.015	--
PFTeDA and its salts*	-	N.D.	0.015	--
PFNA and its salts*	-	N.D.	0.010	--
PFDA and its salts*	-	N.D.	0.010	--
Perfluoro-3,7-dimethyloctanoic acid (PF-3,7-DMOA)	172155-07-6	N.D.	0.015	--
Linear and branched perfluorocarboxylic acids (C9-C14 PFCAs) and their salts	-	N.D.	--	0.025
PFDS and its salts*	-	N.D.	0.010	--

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Tested Item(s)	CAS No.	Result (mg/kg)	MDL (mg/kg)	Limit (mg/kg)
		001		
1H,1H,2H,2H-Perfluoro-1-dodecanol (10:2 FTOH)	865-86-1	N.D.	0.100	--
1H,1H,2H,2H-Tetrahydroperfluorododecyl acrylate (10:2 FTA)	17741-60-5	N.D.	0.200	--
1H,1H,2H,2H-perfluoro-1-decanol (8:2 FTOH)	678-39-7	N.D.	0.100	--
8:2 FTS and its salts*	-	N.D.	0.200	--
1,1,2,2-Tetrahydroperfluorodecyl acrylate (8:2 FTAC)	27905-45-9	N.D.	0.200	--
2-Propenoic acid, 2-methyl-,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl ester (8:2 FTMA)	1996-88-9	N.D.	0.200	--
1H,1H,2H,2H-Perfluorodecyltriethoxysilane (PFSI)	101947-16-4	N.D.	0.200	--
Decane,1,1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8-heptafluoro-10-iodo- (8:2 FTI)	2043-53-0	N.D.	0.200	--
8:2diPAP and its salts*	-	N.D.	0.200	--
2H,2H-Perfluorodecanoate (H ₂ PFDA)	27854-31-5	N.D.	0.010	--
Tetrabutylphosphonium 2H,2H-Perfluorodecanoate (H ₂ PFDA-P(C ₄ H ₉) ₄)	882489-14-7	N.D.	0.010	--
H ₄ PFUnA and its salts*	-	N.D.	0.010	--
10:2 FTS and its salts*	-	N.D.	0.200	--
Perfluorodecyl iodide (PFDI)	423-62-1	N.D.	0.200	--
Perfluorododecyl iodide (PFDol)	307-60-8	N.D.	0.200	--
1H,1H,2H,2H-perfluorododecyl iodide (10:2 FTI)	2043-54-1	N.D.	0.200	--
1H,1H,2H,2H-perfluorotetradecyl iodide (12:2 FTI)	30046-31-2	N.D.	0.200	--
2-(Perfluorodecyl)ethyl methacrylate (10:2 FTMA)	2144-54-9	N.D.	0.200	--
1H,1H,2H,2H-perfluorotetradecan-1-ol (12:2 FTOH)	39239-77-5	N.D.	0.100	--
PFNS and its salts*	-	N.D.	0.010	--
PFDolDS and its salts*	-	N.D.	0.010	--
1-Decene, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluoro- (PFOE)	21652-58-4	N.D.	0.200	--
PFUnS and its salts*	-	N.D.	0.010	--
PFTTrDS and its salts*	-	N.D.	0.010	--
10:2 monoPAPS and its salts*	-	N.D.	0.200	--
8:2 monoPAPS and its salts*	-	N.D.	0.200	--
2H-Perfluoro-2-dodecenoic acid (10:2 FTUCA)	70887-94-4	N.D.	0.010	--
Perfluorodecylphosphonic acid (PFDPA)	52299-26-0	N.D.	0.010	--
2H,2H-Perfluorododecanoic acid (10:2 FTCA)	53826-13-4	N.D.	0.010	--
Alcohols, C8-14, gamma-omega-perfluoro (C8-14-PFEOH)	68391-08-2	N.D.	0.200	--
1H,1H,2H,2H-Perfluorodecyl acetate (8:2FTOAc)	37858-04-1	N.D.	0.200	--
1H,1H,2H,2H-Perfluorododecyl acetate (10:2FTOAc)	37858-05-2	N.D.	0.200	--

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Tested Item(s)	CAS No.	Result (mg/kg)	MDL (mg/kg)	Limit (mg/kg)
		001		
Linear and branched perfluorocarboxylic acids (C9-C14 PFCAs) related substances	-	N.D.	--	0.26

Remark:

- MDL = Method Detection Limit
- N.D. = Not Detected (<MDL)
- mg/kg = ppm = parts per million
- * = The substances listed in the List of C9-C14 PFCAs and their salts & related substances
- According to the entry 68 of the European regulation (EC) No. 1907/2006 (REACH) Annex XVII, C9-C14 PFCAs and their salts and related substances are defined as a class of chemicals. There is not an official list in the regulation. The conclusion is based on the tested chemicals.

List of C9-C14 PFCAs and their salts & related substances

No.	Group Name	Substance Name(s)	CAS No.
Linear and branched perfluorocarboxylic acids (C9-C14 PFCAs) and their salts			
1	PFUnDA and its salts	Perfluoroundecanoic acid (PFUnDA)	2058-94-8
2		Sodium perfluoroundecanoate (PFUnDA-Na)	60871-96-7
3		Potassium perfluoroundecanoate (PFUnDA-K)	30377-53-8
4		Calcium perfluoroundecanoate (PFUnDA-Ca)	97163-17-2
5		Ammonium perfluoroundecanoate (PFUnDA-NH ₄)	4234-23-5
6		Perfluoroundecanoate (anion) (PFUnDA (anion))	196859-54-8
7	PFDoDA and its salts	Perfluorododecanoic acid (PFDoDA)	307-55-1
8		Sodium perfluoro-n-dodecanoic acid (PFDoDA-Na)	307-67-5
9		Ammonium tricosafuorododecanoate (PFDoDA-NH ₄)	3793-74-6
10		Perfluorododecanoate (anion) (PFDoDA (anion))	171978-95-3
11	PFTrDA and its salts	Perfluorotridecanoic acid (PFTrDA)	72629-94-8
12		Sodium perfluorotridecanoate (PFTrDA-Na)	60872-01-7
13		Ammonium perfluorotridecanoate (PFTrDA-NH ₄)	4288-72-6
14		Perfluorotridecanoate (anion) (PFTrDA (anion))	862374-87-6
15	PFTeDA and its salts	Perfluorotetradecanoic acid (PFTeDA)	376-06-7
16		Perfluorotetradecanoate (anion) (PFTeDA (anion))	365971-87-5
17	PFNA and its salts	Perfluorononanoic acid (PFNA)	375-95-1
18		Sodium heptadecafluorononanoate (PFNA-Na)	21049-39-8
19		Potassium perfluorononanoate (PFNA-K)	21049-38-7
20		Silver perfluorononanoate (PFNA-Ag)	7358-16-9
21		Lithium heptadecafluorononanoate (PFNA-Li)	60871-92-3
22		Perfluorononanoate ammonium salt (PFNA-NH ₄)	4149-60-4
23		Cyclohexanaminium perfluorononanoate (PFNA-NH(C ₆ H ₁₂))	328531-06-2
24		Piperidinium perfluorononanoate (PFNA-NH(C ₅ H ₁₁))	95682-66-9
25		Methanaminium perfluorononanoate (PFNA-NH ₃ (CH ₃))	77032-23-6
26		Nonanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-heptadecafluoro-, compd. with N-ethylethanamine (1:1) (PFNA-NH ₂ (C ₂ H ₅) ₂)	77032-27-0
27		Nonanoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-heptadecafluoro-, compd. with N-methylmethanamine (1:1) (PFNA-NH ₂ (CH ₃) ₂)	77032-24-7
28		Nonanoic acid, heptadecafluoro-, compd. with N,N-diethylethanamine (1:1) (9CI) (PFNA-NH(C ₂ H ₅) ₃)	327176-80-7

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29		Nonanoic acid,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-heptafluoro-, compd. with benzenamine (1:1) (PFNA-NH ₃ (C ₆ H ₅))	95682-67-0
30		4-[(6-Methoxy-3-pyridazinyl)sulfamoyl]anilinium heptafluorononanoate (PFNA-C ₁₁ H ₁₂ N ₄ O ₃ S)	298703-33-0
31		Perfluorononanoic anhydride (PFNAA)	228407-54-3
32		Perfluorononanoate (anion) (PFNA (anion))	72007-68-2
33		Heptafluorononanoic fluoride (PFNA-F)	558-95-2
34		Perfluorononanoic chloride (PFNA-Cl)	52447-23-1
35	PFDA and its salts	Perfluorodecanoic acid (PFDA)	335-76-2
36		Sodium nonadecafluorodecanoate (PFDA-Na)	3830-45-3
37		Perfluorodecanoate ammonium salt (APFDA)	3108-42-7
38		Potassium perfluorodecanoate (PFDA-K)	51604-85-4
39		Silver perfluorodecanoate (PFDA-Ag)	5784-82-7
40		Lithium perfluorodecanoate (PFDA-Li)	84743-32-8
41		Perfluorodecanoic anhydride (PFDA)	942199-24-8
42		Perfluorodecanoate (anion) (PFDA (anion))	73829-36-4
43		Nonadecafluorodecanoyl chloride (PFDA-Cl)	307-38-0
44	--	Perfluoro-3,7-dimethyloctanoic acid (PF-3,7-DMOA)	172155-07-6
Linear and branched perfluorocarboxylic acids (C9-C14 PFCAs) related substances			
45	PFDS and its salts	Henicosafuorodecanesulphonic acid (PFDS)	335-77-3 126105-34-8
46		Perfluorodecanesulfonate NA-salt (PFDS-Na)	2806-15-7
47		Perfluorodecanesulfonate K-salt (PFDS-K)	2806-16-8
48		Perfluoroaliphatic Dean-sulfonate salt of NH ₄ (PFDS-NH ₄)	67906-42-7
49		Perfluorodecane sulfonic anhydride (PFDSA)	51667-62-0
50		Perfluorodecanesulphonyl fluoride (PFDS-F)	307-51-7
51		Perfluorodecanesulphonyl chloride (PFDS-Cl)	32779-61-6
52	--	1H,1H,2H,2H-Perfluoro-1-dodecanol (10:2 FTOH)	865-86-1
53	--	1H,1H,2H,2H-Tetrahydroparfluorododecyl acrylate (10:2 FTA)	17741-60-5
54	--	1H,1H,2H,2H-perfluoro-1-decanol (8:2 FTOH)	678-39-7
55	8:2 FTS and its salts	1H,1H,2H,2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4
56		1H,1H,2H,2H-Perfluorodecanesulfonic Acid Sodium (8:2 FTS-Na)	27619-96-1
57		Potassium 2-(perfluorooctyl)ethane-1-sulfonate (8:2 FTS-K)	438237-73-1
58		8:2 Fluorotelomer sulfonate ammonium salt (8:2 FTS-NH ₄)	149724-40-3
59		2-(Perfluorooctyl)ethane-1-sulfonate (8:2 FTS (anion))	481071-78-7
60		2-(Perfluorooctyl)ethanesulfonyl chloride (8:2 FTS-Cl)	27619-90-5
61	--	1,1,2,2-Tetrahydroparfluorodecyl acrylate (8:2 FTAC)	27905-45-9
62	--	2-Propenoic acid,2-methyl-,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl ester (8:2 FTMA)	1996-88-9
63	--	1H,1H,2H,2H-Perfluorodecyltriethoxysilane (PFSI)	101947-16-4
64	--	Decane,1,1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8-heptafluoro-10-iodo- (8:2 FTI)	2043-53-0
65	8:2diPAP and its salts	8:2 Fluorotelomer phosphate diester (8:2diPAP)	678-41-1
66		Sodium bis(1H,1H,2H,2H-perfluorodecyl)phosphate (8:2diPAP-Na)	114519-85-6
67		Ammonium bis(1H,1H,2H,2H-perfluorodecyl)phosphate (8:2diPAP-NH ₄)	93776-20-6
68		Bis(2-hydroxyethyl)ammonium bis((perfluorooctyl)ethyl) hydrogen phosphate (8:2diPAP-C ₄ H ₁₁ NO ₂)	57677-97-1
69		8:2 Fluorotelomer phosphate diester ion (1-) (8:2diPAP (anion))	1411713-91-1
70	--	2H,2H-Perfluorodecanoate (H ₂ PFDA)	27854-31-5
71	--	Tetrabutylphosphonium 2H,2H-Perfluorodecanoate (H ₂ PFDA-P(C ₄ H ₉) ₄)	882489-14-7
72	H ₄ PFUnA and its salts	2H,2H,3H,3H-Perfluoroundecanoic acid (H ₄ PFUnA)	34598-33-9
73		Potassium 3-(perfluorooctyl)propanoate (H ₄ PFUnA-K)	83310-58-1

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74		Lithium 3-(perfluorooctyl)propanoate (H ₄ PFUnA-Li)	67304-23-8
75	10:2 FTS and its salts	1H,1H,2H,2H-Perfluorododecanesulphonicacid (10:2 FTS)	120226-60-0
76		1H,1H,2H,2H-Perfluorododecanesulfonic Acid Sodium (10:2 FTS-Na)	108026-35-3
77		2-(Perfluorodecyl)ethane-1-sulfonyl chloride (10:2 FTS-Cl)	27619-91-6
78	--	Perfluorodecyl iodide (PFDI)	423-62-1
79	--	Perfluorododecyl iodide (PFDol)	307-60-8
80	--	1H,1H,2H,2H-perfluorododecyl iodide (10:2 FTI)	2043-54-1
81	--	1H,1H,2H,2H-perfluorotetradecyl iodide (12:2 FTI)	30046-31-2
82	--	2-(Perfluorodecyl)ethyl methacrylate (10:2 FTMA)	2144-54-9
83	--	1H,1H,2H,2H-perfluorotetradecan-1-ol (12:2 FTOH)	39239-77-5
84	PFNS and its salts	Perfluorononane sulfonic acid (PFNS)	68259-12-1
85		Sodium Perfluoro-1-nonanesulfonate (PFNS-Na)	98789-57-2
86		Perfluorononanesulfonate potassium (PFNS-K)	29359-39-5
87		Ammonium perfluorononanesulfonate (PFNS-NH ₄)	17202-41-4
88		Perfluorononane sulfonate (anion) (PFNS (anion))	474511-07-4
89		Perfluorononanesulfonyl fluoride (PFNS-F)	68259-06-3
90	PFDoDS and its salts	Perfluorododecanesulfonic acid (PFDoDS)	79780-39-5
91		Sodium perfluoro-1-dodecanesulfonate (PFDoDS-Na)	1260224-54-1
92		Potassium 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-pentacosafuorododecane-1-sulphonate (PFDoDS-K)	85187-17-3
93		Perfluorododecanesulfonate (PFDoDS(anion))	343629-43-6
94	--	1-Decene, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro- (PFOE)	21652-58-4
95	PFUnS and its salts	Perfluoroundecane sulfonic acid (PFUnS)	749786-16-1
96		Sodium perfluoro-1-undecanesulfonate (PFUnS-Na)	-
97		Perfluoroundecanesulfonate (PFUnS(anion))	441296-91-9
98	PFTrDS and its salts	Perfluorotridecanesulfonic acid (PFTrDS)	791563-89-8
99		Sodium perfluorotridecanesulfonate (PFTrDS-Na)	174675-49-1
100	10:2 monoPAPS and its salts	3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-henicosafuorododecyl dihydrogen phosphate (10:2 monoPAPS)	57678-05-4
101		10:2 Fluorotelomer diammonium dihydrogen phosphate (10:2 monoPAPS-NH ₄ NH ₄)	93857-45-5
102		3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-henicosafuorododecyl dihydrogen phosphate cyclohexylamine	2514858-66-1
103	8:2 monoPAPS and its salts	3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl dihydrogen phosphate (8:2 monoPAPS)	57678-03-2
104		Sodium 1H,1H,2H,2H-perfluorodecyl phosphate (8:2 monoPAPS-Na)	92678-93-8
105		Disodium 1H,1H,2H,2H-perfluorodecylphosphate (8:2 monoPAPS-Na ₂)	438237-75-3
106		8:2 Fluorotelomer diammonium phosphate (8:2 monoPAPS-NH ₄ NH ₄)	93857-44-4
107	--	2H-Perfluoro-2-dodecenoic acid (10:2 FTUCA)	70887-94-4
108	--	Perfluorodecylphosphonic acid (PFDPA)	52299-26-0
109	--	2H,2H-Perfluorododecanoic acid (10:2 FTCA)	53826-13-4
110	--	Alcohols, C8-14, gamma-omega-perfluoro (C8-14-PFEtOH)	68391-08-2
111	--	1H,1H,2H,2H-Perfluorodecyl acetate (8:2FTOAc)	37858-04-1
112	--	1H,1H,2H,2H-Perfluorododecyl acetate (10:2FTOAc)	37858-05-2

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Sample/Part Description

No.	CTI Sample ID	Description
1	001	Electronic components(Tested as a whole)

Note:

-The sample(s) was tested as a whole, because it's impossible to disassemble or separate it by current equipment and technology. The result(s) shown on this report may be different from the content of any homogeneous material.

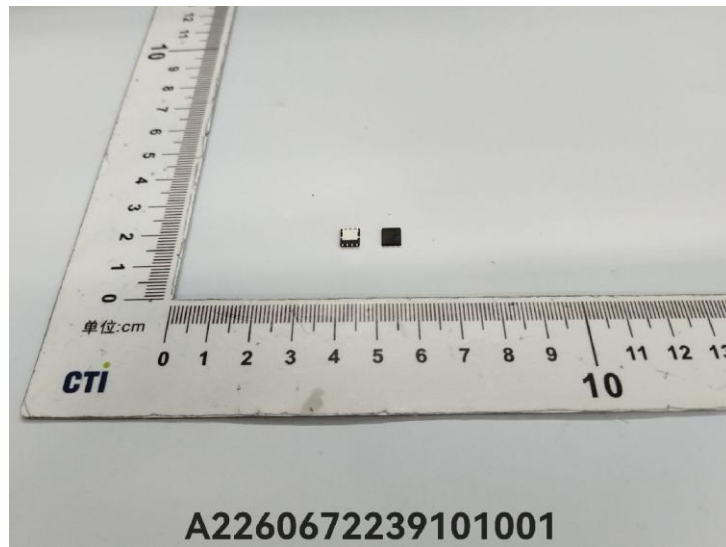
-According to the client's statement, the reasons for the multiple information in the "sample information" of this report may include (but are not limited to): supplying to different buyers, being sold to different countries or regions, former names, or mixtures of several substances.

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Photo(s) of the sample(s)



Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule ($w=0$) stated in ILAC-G8:09/2019 / CNAS-GL015:2022;
5. Without written approval of CTI, this report can't be reproduced except in full;
6. In case of any discrepancy between the English version and Chinese version of the reports (if generated), the Chinese version shall prevail.

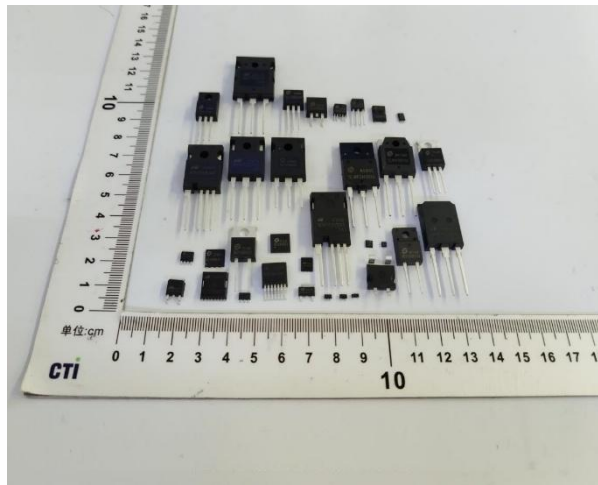
*** End of Report ***

Appendix

Client Reference Information

TDFN2X2, PDFN3X3,PDFN5X6, DFN8X8(TDFN8X8), PDFN8X8.SOP-8,TSSOP-8, T0-251,PTO-252,T0-252-4L,T0-263,T0-262,T0-264, T0-220F1(T0-220F), T0-220C,T0-3P,TO-3PN(TO-3PE),T0-247S-3L1T0-247-3L.T0-247-4L.10-247P1us-3L,T0-247P1us-4L,T0-220C-2L,T0220F-2L.S0T-23.S0T-23-3L.S0T-23-6L,S0T-223-2L,10-263US-7L,TOLL(TOLL-8),T0-263TSC,SOT-89, T0-252

Client Reference Photo (Non-tested sample)



Statement:

1. The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.
2. The Appendix Information is/are the supplement(s) for the Report A2260672239101001.