



Descriptive Report and Test Results

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Prepared By: Sean Jiang

Authorized By: Sean Jiang

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PRODUCTS

CLASS 5311 10 - POWER SUPPLIES - Photovoltaic Modules and Panels

CLASS 5311 90 - POWER SUPPLIES - Photovoltaic Modules and Panels - Certified to U.S. Standards

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 4, maximum system voltage of 1000 V dc, model series: JTxxxPAg (xxx=315-350, in steps of 5), Fuse rating 20A,
Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 4, maximum system voltage of 1000 V dc, model series: JTxxxPPg (xxx=265-290, in steps of 5), Fuse rating 20A,
Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 4, maximum system voltage of 1500 V dc, model series: JTxxxPAg(1500) (xxx=315-350, in steps of 5), Fuse rating 20A,
Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 4, maximum system voltage of 1500 V dc, model series: JTxxxPPg(1500) (xxx=265-290, in steps of 5), Fuse rating 20A,
Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 4, maximum system voltage of 1000 V dc, model series: JTxxxSAh (xxx=350-400, in steps of 5), Fuse rating 20A,
Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 4, maximum system voltage of 1000 V dc, model series: JTxxxSPh (xxx=295-330, in steps of 5), Fuse rating 20A,
Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 4, maximum system voltage of 1500 V dc, model series: JTxxxSAh(1500) (xxx=350-400, in steps of 5), Fuse rating 20A,
Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 4, maximum system voltage of 1500 V dc, model series: JTxxxSPh(1500) (xxx=295-330, in steps of 5), Fuse rating 20A,
Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 3, maximum system voltage of 1500 V dc, model series: JT330PTg, Fuse rating 20A,
Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 3, maximum system voltage of 1500 V dc, model series: JT275PXg, Fuse rating 20A,

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Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 3, maximum system voltage of 1500 V dc, model series: JT365STh, Fuse rating 20A,

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 3, maximum system voltage of 1500 V dc, model series: JT305SXh, Fuse rating 20A,

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 1, maximum system voltage of 1000 V dc, model series: JTxxxPGh (xxx=320-355, in steps of 5), Fuse rating 20A,

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 1, maximum system voltage of 1000 V dc, model series: JTxxxPHh, (xxx=270 to 295 in step of 5), Fuse rating 20A,

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: JTxxxPGh (1500) (xxx=320-355, in steps of 5), Fuse rating 20A,

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: JTxxxPHh(1500), (xxx=270 to 295 in step of 5), Fuse rating 20A.

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 1, maximum system voltage of 1000 V dc, model series: JTxxxSGh, (xxx=350 to 400 in step of 5), Fuse rating 20A,

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 1, maximum system voltage of 1000 V dc, model series: JTxxxSHh, (xxx=295 to 335 in step of 5), Fuse rating 20A,

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: JTxxxSGh(1500), (xxx=350 to 400 in step of 5), Fuse rating 20A,

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: JTxxxSHh(1500), (xxx=295 to 335 in step of 5), Fuse rating 20A.

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Similar as Type 3 with frame, maximum system voltage of 1500 V dc, model series: JTxxxSSh, (xxx=360 to 390 in step of 5), Fuse rating 20A,

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Similar as Type 3 with frame, maximum system voltage of 1500 V dc, model series: JTxxxSIh, (xxx=300 to 325 in step of 5), Fuse rating 20A,

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Similar as Type 3 with frame,, maximum system voltage of 1500 V dc, model series: JTxxxSTh(B), (xxx=350 to 395 in step of 5), Fuse rating 20A,

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Similar as Type 3 with frame,, maximum system voltage of 1500 V dc, model series: JTxxxSXh(B), (xxx=295 to 330 in step of 5), Fuse rating 20A.

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Similar as Type 3 with frame, maximum system voltage of 1500 V dc, model series: JTxxxPSH, (xxx=330 to 350 in step of 5), Fuse rating 20A,

Photovoltaic modules with Fire class (Canada): Class C, Fire Performance (USA) Similar as Type 3 with frame, maximum system voltage of 1500 V dc, model series: JTxxxPIh, (xxx=275 to 290 in step of 5), Fuse rating 20A.

Notes:

1. Rated electrical characteristics are within +/-10% of measured values at Standard Test Conditions of 100 mW/cm² irradiance, AM 1.5 spectrum, and cell temperature of 25°C.

Model	Open Circuit Voltage at STC (V dc)	Short Circuit Current at STC (A dc)	Rated Voltage at STC (V dc)	Rated Current at STC (A dc)	Rated Maximum Power at STC (Watts)
JTxxxPAg (xxx=315-350, in steps of 5)					
JT315PAg	45.2	9.14	36.7	8.63	315
JT320PAg	45.4	9.23	36.9	8.72	320
JT325PAg	45.6	9.27	37.1	8.81	325
JT330PAg	45.7	9.35	37.3	8.89	330
JT335PAg	45.9	9.42	37.5	8.97	335

Model	Open Circuit Voltage at STC (V dc)	Short Circuit Current at STC (A dc)	Rated Voltage at STC (V dc)	Rated Current at STC (A dc)	Rated Maximum Power at STC (Watts)
JT340PAg	46.1	9.50	37.7	9.06	340
JT345PAg	46.3	9.57	37.9	9.13	345
JT350PAg	46.6	9.63	38.2	9.19	350
JTxxxPPg (xxx=265-290, in steps of 5)					
JT265PPg	37.7	9.2	30.7	8.69	265
JT270PPg	37.9	9.27	30.9	8.79	270
JT275PPg	38.1	9.35	31.1	8.89	275
JT280PPg	38.3	9.45	31.3	9.00	280
JT285PPg	38.5	9.54	31.5	9.10	285
JT290PPg	38.8	9.61	31.8	9.17	290
JTxxxPAg(1500) (xxx=315-350, in steps of 5)					
JT315PAg(1500)	45.2	9.14	36.7	8.63	315
JT320PAg(1500)	45.4	9.23	36.9	8.72	320
JT325PAg(1500)	45.6	9.27	37.1	8.81	325
JT330PAg(1500)	45.7	9.35	37.3	8.89	330
JT335PAg(1500)	45.9	9.42	37.5	8.97	335
JT340PAg(1500)	46.1	9.50	37.7	9.06	340
JT345PAg(1500)	46.3	9.57	37.9	9.13	345
JT350PAg(1500)	46.6	9.63	38.2	9.19	350
JTxxxPPg(1500) (xxx=265-290, in steps of 5)					
JT265PPg(1500)	37.7	9.20	30.7	8.69	265
JT270PPg(1500)	37.9	9.27	30.9	8.79	270
JT275PPg(1500)	38.1	9.35	31.1	8.89	275
JT280PPg(1500)	38.3	9.45	31.3	9.00	280
JT285PPg(1500)	38.5	9.54	31.5	9.10	285
JT290PPg(1500)	38.8	9.61	31.8	9.17	290
JTxxxSAh (xxx=350-400, in steps of 5)					
JT 350SAh	46.85	9.65	38.6	9.07	350
JT 355SAh	46.9	9.7	38.8	9.15	355
JT 360SAh	47.2	9.75	39.4	9.14	360
JT 365SAh	47.5	9.81	39.7	9.2	365
JT 370SAh	47.8	9.87	40	9.25	370
JT 375SAh	48.1	9.93	40.2	9.33	375
JT 380SAh	48.4	9.99	40.5	9.39	380
JT 385SAh	48.7	10.05	40.8	9.44	385
JT 390SAh	48.9	10.11	41.0	9.52	390
JT 395SAh	49.2	10.16	41.3	9.57	395
JT 400SAh	49.4	10.23	41.5	9.64	400
JTxxxSPh (xxx=295-330, in steps of 5),					
JT295SPh	39.0	9.81	31.9	9.25	295
JT300SPh	39.9	9.74	32.7	9.18	300
JT305SPh	40.1	9.84	32.9	9.28	305
JT310SPh	40.3	9.94	33.1	9.37	310
JT315SPh	40.6	10.02	33.4	9.44	315
JT320SPh	40.9	10.10	33.7	9.50	320

Model	Open Circuit Voltage at STC (V dc)	Short Circuit Current at STC (A dc)	Rated Voltage at STC (V dc)	Rated Current at STC (A dc)	Rated Maximum Power at STC (Watts)
JT325SPh	41.2	10.16	34.0	9.56	325
JT330SPh	41.4	10.25	34.2	9.65	330
JTxxxSAh(1500) (xxx=350-400, in steps of 5)					
JT 350SAh(1500)	46.85	9.65	38.6	9.07	350
JT 355SAh(1500)	46.90	9.70	38.8	9.15	355
JT 360SAh(1500)	47.20	9.75	39.4	9.14	360
JT 365SAh(1500)	47.50	9.81	39.7	9.20	365
JT 370SAh(1500)	47.80	9.87	40.0	9.25	370
JT 375SAh(1500)	48.10	9.93	40.2	9.33	375
JT 380SAh(1500)	48.40	9.99	40.5	9.39	380
JT 385SAh(1500)	48.7	10.05	40.8	9.44	385
JT 390SAh(1500)	48.9	10.11	41.0	9.52	390
JT 395SAh(1500)	49.2	10.16	41.3	9.57	395
JT 400SAh(1500)	49.4	10.23	41.5	9.64	400
JTxxxSPh(1500) (xxx=295-330, in steps of 5)					
JT295SPh(1500)	39.0	9.81	31.9	9.25	295
JT300SPh(1500)	39.9	9.74	32.7	9.18	300
JT305SPh(1500)	40.1	9.84	32.9	9.28	305
JT310SPh(1500)	40.3	9.94	33.1	9.37	310
JT315SPh(1500)	40.6	10.02	33.4	9.44	315
JT320SPh(1500)	40.9	10.10	33.7	9.50	320
JT325SPh(1500)	41.2	10.16	34.0	9.56	325
JT330SPh(1500)	41.4	10.25	34.2	9.65	330
JT330PTg					
JT330PTg	45.7	9.35	37.3	8.85	330
JT275PXg					
JT275PXg	38.1	9.3	31.1	8.85	275
JT365STh					
JT365STh	48.02	9.71	39.7	9.2	365
JT305SXh					
JT305SXh	39.4	9.93	32.7	9.33	305
JTxxxPGh, JTxxxPGh(1500) (xxx=320-355, in steps of 5)					
JT320PGh/JT320PGh(1500)	45.4	9.11	36.8	8.70	320
JT325PGh/JT325PGh(1500)	45.6	9.17	37.0	8.79	325
JT330PGh/JT330PGh(1500)	45.8	9.33	37.2	8.88	330
JT335PGh/JT335PGh(1500)	46.0	9.41	37.4	8.96	335
JT340PGh/JT340PGh(1500)	46.2	9.49	37.6	9.05	340
JT345PGh/JT345PGh(1500)	46.4	9.57	37.8	9.13	345
JT350PGh/JT350PGh(1500)	46.6	9.65	38	9.22	350
JT355PGh/JT355PGh(1500)	46.8	9.73	38.2	9.30	355
JTxxxPHh, JTxxxPHh(1500) (xxx=270 to 295 in step of 5)					
JT270PHh/JT270PHh(1500)	37.9	9.25	30.7	8.8	270
JT275PHh/JT275PHh(1500)	38.1	9.35	30.9	8.9	275
JT280PHh/JT280PHh(1500)	38.3	9.45	31.1	9.01	280
JT285PHh/JT285PHh(1500)	38.5	9.54	31.3	9.11	285

Model	Open Circuit Voltage at STC (V dc)	Short Circuit Current at STC (A dc)	Rated Voltage at STC (V dc)	Rated Current at STC (A dc)	Rated Maximum Power at STC (Watts)
JT290PHh/JT290PHh(1500)	38.7	9.63	31.5	9.21	290
JT295PHh/JT295PHh(1500)	38.9	9.72	31.7	9.31	295
JTxxxSGh, JTxxxSGh(1500), (xxx=350 to 400 in step of 5)					
JT350SGh/JT350SGh(1500)	46.8	9.56	38.8	9.03	350
JT355SGh/JT355SGh(1500)	47.0	9.64	39.0	9.11	355
JT360SGh/JT360SGh(1500)	47.2	9.72	39.2	9.19	360
JT365SGh/JT365SGh(1500)	47.5	9.79	39.4	9.27	365
JT370SGh/JT370SGh(1500)	47.6	9.87	39.6	9.35	370
JT375SGh/JT375SGh(1500)	47.8	9.95	39.8	9.43	375
JT380SGh/JT380SGh(1500)	48.0	10.02	40.0	9.51	380
JT385SGh/JT385SGh(1500)	48.2	10.09	40.2	9.58	385
JT390SGh/JT390SGh(1500)	48.4	10.16	40.5	9.64	390
JT395SGh/JT395SGh(1500)	48.6	10.23	40.7	9.71	395
JT400SGh/JT400SGh(1500)	48.9	10.29	41.0	9.76	400
JTxxxSHh, JTxxxSHh(1500), (xxx=295 to 330 in step of 5)					
JT295SHh/JT295SHh(1500)	38.9	9.77	32.1	9.19	295
JT300SHh/JT300SHh(1500)	39.1	9.88	32.3	9.30	300
JT305SHh/JT305SHh(1500)	39.3	9.97	32.5	9.39	305
JT310SHh/JT310SHh(1500)	39.6	10.03	32.9	9.43	310
JT315SHh/JT315SHh(1500)	39.9	10.1	33.1	9.52	315
JT320SHh/JT320SHh(1500)	40.2	10.16	33.4	9.59	320
JT325SHh/JT325SHh(1500)	40.5	10.2	33.7	9.65	325
JT330SHh/JT330SHh(1500)	40.8	10.26	34	9.71	330
JT335SHh/JT335SHh(1500)	41.1	10.3	34.3	9.77	335
JTxxxSSh (xxx=360 to 390 in step of 5)					
JT360SSh	48	9.58	39.2	9.19	360
JT365SSh	48.2	9.66	39.4	9.27	365
JT370SSh	48.4	9.74	39.6	9.35	370
JT375SSh	48.6	9.82	39.8	9.43	375
JT380SSh	48.8	9.90	40.0	9.51	380
JT385SSh	49.0	9.97	40.2	9.58	385
JT390SSh	49.3	10.03	40.5	9.64	390
JTxxxSIh (xxx=300 to 325 in step of 5)					
JT300SIh	39.2	9.85	32.4	9.26	300
JT305SIh	39.4	9.93	32.7	9.33	305
JT310SIh	39.6	10.03	32.9	9.43	310
JT315SIh	39.9	10.1	33.1	9.52	315
JT320SIh	40.2	10.16	33.4	9.59	320
JT325SIh	40.5	10.2	33.7	9.65	325
JTxxxSTh(B), (xxx=350 to 395 in step of 5)					
JT350STh(B)	47.51	9.43	39	8.98	350
JT355STh(B)	47.68	9.53	39.2	9.06	355
JT360STh(B)	47.85	9.63	39.4	9.14	360
JT365STh(B)	48.02	9.71	39.7	9.2	365
JT370STh(B)	48.19	9.82	40	9.25	370

Model	Open Circuit Voltage at STC (V dc)	Short Circuit Current at STC (A dc)	Rated Voltage at STC (V dc)	Rated Current at STC (A dc)	Rated Maximum Power at STC (Watts)
JT375STh(B)	48.28	9.85	40.2	9.33	375
JT380STh(B)	48.37	9.89	40.5	9.39	380
JT385STh(B)	48.46	9.92	40.2	9.58	385
JT390STh(B)	48.55	9.96	40.5	9.64	390
JT395STh(B)	48.65	9.99	40.7	9.71	395
JTxxxSXh(B), (xxx=295 to 330 in step of 5)					
JT295SXh(B)	38.9	9.77	32.1	9.19	295
JT300SXh(B)	39.1	9.87	32.3	9.3	300
JT305SXh(B)	39.4	9.93	32.7	9.33	305
JT310SXh(B)	39.6	10.03	32.9	9.43	310
JT315SXh(B)	39.9	10.1	33.1	9.52	315
JT320SXh(B)	40.2	10.16	33.4	9.59	320
JT325SXh(B)	40.5	10.2	33.7	9.65	325
JT330SXh(B)	40.8	10.26	34.0	9.71	330
JTxxxPSh, (xxx=330 to 350 in step of 5)					
JT330PSh	45.5	9.35	36.9	8.95	330
JT335PSh	45.7	9.43	37.1	9.03	335
JT340PSh	45.9	9.52	37.3	9.12	340
JT345PSh	46.1	9.6	37.5	9.20	345
JT350PSh	46.3	9.69	37.7	9.29	350
JTxxxPIh, (xxx=275 to 290 in step of 5)					
JT270PIh	37.9	9.25	30.7	8.8	270
JT275PIh	38.1	9.35	30.9	8.9	275
JT280PIh	38.3	9.45	31.1	9.01	280
JT285PIh	38.5	9.54	31.3	9.11	285
JT290PIh	38.7	9.63	31.5	9.21	290

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No. 61730-1:11	Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction
CAN/CSA-C22.2 No. 61730-2:11	Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing
UL 61730-1:2017	Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction
UL 61730-2:2017	Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing

MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Nameplate adhesive label material approval information:

Pressure-sensitive labels of the permanent type that are secured by adhesive shall be CSA/UL approved labels that complies with CSA C22.2 No. 0.15 or UL 969 and suitable for the mounting surface, temperature, and environment.

Label Material: Certified or cUL Recognized.

Manufacturer: AVERY DENNISON (THAILAND) LTD. (MH20580)

Type: 2M MAT CH PET TC/S333

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

1. The following markings appear on the enclosure by silk-screening, permanent ink stamping, on adhesive labels that appear on the CSA List of Accepted Adhesive Nameplates, or by other permanent method:
 - a) Submitter's name and/or CSA Master Contract number "300509".
 - b) Model designation.
 - c) Complete electrical ratings at STC:
 - Open-circuit voltage (include tolerance)
 - Operating voltage
 - Maximum system voltage
 - Short-circuit current (include tolerance)
 - Current at rated operating voltage
 - Maximum power (include tolerance)
 - d) date and place of manufacture; alternatively serial number assuring traceability of date and place of manufacture;
 - e) PV module classification: Class II, as indicated 
 - f) PV module application class: Class A
 - g) For Class II PV modules, the (IEC 60417-6042: Caution, risk of electric shock) symbol shall be applied, the caution mark: 
 - h) Maximum over-current protection rating.
 - i) The CSA Monogram with the "C/US" indicators;

Jetion Module Serial Number Coding System:

JT XXX XXX (XXXX)

- JT: Company code is "JT"
- XXX: Power output rating

- XXX: Model series (PAg, PPg, SAh, SPh, see detail information in att2)
- XXXX: Maximum system voltage, blank means 1000Vdc, 1500 means 1500Vdc.

Jetion Model difference:

JT 350 PAg (1500)

- JT: Company branch
 - 350: Maximum power of the model
 - PAg: Cell Type: 5BB poly-cell
 - 1500: Maximum system voltage
 - (See detail information in att2)
2. All electrical data shall be shown as relative to standard test conditions (STC) (1 000 W/m², (25 ± 2) °C, AM 1,5 according to IEC 60904-3).
 3. The output power wiring leads, connector, or other connection means of a module or panel shall be identified with one of the following marking statements:
 - “+” and “-” or
 - “POS” and “NEG” or
 - “POSITIVE” and “NEGATIVE” or
 - “PLUS” and “MINUS
 4. PV connectors or wiring shall be marked in accordance to IEC 62852 with “Do not disconnect under load”. Symbol or warning notice shall be imprinted or labelled close to connector.

The following symbols may be used to show that a PV connector shall not be disconnected under load. See Figures A.1 and A.2.

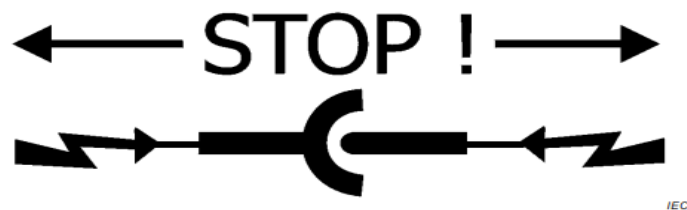


Figure A.1 – Symbol "DO NOT DISCONNECT UNDER LOAD"

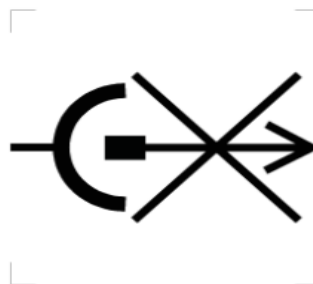


Figure A.2 – Symbol "DO NOT DISCONNECT UNDER LOAD" (IEC 60417-6070)

5. A wiring terminal or bonding location of a PV module intended to accommodate a field installed bonding conductor for equipotential bonding shall be identified with the appropriate symbol IEC 60417-5019 . Each grounding point is identified with ground symbol located adjacent to terminal.
6. Module Fire Performance: Class C (CSA61730:2011) or Type 4 (UL61730:2017)

7. The panel is marked relative to the maximum electrical rating of an acceptable series fuse 20A (for protection against overcurrent).
8. Installation and Assembly Instructions:

The panel is supplied with installation instructions describing the methods of electrical and mechanical installation and the electrical ratings of the panel. When the fire rating is dependent on a specific mounting structure, specific spacings, or specific means of attachment to the roof or structure, details of the specific parameter or parameters shall be included in the instructions.

 - a) The electrical installation instructions include a detailed description of the wiring method to be used in accordance with the National Electrical Code. This description includes:
 - i) The size, type, and temperature rating of the conductors to be used,
 - ii) The type of over current protection to be used,
 - iii) The minimum and maximum cable diameters when the wiring method is cable.
 - b) The mechanical installation instructions for roof mounting include:
 - i) A statement indicating the minimum mechanical means to be used for securement of the module or panel to the roof,
 - ii) A statement that the assembly is to be mounted over a fire resistant roof covering rated for the application, and
 - iii) Indication of any slope less than 5 in/ft (127 mm/305 mm) required to maintain a fire Class rating.
 - c) The electrical ratings include following statement or the equivalent: “The electrical characteristics are within ± 10 percent of the indicated values of I_{sc} , V_{oc} , and P_{max} under standard test conditions (irradiance of 100 mW/cm², AM 1.5 spectrum, and a cell temperature of 25°C (77°F)).”
 - d) The installation instructions include a statement advising that artificially concentrated sunlight shall not be directed on the module or panel.
 - e) The following or equivalent statement shall be included:

“Under normal conditions, a photovoltaic module is likely to experience conditions that produce more current and/or voltage than reported at standard test conditions. Accordingly, the values of I_{SC} and V_{OC} marked on this module should be multiplied by a factor of 1.25 when determining component voltage ratings, conductor ampacities, fuse sizes, and size of controls connected to the PV output.”
 - f) Refer to Section 690-8 of the National Electrical Code for an additional multiplying factor of 125 percent (80 percent derating) which may be applicable.”
 - g) Details for wiring in accordance with the NEC, and that the grounding method of the frame of array shall comply with the NEC, Article 250.
 - h) Installation Instructions shall specify that the modules have been evaluated by CSA for a maximum positive design loading of 3600Pa (75.2 lbs/ft²) and negative design loading of 1600Pa (33.4 lbs/ft²) except PTg, PXg, STh, SXh series (1600Pa both side for these series)

ALTERATIONS

Markings as describe above are provided.

FACTORY TESTS

1. Factory Insulation Test and Wet Insulation-Resistance Test:

Each module or panel shall comply with either the Factory Insulation Test or the Factory Wet Insulation-Resistance Test.

(1) Factory Insulation Test

This test verifies that the insulation properties of the production PV modules meet the electrical safety requirements of this standard. Either this test or the test in DVA.3 shall be performed with a sampling rate of 100%.

Each module (100%) shall withstand for 1 second without electrical breakdown as a routine production line test, the application of a dc test potential of $1.2 \times (2 \times V_{sys} + 1000V)$ where V_{sys} is the maximum rated system voltage. The voltage shall be applied between the active circuit of the module and accessible metal parts. The test is to be conducted when the module is complete and ready for packing, or when it is complete except for covers or other parts that may interfere with the performance of the test. The test equipment is to include a means of indicating the test voltage that is being applied to the product under test and a means of effectively indicating unacceptable performance. A leakage current of greater than 50 μA represents a failure. Alternatively the test of Wet Insulation-Resistance Test shall be complied with.

(2) Factory Wet Insulation-Resistance Test:

This test verifies that the insulation properties of outer surfaces of the production PV modules meet the electrical safety requirements of this standard. Either this test or the test in DVA.7 shall be performed with a sampling rate of 100%.

Each module shall withstand the requirements of Clause 10.14 (MST 17).

Exception No. 1: Test voltage, test duration and water temperature of Clause 10.14 (MST 17) shall be changed for Production Line Tests as described below.

Exception No. 2: Terminal boxes and pigtail-leads or other connectors don't need to be wetted.

The test voltage V_{TEST} is calculated by multiplying the maximum system voltage V_{SYS} by a factor Y .

$$V_{test} = V_{sys} \times Y$$

$Y = 1$ is used for a minimum test duration of 1 min. $Y = 1.2$ is used for a minimum test duration of 5 s. Ramp-up time for test voltage is chosen such that no time induced breakdown will occur. During the test no breakdown of test voltage shall occur.

The temperature range of the water is 15 °C to 45 °C. The leakage current shall be corrected to 25 °C using a demonstrated correction factor for the PV module, to be determined for each PV module type.

For PV modules with cemented joints V_{TEST} shall be increased by a factor of 1.35.

Note: An example for $V_{SYS} = 1500 V$ for cemented joints for test duration of 5 s is $V_{TEST} = 1500 V \times 1.2 \times 1.35 = 2430 V$

2. Factory Module output power Test:

The electrical output power shall be verified on the final wiring configuration on a 100% basis. Results from I-V curve measurements shall also be used to verify that the current and voltage rating falls within the specification. All production values of I_{sc} and V_{oc} shall be covered by the tolerances of the product qualified under IEC 61730. Possible stabilization effects shall be considered if changes of I_{sc} and V_{oc} are expected during operation in sunlight. This test will also verify that bypass diodes are not shorted.

3. Visual Inspection:

Visual inspection shall be performed on a 100% basis aiming to verify that clearance distances (distances of live parts to PV module edges) are within the product specification.

Special care shall be taken if cemented joints are used for insulation. PV modules utilizing cemented joints shall be inspected along all edges and areas with cemented joints on a 100% basis aimed to verifying the cemented joint spacing visual inspection criteria as defined in 10.2.3 c) are met.

4. Bypass Diodes Test:

Verification that bypass diodes are working properly shall be performed on 100 % sampling rate.

Three alternative test methods can be applied:

- a) Perform successive additional I-V measurements in conjunction with maximum power determination with one cell of each string in the interconnection circuit completely shaded. The bypass diode belonging to this string is working properly, if the characteristic bend in the I-V curve is observed.
- b) A conductivity test can be performed with the PV module terminals connected in reverse polarity to a current source. The current flow and voltage drop across the PV module terminals can be used as indicator that the diodes are working properly.
- c) The I-V characteristics of all diodes can be verified just before their assembly. If the bypass diodes are in the junction box this could be done through measurement at the corresponding terminals of the junction box. A precondition for the latter method is an appropriate plan to mitigate possible influence of electrostatic discharges on the diodes in production.

NOTE Bypass diode verification procedures might be MQT 18.2 from IEC 61215-2 and IEC TS 62916.

5. Continuity test of equipotential bonding:

All PV modules provided with a connection for equipotential bonding are subjected to a continuity test for equipotential bonding (MST 13). At a sampling rate of 100% the electrical continuity between the grounding connection and all accessible conductive parts shall be measured.

PV modules that have no frames or equipotential bonding locations identified shall be exempt from this requirement.

WARNING: The factory test(s) specified may present a hazard of injury to personnel and/or property and should only be performed by persons knowledgeable of such hazards and under conditions designed to minimise the possibility of injury.

SPECIAL INSTRUCTIONS FOR FIELD SERVICES

1. Component descriptions marked with either the "(INT)" or "(INT*)" identifiers may be substituted with other components providing the requirements specified under the notes in the "Description" are complied with.

COMPONENT SPECIAL PICKUP

1. Component descriptions marked with the identifier "(CT)" are subject to annual pickup and Conformity Testing.

DESCRIPTION

Notes:

1. Component Substitution
 - a) Critical components (those identified by mfr name, cat no), which are NOT identified with either "INT" or "INT*" are not eligible for substitution without evaluation and report updating
 - b) The term "INT" means a "Certified" and/or "Listed" (or a "Recognized" and/or "Accepted") component may be replaced by one "Certified" and/or "Listed" by another certification organization accredited by the appropriate accreditation body or scheme requirements to the correct standard, for the same application; providing the applicable country identifiers are included and requirements in item "d" below are complied with.
 - c) The Term "(INT*)" means a "Recognized" and/or "Accepted" component may be replaced by a component that is CSA Certified. The applicable country identifiers shall be included, the requirements in item "d" below as well as any "conditions of suitability" for the component (as recorded in this descriptive report) shall be complied with;
 - d) Components which have been substituted, must be of an equivalent rating, configuration (size, orientation, mounting) and the applicable minimum creepage and clearance distances are to be maintained from live parts to bonded metal parts and secondary parts.
 - e) Substitution of a "Certified" and/or "Listed" component with a component that is "Recognized" or "Accepted" is not permitted without evaluation and report updating.
 - f) Substitution of a "Recognized" and/or "Accepted" component by one that is not CSA Certified is not permitted without a proper evaluation as well as a report update because the Conditions of Acceptance of the original component may be different than the Conditions of Acceptance of the substitute component.

INTRODUCTION

Spacing: All spacing between primary terminals and ground, and between other bare live parts and ground, were based on pollution degree 1, material group II, conform to Tables 3 and 4 of UL Std. 61730-1.

Spacings from the cells to the laminate edges were measured as follows:

Model	Measured Spacings, mm			
	Top	Bottom	Left	Right
JTxxxPAg	13.5	13.5	14.25	14.25
JTxxxPPg	13.5	13.5	14.25	14.25
JTxxxPAg(1500)	13.5	13.5	14.25	14.25
JTxxxPPg(1500)	13.5	13.5	14.25	14.25
JTxxxSAh	13.5	13.5	14.25	14.25
JTxxxSPh	13.5	13.5	14.25	14.25
JTxxxSAh(1500)	13.5	13.5	14.25	14.25
JTxxxSPh(1500)	13.5	13.5	14.25	14.25
JTxxxPTg	17	17	17	17
JTxxxPXg	17	17	17	17
JTxxxSTh	17	17	17	17

JTxxxSXh	17	17	17	17
JTxxxPGh,	13.75	13.75	13.75	13.75
JTxxxPHh	13.75	13.75	13.75	13.75
JTxxxPGh(1500)	13.75	13.75	13.75	13.75
JTxxxPHh(1500)	13.75	13.75	13.75	13.75
JTxxxSGh	13.75	13.75	13.75	13.75
JTxxxSHh	13.75	13.75	13.75	13.75
JTxxxSGh(1500)	13.75	13.75	13.75	13.75
JTxxxSHh(1500)	13.75	13.75	13.75	13.75
JTxxxSSh	14	14	14	14
JTxxxSIh	14	14	14	14
JTxxxSTh(B)	14.25	14.25	14.25	14.25
JTxxxSXh(B)	14.25	14.25	14.25	14.25
JTxxxPSH	14	14	14	14
JTxxxPIh	14	14	14	14

Dimensions: All specified dimensions are approximate, based on the evaluation on pollution degree 1 the spacings can be reduced to 6.4mm (for 1000V) & 10.4mm (for 1500V).

General: The Photovoltaic (PV) Module converts power in the visible portion of the electromagnetic spectrum to DC electrical potential. The basic construction of the laminate consists of laminated assembly of individual solar cells and interconnecting ribbons encapsulated within an insulating material. This encapsulated assembly is pressed between a rigid transparent top surface, referred to as the superstrate, and an insulating back surface, referred to as the substrate. The laminated assembly is supported by a frame which is used for mounting the modules.

CONSTRUCTION

- Overall Dimensions: Overall dimensions, including the frame:

Model	Overall dimensions, including the frame (mm)
JTxxxPAg	1956 x 992 x 40
JTxxxPPg	1640 x 992 x 35
JTxxxPAg(1500)	1956 x 992 x 40
JTxxxPPg(1500)	1640 x 992 x 35
JTxxxSAh	1956 x 992 x 40
JTxxxSPh	1640 x 992 x 35
JTxxxSAh(1500)	1956 x 992 x 40
JTxxxSPh(1500)	1640 x 992 x 35
JTxxxPTg	1968 x 992 x 6
JTxxxPXg	1658 x 992 x 6
JTxxxSTh	1968 x 992 x 6
JTxxxSXh	1658 x 992 x 6
JTxxxPGh,	1996 x 992 x 40 or 2024x1002x40
JTxxxPHh	1674 x 992 x 40/35 or 1697 x 1002 x 40/35
JTxxxPGh(1500)	1996x992x40 or 2024x1002x40
JTxxxPHh(1500)	1674 x 992 x 40/35 or 1697 x 1002 x 40/35
JTxxxSGh,	1996 x 992 x 40 or 2024x1002x40
JTxxxSHh	1674 x 992 x 40/35 or 1697 x 1002 x 40/35

JTxxxSGh(1500)	1996x992x40 or 2024x1002x40
JTxxxSHh(1500)	1674 x 992 x 40/35 or 1697 x 1002 x 40/35
JTxxxSSh	2043 x1005 x 35
JTxxxSIh	1716 x1005 x 35
JTxxxSTh(B)	1977 x 998 x 35 or 2009 x 1004 x 35
JTxxxSXh(B)	1664 x 998 x 35 or 1686 x 1004 x 35
JTxxxPSH	2043 x 1005 x 35
JTxxxPIh	1716 x 1005 x 35

2. Superstrate: Manufactured by Wuxi Liangsheng Special Glass Co., Ltd., type "AR Coating glass" AR-coating glass, with thickness 3.2 mm.

Alternate - Manufactured by China building materials Tong Cheng new energy materials Co., Ltd. "AR Coating glass" AR-coating glass, with thickness 3.2 mm.

Alternate - Manufactured by Jiangsu Crystal Photovoltaic Technology Co., Ltd. "AR Coating glass" AR-coating glass, with thickness 3.2 mm.

Alternate - Manufactured by China building materials Tong Cheng new energy materials Co., Ltd. "AR Coating glass" AR-coating glass, with thickness 2.5 mm for JTxxxPTg, JTxxxPXg, JTxxxSTh and JTxxxSXh series.

Alternate - Manufactured by China building materials Tong Cheng new energy materials Co., Ltd. "AR Coating glass" AR-coating glass, with thickness 2.0 mm for JTxxxSSh, JTxxxSIh, JTxxxSTh(B) and JTxxxSXh(B) series.

3. Cells: 'Jetion Solar (China) Co., Ltd. or Jetion Solar (Thailand) Co., Ltd.', type JX-P156P17, 156.75 x 156.75 mm, 210 ± 20 µm thickness, Poly-crystalline, 5 busbar.

Alternative Cells: 'Jetion Solar (China) Co., Ltd. or Jetion Solar (Thailand) Co., Ltd.', type JXP5BBH, 157 x 157 mm or 157 x 78.5 mm, 210 ± 20 µm thickness, Poly-crystalline, 5 busbar.

Alternative Cells: 'Jetion Solar (China) Co., Ltd. or Jetion Solar (Thailand) Co., Ltd.', type JXP-5BB, 157 x 157 mm, 190 ± 20 µm thickness, Poly-crystalline, 5 busbar

Alternative Cells: 'Nantong Sumin Renewable Energy Technology Co., Ltd.', type P2A5(156KSPB-05/157OSPB-05), 157 x 157 mm, 190~220 µm thickness, Poly-crystalline, 5 busbar

Alternative Cells: 'Jiangsu Shunfeng Photovoltaic Technology Co., Ltd.', type 156M-M1-5BB, 156.75 x 156.75 mm, 210 ± 20 µm thickness, Poly-crystalline, 5 busbar

Alternative Cells: 'Zhengjiang Desolar Optoelectronics Technology Co., Ltd.', type CHSP-156P5SB-N, 156.75 x 156.75 mm, 210 ± 20 µm thickness, Poly-crystalline, 5 busbar

Alternative Cells: 'Jetion Solar (China) Co., Ltd. or Jetion Solar (Thailand) Co., Ltd.', type JXP5BBM, 157 x 157 mm, 210 ± 20 µm thickness, Poly-crystalline, 5 busbar

Alternative Cells: 'Jetion Solar (China) Co., Ltd. or Jetion Solar (Thailand) Co., Ltd.', type JXP5BBB, 157 x 157 mm, 210 ± 20 µm thickness, Mono-crystalline, 5 busbar

Alternative Cells: 'Jetion Solar (China) Co., Ltd. or Jetion Solar (Thailand) Co., Ltd.', type JXS5BBH,

157 x 157 mm or 157.75 x 78.875 mm or 158.75 x 79.375 mm, 210 ± 20 µm thickness, Mono-crystalline, 5 busbar

Alternative Cells: 'Jeton Solar (China) Co., Ltd. or Jeton Solar (Thailand) Co., Ltd.', type JXS5BBHA, 156.75 x 156.75 mm, 210 ± 20 µm thickness, Mono-crystalline, 5 busbar

4. Interconnection between Cells:, provided as follows:
 - a. 5 bus strips in parallel, each 1 mm wide, 0.25 mm thick.
Manufacturer 1: Wuxi Lanjue Science and Technology Co., Ltd. Sn/Pb 63/37 or Sn/Pb 60/40 composition solder
Manufacturer 2: Changzhou Greateen New Energy Technology Co., Ltd. Sn/Pb 60/40 or Sn/Pb 63/37 composition solder
Manufacturer 3: Haian Nengda Electrical Co., Ltd. Sn/Pb 60/40 composition solder
5. Cross Connectors (Inter-string connection):
Manufacturer 1: Wuxi Lanjue Science and Technology Co., Ltd. Sn/Pb 63/37 Solder coated copper ribbon 6.0 mm wide, 0.35 mm thick.
Manufacturer 2: Changzhou Greateen New Energy Technology Co., Ltd. Sn/Pb 60/40 or Sn/Pb 63/37 Solder coated copper ribbon 6.0 mm wide, 0.35 mm thick.
Manufacturer 3: Haian Nengda Electrical Co., Ltd. Sn/Pb 60/40, Solder coated copper ribbon 6.0 mm wide, 0.35 mm thick.
5. Solar light redirecting film (Optional):
Manufacturer 1: 3M
Type: T80-x, 1.2 mm wide, 0.115 mm thick,
Material: aluminum coated/PET/EVA, used with JX-P156P17, JXP-5BB, JXP5BBH and JXS5BBH
Alternate –
Manufacturer 2: Suzhou Golden Star Electronic Technology Co., Ltd.
Type: GS-1200-090-01, 0.115 ± 0.01 mm thick,
Used with JXP5BBH, P2A5(156KSPB-05/157OSPB-05), 156M-M1-5BB, CHSP-156P5SB-N and JXP5BBM
Manufacturer 3: Changzhou Sveck New Material Technology Co., Ltd.
Type: SVK-FG01, 0.12 ± 0.02 mm thick,
Used with JXP5BBB, JXS5BBH, JXS5BBHA and JXP5BBH
6. Encapsulation: Ethylene Vinyl Acetate (EVA) copolymer or POE, two sheets provided (one above and one below cell strings). Any of the following encapsulation materials or combinations can be used subject to the limitations below:
 - a. Manufacturer 1 "Kunshan Tian Yang Hot melt Adhesives co., Ltd", type "JCC-105P-T", 0.45-0.8 mm thick above cells and "Kunshan Tian Yang Hotmelt Adhesives co., Ltd.", type "JCC-105P", 0.45-0.8 mm thick below cells.
 - b. Manufacturer 2 "Changzhou Sveck New Material Technology Co., Ltd.", type "SV-15296", 0.45-0.8 mm thick above cells and "Changzhou Sveck New Material Technology Co., Ltd.", type "SV-15297", 0.45-0.8 mm thick below cells.
 - c. Manufacturer 3 "Changzhou Sveck New Material Technology Co., Ltd.", type "SE-556", 0.8 mm thick above cells and "Changzhou Sveck New Material Technology Co., Ltd.", type "SE-557W", white, 0.65 mm thick below cells for JTxxxPTg, JTxxxPXg, JTxxxSTh and JTxxxSXh series.
 - d. Manufacturer 4 "Changzhou Sveck New Material Technology Co., Ltd.", type "SV-15296P", 0.65 mm thick above cells and "Changzhou Sveck New Material Technology Co., Ltd.", type "SV-15297W", white, 0.50 mm thick below cells for JTxxxPTg, JTxxxPXg, JTxxxSTh and JTxxxSXh

series.

- e. Manufacturer 3 "Changzhou Sveck New Material Technology Co., Ltd.", type "SE-556", 0.8 mm thick above cells and "Changzhou Sveck New Material Technology Co., Ltd.", type "SE-556", white, 0.8 mm thick below cells for JTxxxSSh, JTxxxSIh, JTxxxSTh(B) and JTxxxSXh(B) series.

- 7. Substrate: Manufactured by 'Jolywood (Suzhou) Sunwatt Co., LTD (E331286)', type KFB-30, PVDF/PET/Fluorine Resin, furnished as sheets, 0.30 mm thickness, White.

Alternative: Manufactured by 'Jolywood (Suzhou) Sunwatt Co., LTD (E331286)', type KFB-30(plus), PVDF/PET/Fluorine Resin, furnished as sheets, 0.315 mm thickness, White.

Alternative: Manufactured by 'Cybrid Technology Inc. (E333414)', type Cynagard 09100, PVDF/PET/PVDF, furnished as sheets, 0.34 mm thickness, White.

Alternate - Manufactured by China building materials Tong Cheng new energy materials Co., Ltd. "AR Coating glass" AR-coating glass, with thickness 2.5 mm for JTxxxPTg, JTxxxPXg, JTxxxSTh and JTxxxSXh series.

Alternate - Manufactured by China building materials Tong Cheng new energy materials Co., Ltd. "AR Coating glass" AR-coating glass, with thickness 2.5 mm for JTxxxSSh, JTxxxSIh, JTxxxSTh(B), JTxxxSXh(B), JTxxxPSH and JTxxxPIh series.

- 8. Junction Box: UL recognized, junction box, type ZH011-3 manufactured by 'ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD (E330400); rated 1000 V dc, 15 A max., material has a minimum RTI of 105 °C.

- a. Connector: UL recognized, 'ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD (E342393), type "PV-ZH202 (male and female)", rated 1000 V dc, 30 A max with 12 AWG cable.

Alternate - UL recognized, 'ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD (E342393), type "PV-ZH202B (male and female)", rated 1500 V dc, 30 A max with 12 AWG cable.

- b. Junction Box Adhesive: UL recognized, Silicone, manufactured by GUANGZHOU BAIYUN CHEMICAL INDUSTRY CO LTD. (E252101), designated type SMG533, color white (rated HB, HWI:1, HAI:0, RTI of 105 °C).

- c. Potting material: UL recognized. SHANGHAI HUITIAN NEW MATERIAL CO LTD. (E248611), type "5299W", color white (rated V-0, HWI=1, HAI=0, RTI of 105 °C), used for completely fill the cable entrance against the water immersing, not considered as part of strain relief function.

- d. Bypass Diodes - Type 20SQ045, made by ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD, rated 20 A, 45 V, three provided

- e. Connecting Cable: UL listed, PV wire, Manufactured by ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD (E353853), PV wire, rated sunlight resistant, 90°C wet or dry, 2000V, 12 AWG stranded conductor.

Alternate Junction Box: UL recognized, junction box, type PV-CY1502x manufactured by 'Zhejiang Chuangyuan Photovoltaic Technology Co., Ltd.(E330411); rated 1500 V dc, 15 A max. Material has a

minimum RTI of 105 °C.

- a. Connector: NRTL recognized, 'Zhejiang Chuangyuan Photovoltaic Technology Co., Ltd.'(E342638), type "PV-CY03L(male and female)", rated 1500 V dc, 20A max with 12 AWG cable.
- b. Junction Box Adhesive: UL recognized, Silicone, manufactured by GUANGZHOU BAIYUN CHEMICAL INDUSTRY CO LTD. (E252101), designated type SMG533, color white (rated HB, HWI=1, HAI=0, RTI of 105 °C).
- c. Potting material: UL recognized. SHANGHAI HUITIAN NEW MATERIAL CO LTD. (E248611), type "5299W-S" (rated V-0, HWI=1, HAI=0, CTI=0, Elec. RTI=105), used for completely fill the cable entrance against the water immersing, not considered as part of strain relief function.
- d. Bypass Diodes - Type SR2045, made by Jinan JingHeng Electronics Co., Ltd, rated 20 A, 45 V, three provided.

Alternate - Type GF2045MG, made by Yangzhou Yangjie Electronic Technology Co., Ltd, rated 20 A, 45 V, three provided.

- e. Connecting Cable: UL listed, PV wire, Manufactured by Zhejiang Chuangyuan Photovoltaic Technology Co., Ltd. (E478871), PV wire, rated sunlight resistant, 90°C wet or dry, 2000V, 12 AWG stranded conductor, with nominal 6.6±0.2mm outer diameter, 56 strands.

Alternate - UL listed, PV wire, Manufactured by Zhejiang Chuangyuan Photovoltaic Technology Co., Ltd. (E478871), PV wire, rated sunlight resistant, 90°C wet or dry, 2000V, 12 AWG stranded conductor, with nominal 6.6±0.2mm outer diameter, 48 strands.

Alternate Junction Box: UL recognized, junction box, type PV-ZH011-3D manufactured by 'ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD '(E330400); rated 1500 V dc, 15 A max., material has a minimum RTI of 105 °C

- a. Connector: UL recognized, 'ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD '(E342393), type "PV-ZH202B (male and female)", rated 1500 V dc, 30 A max with 12 AWG cable.

Alternate - UL recognized, 'ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD '(E342393), type "PV-ZH202B (male and female)", rated 1500 V dc, 30 A max with 12 AWG cable.

- b. Junction Box Adhesive: UL recognized, Silicone, manufactured by GUANGZHOU BAIYUN CHEMICAL INDUSTRY CO LTD. (E252101), designated type SMG533, color white (rated HB, HWI:1, HAI:0, RTI of 105 °C).
- c. Potting material: UL recognized. SHANGHAI HUITIAN NEW MATERIAL CO LTD. (E248611), type "5299W", color white (rated V-0, HWI=1, HAI=0, RTI of 105 °C), used for completely fill the cable entrance against the water immersing, not considered as part of strain relief function.
- d. Bypass Diodes - Type 20SQ045, made by ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD, rated 20 A, 45 V, three provided

- e. Connecting Cable: UL listed, PV wire, Manufactured by ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD (E353853), PV wire, rated sunlight resistant, 90°C wet or dry, 2000V, 12 AWG stranded conductor.

Alternate Junction Box: UL recognized, junction box, type PV-JM13D manufactured by 'Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd.'(E337337); rated 1000 V dc, 15 A max. Material has a minimum RTI of 105 °C.

- a. Connector: NRTL recognized, 'Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd.'(E341975), type "PV-JM601(male and female)", rated 1000 V dc, 20A max with 12 AWG cable.
- b. Junction Box Adhesive: UL recognized, Silicone "Room Temperature Vulcanizing" (RTV), manufactured by Tonsan Adhesive Inc. (E253998), designated type 1527, color white (rated HB, HWI=2, HAI=0, RTI of 105 °C).
- c. Potting material: UL recognized, Silicone "Room Temperature Vulcanizing" (RTV), manufactured by Tonsan Adhesive Inc. (E253998), designated type 1521, color white (rated HB, HWI=2, HAI=0, RTI of 105 °C)., used for completely fill the cable entrance against the water immersing, not considered as part of strain relief function.
- d. Bypass Diodes - Type THY2550, made by Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd., rated 25 A, 50 V, three provided.
- e. Connecting Cable: UL listed, PV wire, Manufactured by Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd. (E343893), PV wire, rated sunlight resistant, 90°C wet or dry, 2000V, 12 AWG stranded conductor.

Alternate Junction Box: UL recognized, junction box, type FT30xy manufactured by 'Zhejiang Renhe Photovoltaic Technology Co., Ltd.'(E312261); rated 1500 V dc, 20 A max. Material has a minimum RTI of 105 °C. For JTxxxPTg, JTxxxPXg, JTxxxSTh and JTxxxSXh series.

- a. Connector: NRTL recognized, 'Zhejiang Renhe Photovoltaic Technology Co., Ltd.'(E344325), type "05-8-cm (male and female)", rated 1500 V dc, 20A max with 12 AWG cable.
- b. Junction Box Adhesive: UL recognized, Silicone "Room Temperature Vulcanizing" (RTV), manufactured by Tonsan Adhesive Inc. (E253998), designated type 1527, color white (rated HB, HWI=2, HAI=0, RTI of 105 °C).

Alternate - UL recognized, Silicone, manufactured by GUANGZHOU BAIYUN CHEMICAL INDUSTRY CO LTD. (E252101), designated type SMG533, color white (rated HB, HWI:1, HAI:0, RTI of 105 °C).

- c. Potting material: UL recognized, Silicone "Room Temperature Vulcanizing" (RTV), manufactured by Tonsan Adhesive Inc. (E253998), designated type 1521, color white (rated HB, HWI=2, HAI=0, RTI of 105 °C)., used for completely fill the cable entrance against the water immersing, not considered as part of strain relief function.

Alternate - UL recognized, Silicone, manufactured by GUANGZHOU BAIYUN CHEMICAL INDUSTRY CO LTD. (E252101), designated type SKF323, color white (rated V-0, RTI of 105 °C), used for completely fill the cable entrance against the water immersing, not considered as

part of strain relief function.

- d. Bypass Diodes - Type PST4530T, made by Zhejiang Renhe Photovoltaic Technology Co., Ltd., rated 30 A, 45 V, three provided.
- e. Connecting Cable: UL listed, PV wire, Manufactured by Zhejiang Renhe Photovoltaic Technology Co., Ltd. (E332136), PV wire, rated sunlight resistant, 90°C wet or dry, 2000V, 12 AWG stranded conductor.

Alternate Junction Box: UL recognized, junction box, type PV-JM07 manufactured by 'Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd.'(E337337); rated 1500 V dc, 20 A max. Material has a minimum RTI of 105 °C. For JTxxxPTg, JTxxxPXg, JTxxxSTh and JTxxxSXh series.

- a. Connector: NRTL recognized, 'Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd.'(E341975), type "PV-JM608(male and female)", rated 1500 V dc, 20A max with 12 AWG cable.
- b. Junction Box Adhesive: UL recognized, Silicone "Room Temperature Vulcanizing" (RTV), manufactured by Tonsan Adhesive Inc. (E253998), designated type 1527, color white (rated HB, HWI=2, HAI=0, RTI of 105 °C).

Alternate - UL recognized, Silicone, manufactured by GUANGZHOU BAIYUN CHEMICAL INDUSTRY CO LTD. (E252101), designated type SMG533, color white (rated HB, HWI:1, HAI:0, RTI of 105 °C).

- c. Potting material: UL recognized, Silicone "Room Temperature Vulcanizing" (RTV), manufactured by Tonsan Adhesive Inc. (E253998), designated type 1521, color white (rated HB, HWI=2, HAI=0, RTI of 105 °C)., used for completely fill the cable entrance against the water immersing, not considered as part of strain relief function.

Alternate - UL recognized, Silicone, manufactured by GUANGZHOU BAIYUN CHEMICAL INDUSTRY CO LTD. (E252101), designated type SKF323, color white (rated V-0, RTI of 105 °C), used for completely fill the cable entrance against the water immersing, not considered as part of strain relief function

- d. Bypass Diodes - Type THY2550, made by Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd., rated 25 A, 50 V, three provided.
- e. Connecting Cable: UL listed, PV wire, Manufactured by Zhejiang Jiaming Tianheyuan Photovoltaics Technology Co., Ltd. (E343893), PV wire, rated sunlight resistant, 90°C wet or dry, 2000V, 12 AWG stranded conductor.

Alternate Junction Box: UL recognized, junction box, type PV-ZH011C-2 manufactured by 'ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD '(E330400); rated 1500 V dc, 20 A max., material has a minimum RTI of 105 °C

- a. Connector: UL recognized, 'ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD '(E342393), type "PV-ZH202B (male and female)", rated 1500 V dc, 30 A max with 12 AWG cable.
- b. Junction Box Adhesive: UL recognized, Silicone, manufactured by GUANGZHOU BAIYUN CHEMICAL INDUSTRY CO LTD. (E252101), designated type SMG533, color white (rated

HB, HWI:1, HAI:0, RTI of 105 °C).

- c. Potting material: UL recognized. SHANGHAI HUITIAN NEW MATERIAL CO LTD. (E248611), type "5299W-S", color white (rated V-0, HWI=1, HAI=0, RTI of 105 °C), used for completely fill the cable entrance against the water immersing, not considered as part of strain relief function.
- d. Bypass Diodes - Type 20SQ045, made by ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD, rated 20 A, 45 V, three provided
- e. Connecting Cable: UL listed, PV wire, Manufactured by ZHEJIANG ZHONGHUAN SUNTER PV TECHNOLOGY CO LTD (E353853), PV wire, rated sunlight resistant, 90°C wet or dry, 2000V, 12 AWG stranded conductor.

Alternate Junction Box: UL recognized, junction box, type FT50xy manufactured by 'Zhejiang Renhe Photovoltaic Technology Co., Ltd.'(E312261); rated 1500 V dc, 20 A max. Material has a minimum RTI of 105 °C. For JTxxxSSh, JTxxxSIh, JTxxxSTh(B) and JTxxxSXh(B) series.

- a. Connector: NRTL recognized, 'Zhejiang Renhe Photovoltaic Technology Co., Ltd.'(E344325), type "05-8 (male and female)", rated 1500 V dc, 30A max with 12 AWG cable.
- b. Junction Box Adhesive: UL recognized, Silicone, manufactured by GUANGZHOU BAIYUN CHEMICAL INDUSTRY CO LTD. (E252101), designated type SMG533, color white (rated HB, HWI:1, HAI:0, RTI of 105 °C).
- c. Potting material: UL recognized, Silicone "Room Temperature Vulcanizing" (RTV), manufactured by Tonsan Adhesive Inc. (E253998), designated type 1521, color white (rated HB, HWI=2, HAI=0, RTI of 105 °C), used for completely fill the cable entrance against the water immersing, not considered as part of strain relief function.
- d. Bypass Diodes - Type PST4530T, made by Zhejiang Renhe Photovoltaic Technology Co., Ltd., rated 30 A, 45 V, three provided.
- e. Connecting Cable: UL listed, PV wire, Manufactured by Zhejiang Renhe Photovoltaic Technology Co., Ltd. (E332136), PV wire, rated sunlight resistant, 90°C wet or dry, 2000V, 12 AWG stranded conductor.

9. Frame: White. Extruded anodized aluminum, 1.5 or 1.3 mm nominal wall thickness, composed of two end and two side pieces, 40mm, 35 mm in height. The frame is either pre-crimped or assembled together with four aluminum corner brackets, overall dimensions 40 mm x 35 or 35 mm x 35 mm by press fit. See Att1 page 1~7 for detail information.

40/35mm frame.

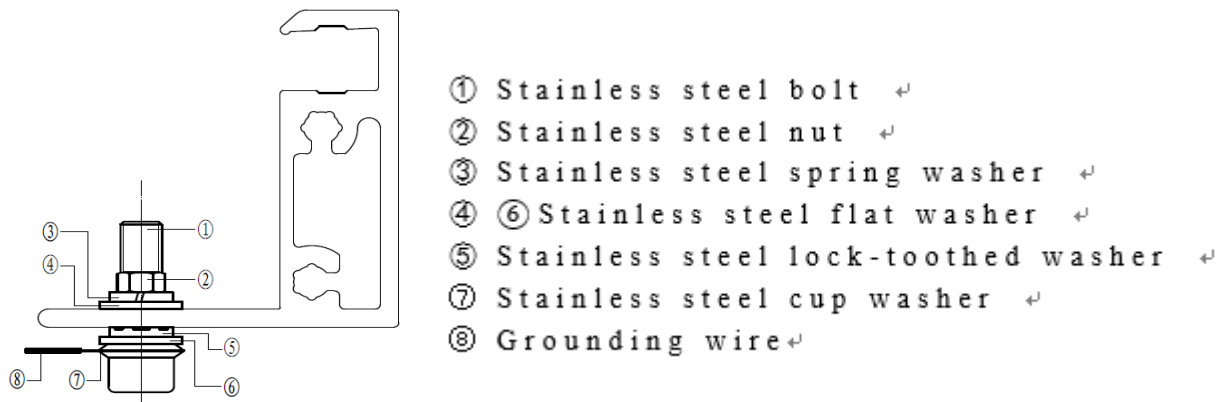
Model / Series	Rail	Size (mm)	Number provided	Thickness of frame at hole position. (mm)
60 Cell Series	End	No holes for grounding		
	Side	6 x 14	4	1.8
72 Cell Series	End	No holes for grounding		
	Side	6 x 14	4	1.8

Manufacturer 1: Changzhou Yihe aluminum industry Co., Ltd. anodized aluminum, 6063-T5
 Manufacturer 2: Jiangyin Jiuxin Technology Co., Ltd. anodized aluminum, 6063-T5
 Manufacturer 3: Wuxi Lanjue Science and Technology Co., Ltd. anodized aluminum, 6063-T5
 Manufacturer 4: JIANGSU YUEJIA METALLIC TECHNOLOGY CO., LTD, anodized aluminum alloy 6005-T6

10. Frame Adhesive: UL recognized, Silicone, manufactured by GUANGZHOU BAIYUN CHEMICAL INDUSTRY CO LTD. (E252101), designated type SMG533, color white (rated HB, HWI:1, HAI:0, RTI of 105 °C), furnished as film, provided between the frame and the laminate.

Alternate - UL recognized, Silicone "Room Temperature Vulcanizing" (RTV), manufactured by Tonsan Adhesive Inc. (E253998), designated type 1527, color white (rated HB, HWI=2, HAI=0, RTI of 105 °C), furnished as film, provided between the frame and the laminate.

11. Grounding:



Attach a separate conductor as grounding wire to the 4mm diameter grounding holes with a set of M4 bolt, cup washer, flat washer, lock-toothed washer, spring washer and nut.

Provided in frame for attachment of grounding hardware.

Model	Location of hole on the rail	Size	Number provided	Thickness of frame at hole position(mm)
ALL	Side	Φ4.2 mm	1 for each long side	1.8

12. Flux: type SF56, made by ASAHI

Alternate - type WTO-PV105A, made by Shenzhen VITAL new material Co., Ltd.

13. Position Tape: type UV-1, made by 3M

Alternate - type 631S#25, made by TERAOKA

14. Isolated material: type 3M™ D300, made by 3M

Alternate – type SVK-GL01, made by Changzhou Sveck New Material Technology Co., Ltd.

Alternate - type Cynagard 09100, made by Cybrid Technology Inc.

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TESTED COMBINATION OF MATERIALS

Cell	Encapsulation material	Substrate material	Superstrate	Junction box	Adhesive to junction box	Frame Adhesive
JX-P156P17	JCC-105P-T with JCC-105P	KFB-30	AR Coating glass	ZH011-3	SMG533	SMG533
JXP5BBH(Poly)	JCC-105P-T with JCC-105P	KFB-30(plus)	AR Coating glass	PV-CY1502x	SMG533	SMG533
JXP5BBH(Poly)	SV-15296P with SV-15297W	AR Coating glass	AR Coating glass	FT50xy	SMG533	SMG533
JXP-5BB	SV-15296 with SV-15297	KFB-30(plus)	AR Coating glass	ZH011-3D	SMG533	SMG533
P2A5(156KSPB-05/157OSP5B-05)	JCC-105P-T with JCC-105P or SV-15296 with SV-15297	KFB-30(plus)	AR Coating glass	PV-CY1502x	SMG533	SMG533
156M-M1-5BB	SV-15296 with SV-15297	KFB-30(plus)	AR Coating glass	PV-CY1502x	SMG533	SMG533
CHSP-156P5SB-N	SV-15296 with SV-15297	KFB-30(plus)	AR Coating glass	PV-CY1502x	SMG533	SMG533
JXP5BBM	JCC-105P-T with JCC-105P	KFB-30(plus)	AR Coating glass	PV-CY1502x	SMG533	SMG533
JXP5BBB	SV-15296 with SV-15297	Cynagard 09100	AR Coating glass	JM13D	1527	1527

JXP5BB H (Mono)	JCC-105P-T with JCC-105P or SV-15296 with SV-15297	KFB-30(plus) or KFB-30	AR Coating glass	ZH011-3 or ZH011-3D	SMG533	SMG533
JXP5BB H(Poly)	SE-556 with SE- 557W or SV-15296P with SV-15297W	AR Coating glass	AR Coating glass	FT30xy or PV-JM07	1527	-
JXS5BB H (Mono)	SE-556 with SE- 557W or SV-15296P with SV-15297W	AR Coating glass	AR Coating glass	FT30xy or PV-JM07	1527	-
JXS5BB H (Mono)	SE-556 with SE- 556	AR Coating glass	AR Coating glass	FT50xy	SMG533	SMG533
JXS5BB HA (Mono)	SE-556 with SE- 556	AR Coating glass	AR Coating glass	FT50xy	SMG533	SMG533
JXS5BB H (Mono)	SV-15296 with SV-15297	KFB-30(plus)	AR Coating glass	PV-ZH011C- 2	SMG533	SMG533
JXP5BB H(Poly)	SV-15296 with SV-15297	KFB-30(plus)	AR Coating glass	PV-ZH011C- 2	SMG533	SMG533

TEST HISTORY**Edition 1: Project 80016796**

Original certificate, full investigation for model series JTxxxPAg, JTxxxPPg, JTxxxPAg(1500), JTxxxPPg(1500), JTxxxSAh, JTxxxSPh, JTxxxSAh(1500), JTxxxSPh(1500), JT330PTg, JT275PXg, JT365STh, JT305SXh, data accept from TUV SUD and TUV Rheinland, the following tests were considered necessary.

The representative models of photovoltaic modules were found to comply with the following requirements of CAN/CSA-C22.2 No. 61730-2:11 & UL 61730:2017.

The following tests were conducted at Yangzhou Opto-Electrical Products Testing Institute and TUV Rheinland Shanghai under APT program. The Clauses are referred to CAN/CSA-C22.2 No. 61730-2:11 & UL 61730:2017, respectively. Detailed test results are being kept on Documentum at CSA Group.

Clause	Test name as in CAN/CSA-C22.2 No. 61730-2:11 & UL 61730-2:2017	Models Tested	Results	Comments
10.1 / 10.2	Visual inspection MST 01	JT315PAg, JT350PAg, JT330PAg(1500), JT265-PPg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT380SAh(1500), JT380SAh, JT330PTg, JT365STh	Pass	
10.6 / 10.3	Performance at STC MST 02	JT315PAg, JT350PAg, JT330PAg(1500), JT265-PPg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT380SAh(1500), JT380SAh, JT330PTg, JT365STh	Pass	
10.2 / 10.4	Maximum power determination MST 03	JT315PAg, JT350PAg, JT330PAg(1500), JT265-PPg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT380SAh(1500), JT380SAh, JT330PTg, JT365STh	Pass	
NA / 10.5	Insulation thickness test MST 04	JT315PAg, JT330PAg(1500), JT330PAg	Pass	
NA / 10.6	Durability of markings MST 05	JT315PAg, JT330PAg(1500),	Pass	

		JT330PAg, JT370SAh(1500), JT370SAh, JT330PTg, JT365STh		
NA / 10.7	Sharp edge test MST 06	JT315PAg, JT330PAg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT330PTg, JT365STh	Pass	
NA / 10.8	Bypass diode functionality test MST 07	JT315PAg, JT330PAg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT330PTg, JT365STh	Pass	
10.2 / 10.9	Accessibility test MST 11	JT315PAg, JT330PAg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT330PTg, JT365STh	Pass	
10.3 / 10.10	Cut susceptibility test MST 12	JT315PAg, JT330PAg(1500), JT265- PPg(1500), JT330PAg, JT370SAh(1500), JT370SAh,	Pass	
10.4 / 10.11	Ground continuity test MST 13 / Continuity test of equipotential bonding MST 13	JT315PAg, JT330PAg(1500), JT265- PPg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT380SAh(1500), JT380SAh, JT330PTg, JT365STh	Pass	
10.5 / 10.12	Impulse voltage test MST 14	JT315PAg, JT330PAg(1500), JT330PAg, JT330PTg, JT365STh	Pass	
10.6 / 10.13	Dielectric withstand test MST 16 / Insulation test MST 16	JT315PAg, JT330PAg(1500), JT265- PPg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT380SAh(1500), JT380SAh, JT330PTg, JT365STh	Pass	
10.15 / 10.14	Wet leakage current test MST 17	JT315PAg, JT330PAg(1500), JT265-	Pass	

		PPg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT380SAh(1500), JT380SAh, JT330PTg, JT365STh		
10.7 / 10.15	Temperature test MST 21	JT315PAg, JT330PAg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT330PTg, JT365STh	Pass	
10.9 / 10.16	Hot-spot endurance test MST 22	JT315PAg, JT330PAg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT330PTg, JT365STh	Pass	
10.8 / 10.17	Fire test MST 23	JT315PAg, JT330PAg(1500), JT330PAg, JT330PTg, JT365STh	Pass	
NA / 10.18	Ignitability test MST 24	JT315PAg, JT330PAg(1500), JT330PAg	Pass	
10.18 / 10.19	Bypass diode thermal test MST 25	JT315PAg, JT330PAg(1500), JT330PAg, JT330PTg, JT365STh	Pass	
10.9 / 10.20	Reverse current overload test MST 26	JT315PAg, JT330PAg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT330PTg, JT365STh	Pass	
10.10 / 10.21	Module breakage test MST 32	JT315PAg, JT330PAg(1500), JT265- PPg(1500), JT330PAg, JT330PTg, JT365STh	Pass	
NA / 10.22	Screw connections test MST 33	NA	NA	
10.16 / 10.23	Mechanical load test / Static mechanical load test MST 34	JT315PAg, JT330PAg(1500), JT265- PPg(1500), JT340PAg(1500), JT330PAg, JT330PTg, JT365STh	Pass	
NA / 10.24	Peel test MST 35	NA	NA	No cemented joint
NA / 10.25	Lap shear strength test MST 36	NA	NA	No cemented joint

NA / 10.26	Materials creep test MST 37	JT315PAg, JT330PAg(1500), JT330PAg, JT330PTg, JT365STh	Pass	
10.14 / 10.27	Robustness of terminations test MST 42	JT315PAg, JT330PAg(1500), JT330PAg, JT330PTg, JT365STh	Pass	
10.11 / 10.28	Thermal cycling test MST 51	JT315PAg, JT330PAg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT330PTg, JT365STh	Pass	
10.12 / 10.29	Humidity freeze test MST 52	JT315PAg, JT330PAg(1500), JT330PAg, JT330PTg, JT365STh	Pass	
10.13 / 10.30	Damp heat test MST 53	JT315PAg, JT330PAg(1500), JT340PAg(1500), JT330PAg, JT370SAh(1500), JT370SAh, JT330PTg, JT365STh	Pass	
10.10 / 10.31	UV preconditioning test / UV test MST 54	JT315PAg, JT330PAg(1500), JT330PAg, JT330PTg, JT365STh	Pass	
NA / 10.32	Cold conditioning MST 55	JT315PAg, JT330PAg(1500), JT330PAg, JT330PTg, JT365STh	Pass	
NA / 10.33	Dry heat conditioning MST 56	JT315PAg, JT330PAg(1500), JT330PAg, JT330PTg, JT365STh	Pass	
10.10A / NA	Terminal torque test	NA	NA	No screw or nut on wiring terminals
10.10B / NA	Impact test	JT315PAg, JT330PAg(1500), JT330PTg	Pass	
10.10C / NA	Wiring compartment securement Test	JT315PAg, JT330PAg(1500), JT330PAg, JT330PTg, JT365STh	Pass	
N/A				

Construction Review:

Construction review performed with satisfactory results.

Edition 2: Project 80027399

Update report 80016796 to add a vna manufacturer, the following tests were considered necessary.

The representative models of photovoltaic modules were found to comply with the following requirements of CAN/CSA-C22.2 No. 61730-2:11 & UL 61730:2017.

The following tests were conducted in CSA kunshan lab. The Clauses are referred to CAN/CSA-C22.2 No. 61730-2:11 & UL 61730:2017, respectively. Detailed test results are being kept on Documentum at CSA Group.

Clause	Test name as in CAN/CSA-C22.2 No. 61730-2:11 & UL 61730-2:2017	Models Tested	Results	Comments
10.1 / 10.2	Visual inspection MST 01	JT370SAh(1500)	Pass	
10.6 / 10.3	Performance at STC MST 02	JT370SAh(1500)	Pass	
10.2 / 10.4	Maximum power determination MST 03	JT370SAh(1500)	Pass	
NA / 10.5	Insulation thickness test MST 04	NA	NA	Add factory only
NA / 10.6	Durability of markings MST 05	NA	NA	
NA / 10.7	Sharp edge test MST 06	NA	NA	
NA / 10.8	Bypass diode functionality test MST 07	NA	NA	
10.2 / 10.9	Accessibility test MST 11	JT370SAh(1500)	Pass	
10.3 / 10.10	Cut susceptibility test MST 12	NA	NA	Add factory only
10.4 / 10.11	Ground continuity test MST 13 / Continuity test of equipotential bonding MST 13	NA	NA	
10.5 / 10.12	Impulse voltage test MST 14	NA	NA	
10.6 / 10.13	Dielectric withstand test MST 16 / Insulation test MST 16	JT370SAh(1500)	Pass	
10.15 / 10.14	Wet leakage current test MST 17	JT370SAh(1500)	Pass	
10.7 / 10.15	Temperature test MST 21	NA	NA	Add factory only
10.9 / 10.16	Hot-spot endurance test MST 22	NA	NA	
10.8 / 10.17	Fire test MST 23	NA	NA	
NA / 10.18	Ignitability test MST 24	NA	NA	
10.18 / 10.19	Bypass diode thermal test MST 25	NA	NA	
10.9 / 10.20	Reverse current overload test MST 26	NA	NA	
10.10 / 10.21	Module breakage test MST 32	NA	NA	
NA / 10.22	Screw connections test MST 33	NA	NA	No such parts
10.16 / 10.23	Mechanical load test / Static mechanical load test MST 34	NA	NA	Add factory only
NA / 10.24	Peel test MST 35	NA	NA	No cemented joint
NA / 10.25	Lap shear strength test MST 36	NA	NA	No cemented joint
NA / 10.26	Materials creep test MST 37	NA	NA	Add factory only
10.14 / 10.27	Robustness of terminations test MST 42	NA	NA	
10.11 / 10.28	Thermal cycling test MST 51	NA	NA	
10.12 / 10.29	Humidity freeze test MST 52	JT370SAh(1500)	Pass	
10.13 / 10.30	Damp heat test MST 53	NA	NA	

10.10 / 10.31	UV preconditioning test / UV test MST 54	NA	NA	Add factory only
NA / 10.32	Cold conditioning MST 55	NA	NA	
NA / 10.33	Dry heat conditioning MST 56	NA	NA	
10.10A / NA	Terminal torque test	NA	NA	No screw or nut on wiring terminals
10.10B / NA	Impact test	NA	NA	Add factory only
10.10C / NA	Wiring compartment securement Test	NA	NA	
N/A				

Construction Review:

Construction review performed with satisfactory results.

Edition 3: Project 80029563

Update report 80016796 to add a new model series JTxxxPGh, JTxxxPGh(1500), JTxxxPHh, JTxxxPHh(1500), JTxxxSGh, JTxxxSGh(1500), JTxxxSHh, JTxxxSHh(1500), JTxxxSSh, JTxxxSIh, JTxxxSTh(B), JTxxxSXh(B), JTxxxPSh, JTxxxPIh with following new material: new glass (Tong Cheng) for both superstrate and substrate, half cell of JXP5BBH & JXS5BBH, new cell JXS5BBHA, new combination of encapsulation(e), new junction box (PV-ZH011C-2, FT50xy), new frame manufacturer JIANGSU YUEJIA, the following tests were considered necessary.

The representative models of photovoltaic modules were found to comply with the following requirements of CAN/CSA-C22.2 No. 61730-2:11 & UL 61730:2017.

The following tests were conducted at Yangzhou Opto-Electrical Products Testing Institute under APT program. The Clauses are referred to CAN/CSA-C22.2 No. 61730-2:11 & UL 61730:2017, respectively. Detailed test results are being kept on Documentum at CSA Group.

Clause	Test name as in CAN/CSA-C22.2 No. 61730-2:11 & UL 61730-2:2017	Models Tested	Results	Comments
10.1 / 10.2	Visual inspection MST 01	JT330PGh(1500) JT355PGh(1500) JT365SGh(1500) JT395SGh(1500) JT380SSh, JT390SSh JT370STh(B), JT395STh(B) JT345PSh JT350PSh	Pass	
10.6 / 10.3	Performance at STC MST 02	JT330PGh(1500) JT365SGh(1500) JT380SSh JT370STh(B) JT345PSh	Pass	
10.2 / 10.4	Maximum power determination MST 03	JT330PGh(1500) JT355PGh(1500) JT365SGh(1500) JT395SGh(1500) JT380SSh, JT390SSh	Pass	

		JT370STh(B), JT395STh(B) JT345PSh JT350PSh		
NA / 10.5	Insulation thickness test MST 04	NA	NA	
NA / 10.6	Durability of markings MST 05	JT330PGh(1500) JT365SGh(1500) JT380SSh JT370STh(B) JT345PSh	Pass	
NA / 10.7	Sharp edge test MST 06	JT330PGh(1500) JT365SGh(1500) JT380SSh JT370STh(B) JT345PSh	Pass	
NA / 10.8	Bypass diode functionality test MST 07	JT330PGh(1500) JT365SGh(1500) JT380SSh JT370STh(B) JT345PSh	Pass	
10.2 / 10.9	Accessibility test MST 11	JT330PGh(1500) JT365SGh(1500) JT380SSh JT370STh(B) JT345PSh	Pass	
10.3 / 10.10	Cut susceptibility test MST 12	JT365SGh(1500) JT380SSh JT370STh(B) JT345PSh	Pass	
10.4 / 10.11	Ground continuity test MST 13 / Continuity test of equipotential bonding MST 13	JT365SGh(1500) JT380SSh JT370STh(B) JT345PSh	Pass	
10.5 / 10.12	Impulse voltage test MST 14	JT380SSh JT345PSh JT330PTg JT330PTg	Pass	
10.6 / 10.13	Dielectric withstand test MST 16 / Insulation test MST 16	JT330PGh(1500) JT365SGh(1500) JT380SSh JT370STh(B) JT345PSh	Pass	
10.15 / 10.14	Wet leakage current test MST 17	JT330PGh(1500) JT365SGh(1500) JT380SSh JT370STh(B) JT345PSh	Pass	
10.7 / 10.15	Temperature test MST 21	JT330PGh(1500) JT365SGh(1500) JT380SSh JT370STh(B) JT345PSh JT345PSh	Pass	
10.9 / 10.16	Hot-spot endurance test MST 22	JT330PGh(1500) JT365SGh(1500) JT380SSh	Pass	

		JT370STh(B) JT345PSh		
10.8 / 10.17	Fire test MST 23	JT380SSh	Pass	
NA / 10.18	Ignitability test MST 24	JT380SSh	Pass	
10.18 / 10.19	Bypass diode thermal test MST 25	JT365SGh(1500) JT380SSh JT370STh(B) JT345PSh	Pass	
10.9 / 10.20	Reverse current overload test MST 26	JT330PGh(1500) JT365SGh(1500) JT380SSh JT370STh(B) JT345PSh	Pass	
10.10 / 10.21	Module breakage test MST 32	JT380SSh	Pass	
NA / 10.22	Screw connections test MST 33	NA	NA	No such parts
10.16 / 10.23	Mechanical load test / Static mechanical load test MST 34	JT380SSh JT370STh(B)	Pass	
NA / 10.24	Peel test MST 35	NA	NA	No cemented joint
NA / 10.25	Lap shear strength test MST 36	NA	NA	No cemented joint
NA / 10.26	Materials creep test MST 37	JT380SSh	Pass	
10.14 / 10.27	Robustness of terminations test MST 42	JT380SSh JT370STh(B)	Pass	
10.11 / 10.28	Thermal cycling test MST 51	JT330PGh(1500) JT380SSh JT370STh(B) JT345PSh	Pass	
10.12 / 10.29	Humidity freeze test MST 52	JT365SGh(1500) JT380SSh JT370STh(B)	Pass	
10.13 / 10.30	Damp heat test MST 53	JT365SGh(1500) JT380SSh JT370STh(B)	Pass	
10.10 / 10.31	UV preconditioning test / UV test MST 54	JT365SGh(1500) JT380SSh JT370STh(B)	Pass	
NA / 10.32	Cold conditioning MST 55	JT365SGh(1500) JT380SSh	Pass	
NA / 10.33	Dry heat conditioning MST 56	JT365SGh(1500) JT380SSh	Pass	
10.10A / NA	Terminal torque test	NA	NA	No screw or nut on wiring terminals
10.10B / NA	Impact test	JT365SGh(1500) JT380SSh	Pass	
10.10C / NA	Wiring compartment securement Test	JT365SGh(1500) JT380SSh	Pass	
N/A				

Construction Review:

Construction review performed with satisfactory results.

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---End of Report---