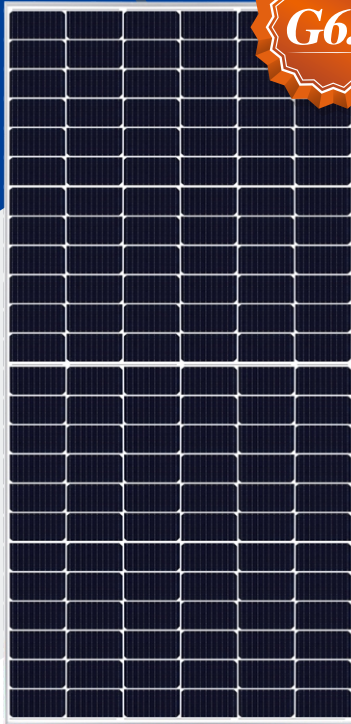


HIGH PERFORMANCE MONOCRYSTALLINE PERC MODULE












G6.4

RSM144-9-535M-555M

144 CELL Mono PERC Module	535-555Wp Power Output Range
1500VDC Maximum System Voltage	21.5% Maximum Efficiency

KEY SALIENT FEATURES

-  Global, Tier 1 bankable brand, with independently certified state-of-the-art automated manufacturing
-  Industry leading lowest thermal co-efficient of power
-  Industry leading 15 years product warranty
-  Excellent low irradiance performance
-  Excellent PID resistance
-  Positive tight power tolerance
-  Dual stage 100% EL Inspection warranting defect-free product
-  Module Imp binning radically reduces string mismatch losses
-  Excellent wind load 2400Pa & snow load 5400Pa under certain installation method
-  Comprehensive product and system certification
 - ◆ IEC61215:2016; IEC61730-1/-2:2016;
 - ◆ ISO 9001:2015 Quality Management System
 - ◆ ISO 14001:2015 Environmental Management System
 - ◆ ISO 45001:2018 Occupational Health and Safety Management System



* As there are different certification requirements in different markets, please contact your local Risen Energy sales representative for the specific certificates applicable to the products in the region in which the products are to be used.

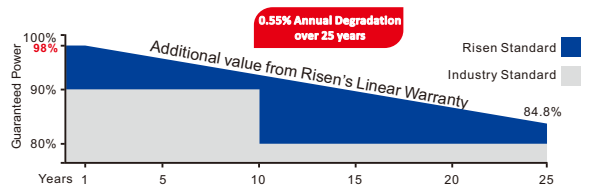
RISEN ENERGY CO., LTD.

Risen Energy is a leading, global tier 1 manufacturer of high-performance solar photovoltaic products and provider of total business solutions for residential, commercial and utility-scale power generation. The company, founded in 1986, and publicly listed in 2010, compels value generation for its chosen global customers. Techno-commercial innovation, underpinned by consummate quality and support, encircle Risen Energy's total Solar PV business solutions which are among the most powerful and cost-effective in the industry. With local market presence and strong financial bankability status, we are committed, and able, to building strategic, mutually beneficial collaborations with our partners, as together we capitalise on the rising value of green energy.

Tashan Industry Zone, Meilin, Ninghai 315609, Ningbo | PRC
Tel: +86-574-59953239 Fax: +86-574-59953599
E-mail: marketing@risenenergy.com Website: www.risenenergy.com

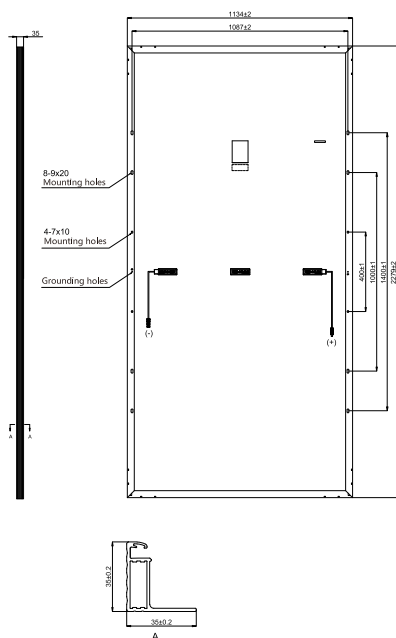
LINEAR PERFORMANCE WARRANTY

15 year Product Warranty / 25 year Linear Power Warranty



Dimensions of PV Module

Unit: mm



ELECTRICAL DATA (STC)

Model Number	RSM144-9-535M	RSM144-9-540M	RSM144-9-545M	RSM144-9-550M	RSM144-9-555M
Rated Power in Watts-Pmax(Wp)	535	540	545	550	555
Open Circuit Voltage-Voc(V)	49.50	49.60	49.70	49.80	49.91
Short Circuit Current-Isc(A)	13.64	13.74	13.84	13.94	14.04
Maximum Power Voltage-Vmpp(V)	41.87	41.99	42.11	42.20	42.29
Maximum Power Current-Impp(A)	12.79	12.87	12.96	13.04	13.13
Module Efficiency (%) *	20.7	20.9	21.1	21.3	21.5

STC: Irradiance 1000 W/m², Cell Temperature 25°C, Air Mass AM1.5 according to EN 60904-3.

* Module Efficiency (%): Round-off to the nearest number

ELECTRICAL DATA (NMOT)

Model Number	RSM144-9-535M	RSM144-9-540M	RSM144-9-545M	RSM144-9-550M	RSM144-9-555M
Maximum Power-Pmax (Wp)	398.5	402.0	405.8	409.4	413.3
Open Circuit Voltage-Voc (V)	46.68	46.77	46.87	46.96	47.07
Short Circuit Current-Isc (A)	11.18	11.27	11.35	11.43	11.51
Maximum Power Voltage-Vmpp (V)	38.70	38.80	38.90	39.00	39.10
Maximum Power Current-Impp (A)	10.30	10.36	10.43	10.50	10.57

NMOT: Irradiance at 800 W/m², Ambient Temperature 20°C, Wind Speed 1 m/s.

MECHANICAL DATA

Solar cells	Monocrystalline
Cell configuration	144 cells (6×12+6×12)
Module dimensions	2279×1134×35mm
Weight	27.8kg
Superstrate	High Transmission, Low Iron, Tempered ARC Glass
Substrate	White Back-sheet
Frame	Anodized Aluminium Alloy type 6005-2T6, Silver Color
J-Box	Potted, IP68, 1500VDC, 3 Schottky bypass diodes
Cables	4.0mm ² (12AWG), Positive(+)350mm, Negative(-)230mm (Connector Included) or customized length
Connector	Risen Twinsel PV-SY02 or MC4 EVO2, IP68

TEMPERATURE & MAXIMUM RATINGS

Nominal Module Operating Temperature (NMOT)	44°C±2°C
Temperature Coefficient of Voc	-0.275%/°C
Temperature Coefficient of Isc	0.045%/°C
Temperature Coefficient of Pmax	-0.35%/°C
Operational Temperature	-40°C~+85°C
Maximum System Voltage	1500VDC
Max Series Fuse Rating	25A
Limiting Reverse Current	25A

PACKAGING CONFIGURATION

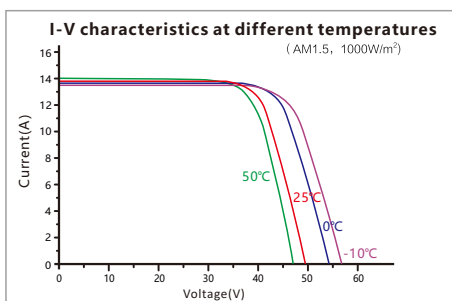
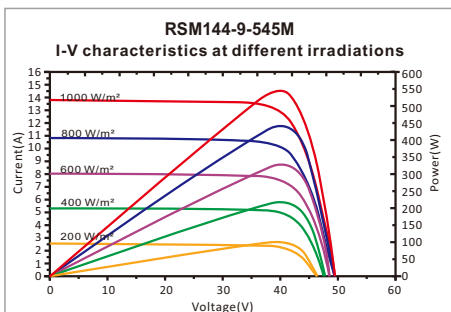
	40ft(HQ)
Number of modules per container	620
Number of modules per pallet	31
Number of pallets per container	20
Packaging box dimensions (LxWxH) in mm	2325×1150×1250
Box gross weight[kg]	910

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.

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No special undertaking or warranty for the suitability of special purpose or being installed in extraordinary surroundings is granted unless as otherwise specifically committed by manufacturer in contract document.

THE POWER OF RISING VALUE



Our Partners:



Management Service

ENCLOSURE OF CERTIFICATE

Certificate Registration No.: **12 100 60471 TMS** / Order No.: **7482293943**

certificate holder:

Risen Energy Co., Ltd.
No.23, Middle Xingke Road, Ninghai County
Ningbo City, Zhejiang Province, P.R. China
Post Code: 315609

at the sites	scope
Risen Energy Co., Ltd. No.23, Middle Xingke Road, Ninghai County Ningbo City, Zhejiang Province, P.R. China Post Code: 315609	Design and Sales of Crystalline Silicon Solar Cells and Crystalline Silicon PV Modules
Risen Energy (Changzhou) Co., Ltd. No.1, Shuinan Road, Industrial Concentration Area, Zhixi Town, Jintan District Changzhou City, Jiangsu Province, P.R. China Post Code: 213251	Manufacture and Provision of Crystalline Silicon PV Modules
Risen Energy (Yiwu) Co., Ltd. No.599, Sufu Road, Suxi Town Yiwu City, Zhejiang Province, P.R. China Post Code: 322000	Manufacture and Provision of Crystalline Silicon PV Modules
Risen Energy (Anhui) Co., Ltd. No. 325 Tongling East Road, Economic and Technological Development Zone Chuzhou City, Anhui Province, P.R. China Post Code: 239000	Manufacture and Provision of Crystalline Silicon Solar Cells
Risen Energy (Ningbo) Co., Ltd. No.1, Middle Xingke Road, Ninghai County Ningbo City, Zhejiang Province, P.R. China Post Code: 315609	Manufacture and Provision of Crystalline Silicon PV Modules

Fred Wenke
Head of Certification Body
Munich, 2023-08-07

Page 2 of 2





Management Service

CERTIFICATE

Certificate Registration No.: **12 104 60471 TMS** / Order No.: **7482293943**

**The Certification Body
of TÜV SÜD Management Service GmbH**

certifies that the organization

Risen Energy Co., Ltd.
No.23, Middle Xingke Road, Ninghai County
Ningbo City, Zhejiang Province, P.R. China
Post Code: 315609

for the scope

**Design, Manufacture, Provision and Sales of Crystalline Silicon Solar Cells and
Crystalline Silicon PV Modules (including the sites see enclosure)**

has established and applies an Environmental Management System.

An audit was performed and has furnished proof
that the requirements according to

DIN EN ISO 14001:2015

are fulfilled.

The certificate is valid from **2023-11-01** until **2026-10-31**.

Fred Wenke
Head of Certification Body
Munich, 2023-08-07

Page 1 of 2



TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD

ZERTIFIKAT ◆ CERTIFICATE ◆ CERTIFICADO ◆ CERTIFICAT ◆
CERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ CERTIFICADO ◆ CERTIFICAT



Management Service

ENCLOSURE OF CERTIFICATE

Certificate Registration No.: **12 104 60471 TMS** / Order No.: **7482293943**

certificate holder:

Risen Energy Co., Ltd.
No.23, Middle Xingke Road, Ninghai County
Ningbo City, Zhejiang Province, P.R. China
Post Code: 315609

at the sites	scope
Risen Energy Co., Ltd. No.23, Middle Xingke Road, Ninghai County Ningbo City, Zhejiang Province, P.R. China Post Code: 315609	Design and Sales of Crystalline Silicon Solar Cells and Crystalline Silicon PV Modules
Risen Energy (Changzhou) Co., Ltd. No.1, Shuinan Road, Industrial Concentration Area, Zhixi Town, Jintan District Changzhou City, Jiangsu Province, P.R. China Post Code: 213251	Manufacture and Provision of Crystalline Silicon PV Modules
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Risen Energy (Anhui) Co., Ltd. No. 325 Tongling East Road, Economic and Technological Development Zone Chuzhou City, Anhui Province, P.R. China Post Code: 239000	Manufacture and Provision of Crystalline Silicon Solar Cells
Risen Energy (Ningbo) Co., Ltd. No.1, Middle Xingke Road, Ninghai County Ningbo City, Zhejiang Province, P.R. China Post Code: 315609	Manufacture and Provision of Crystalline Silicon PV Modules

Fred Wenke
Head of Certification Body
Munich, 2023-08-07



ZERTIFIKAT ◆ CERTIFICATE ◆ CERTIFICADO ◆ CERTIFIKAT ◆ 認證書 ◆ CERTIFICATE ◆ CERTIFICAT



Management Service

CERTIFICATE

Certificate Registration No.: **12 117 60471 TMS** / Order No.: **7482293943**

**The Certification Body
of TÜV SÜD Management Service GmbH**

certifies that the organization

Risen Energy Co., Ltd.
No.23, Middle Xingke Road, Ninghai County
Ningbo City, Zhejiang Province, P.R. China
Post Code: 315609

for the scope

**Design, Manufacture, Provision and Sales of Crystalline Silicon Solar Cells and
Crystalline Silicon PV Modules (including the sites see enclosure)**

has established and applies an
Occupational Health and Safety Management System.

An audit was performed and has furnished proof
that the requirements according to

DIN ISO 45001:2018

are fulfilled.

The certificate is valid from **2023-08-25** until **2026-08-24**.

Fred Wenke
Head of Certification Body
Munich, 2023-08-07



Page 1 of 2

ZERTIFIKAT ◆ CERTIFICATE ◆ CERTIFICADO ◆ CERTIFICAT

認證證書



Management Service

ENCLOSURE OF CERTIFICATE

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No.23, Middle Xingke Road, Ninghai County
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Fred Wenke
Head of Certification Body
Munich, 2023-08-07



ZERTIFIKAT ♦ CERTIFICATE ♦ CERTIFICADO ♦ CERTIFICAT

認證證書



Certificate of Compliance

Certificate: 70206445

Master Contract: 259668

Project: 80151721

Date Issued: 2023-04-10

Issued to: Risen Energy Co., Ltd.
Xingke Road Meiqiao Industrial Park
Ninghai, Ningbo, Zhejiang, 315609
China
Attention: Suber Yang

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only



Issued by: *Simon Shen*
Simon Shen

PRODUCTS

CLASS - C531110 - POWER SUPPLIES-Photovoltaic Modules and Panels

CLASS - C531190 - POWER SUPPLIES-Photovoltaic Modules and Panels - Certified to US Standards

Photovoltaic modules with maximum DC system voltage of 1500 V, Safety Class II.

Model series:

RSM72-6-xxxBMDG (xxx = 350 to 410 W),
RSM60-6-xxxBMDG (xxx = 290 to 345 W),
RSM144-6-xxxBMDG (xxx = 360 to 415 W),
RSM132-6-xxxBMDG (xxx = 330 to 380 W),
RSM120-6-xxxBMDG (xxx = 300 to 350 W),
RSM144-7-xxxBMDG (xxx = 425 to 455 W),
RSM132-7-xxxBMDG (xxx = 390 to 420 W),
RSM120-7-xxxBMDG (xxx = 355 to 380 W),
RSM150-8-xxxBMDG (xxx = 465 to 510 W),
RSM90-8-xxxBMDG (xxx = 285 to 300 W),
RSM144-9-xxxBMDG (xxx = 520 to 560 W),
RSM132-9-xxxBMDG (xxx = 480 to 510 W),
RSM120-9-xxxBMDG (xxx = 435 to 465 W),
RSM156-6-xxxBHDG (xxx = 435 to 465 W),



Certificate: 80016357
Project: 80151721

Master Contract: 249143
Date Issued: 2023-04-10

RSM144-6-xxxBHDG (xxx = 400 to 430 W),
RSM120-6-xxxBHDG (xxx = 330 to 360 W),
RSM144-6-xxxHDGB (xxx = 400 to 430 W),
RSM132-6-xxxHDGB (xxx = 365 to 390 W),
RSM120-6-xxxHDGB (xxx = 330 to 360 W),
RSM132-8-xxxBMDG (xxx = 635 to 675 W),
RSM120-8-xxxBMDG (xxx = 560 to 615 W),
RSM110-8-xxxBMDG (xxx = 525 to 565 W),
RSM132-8-xxxBNDG (xxx = 665 to 695 W),
RSM120-8-xxxBNDG (xxx = 605 to 635 W),
RSM110-8-xxxBNDG (xxx = 550 to 580 W),
RSM132-8-xxxBHDG (xxx = 650 to 715 W),
RSM120-8-xxxBHDG (xxx = 590 to 655 W),
RSM110-8-xxxBHDG (xxx = 540 to 600 W).

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)	Maximum over-current protection rating (A)
RSM72-6-xxxBMDG (xxx = 350 to 410 W)						
RSM72-6-350BMDG	46.60	9.70	38.30	9.15	350	20
RSM72-6-355BMDG	46.95	9.75	38.65	9.20	355	20
RSM72-6-360BMDG	47.30	9.80	38.95	9.25	360	20
RSM72-6-365BMDG	47.70	9.85	39.25	9.30	365	20
RSM72-6-370BMDG	48.15	9.90	39.60	9.35	370	20
RSM72-6-375BMDG	48.60	9.95	39.95	9.40	375	20
RSM72-6-380BMDG	48.95	10.00	40.25	9.45	380	20
RSM72-6-385BMDG	49.35	10.05	40.55	9.50	385	20
RSM72-6-390BMDG	49.70	10.10	40.85	9.55	390	20
RSM72-6-395BMDG	50.10	10.15	41.20	9.60	395	20
RSM72-6-400BMDG	50.45	10.20	41.50	9.65	400	20
RSM72-6-405BMDG	50.85	10.25	41.80	9.70	405	20
RSM72-6-410BMDG	51.20	10.30	42.10	9.75	410	20
RSM60-6-xxxBMDG (xxx = 290 to 345 W)						
RSM60-6-290BMDG	38.60	9.65	31.90	9.10	290	20
RSM60-6-295BMDG	38.80	9.70	32.25	9.15	295	20
RSM60-6-300BMDG	39.10	9.75	32.65	9.20	300	20
RSM60-6-305BMDG	39.40	9.80	33.00	9.25	305	20
RSM60-6-310BMDG	39.80	9.85	33.35	9.30	310	20
RSM60-6-315BMDG	40.10	9.90	33.70	9.35	315	20
RSM60-6-320BMDG	40.50	9.95	34.05	9.40	320	20
RSM60-6-325BMDG	40.80	10.00	34.40	9.45	325	20



Certificate: 80016357
Project: 80151721

Master Contract: 249143
Date Issued: 2023-04-10

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)	Maximum over-current protection rating (A)
RSM60-6-330BMDG	41.10	10.05	34.75	9.50	330	20
RSM60-6-335BMDG	41.40	10.10	35.10	9.55	335	20
RSM60-6-340BMDG	41.95	10.15	35.45	9.60	340	20
RSM60-6-345BMDG	42.35	10.20	35.80	9.65	345	20
RSM144-6-xxxBMDG (xxx = 360 to 415 W)						
RSM144-6-360BMDG	47.30	9.70	39.60	9.10	360	20
RSM144-6-365BMDG	47.45	9.80	39.70	9.20	365	20
RSM144-6-370BMDG	47.60	9.90	39.80	9.30	370	20
RSM144-6-375BMDG	47.75	10.00	39.90	9.40	375	20
RSM144-6-380BMDG	48.00	10.10	40.05	9.50	380	20
RSM144-6-385BMDG	48.15	10.20	40.15	9.60	385	20
RSM144-6-390BMDG	48.30	10.30	40.25	9.70	390	20
RSM144-6-395BMDG	48.45	10.40	40.35	9.80	395	20
RSM144-6-400BMDG	48.60	10.50	40.45	9.90	400	20
RSM144-6-405BMDG	48.75	10.60	40.55	10.00	405	20
RSM144-6-410BMDG	48.90	10.70	40.65	10.10	410	20
RSM144-6-415BMDG	49.00	10.80	40.70	10.20	415	20
RSM132-6-xxxBMDG (xxx = 330 to 380 W)						
RSM132-6-330BMDG	43.40	9.70	36.30	9.10	330	20
RSM132-6-335BMDG	43.50	9.80	36.45	9.20	335	20
RSM132-6-340BMDG	43.60	9.90	36.60	9.30	340	20
RSM132-6-345BMDG	43.70	10.00	36.75	9.40	345	20
RSM132-6-350BMDG	43.80	10.10	36.90	9.50	350	20
RSM132-6-355BMDG	43.90	10.19	37.05	9.60	355	20
RSM132-6-360BMDG	44.00	10.29	37.20	9.69	360	20
RSM132-6-365BMDG	44.10	10.38	37.35	9.79	365	20
RSM132-6-370BMDG	44.20	10.48	37.50	9.88	370	20
RSM132-6-375BMDG	44.30	10.58	37.65	9.97	375	20
RSM132-6-380BMDG	44.40	10.68	37.80	10.07	380	20
RSM120-6-xxxBMDG (xxx = 300 to 350 W)						
RSM120-6-300BMDG	39.40	9.70	33.00	9.10	300	20
RSM120-6-305BMDG	39.50	9.80	33.20	9.20	305	20
RSM120-6-310BMDG	39.70	9.90	33.35	9.30	310	20
RSM120-6-315BMDG	39.80	10.00	33.55	9.40	315	20
RSM120-6-320BMDG	40.00	10.10	33.70	9.50	320	20
RSM120-6-325BMDG	40.10	10.20	33.90	9.60	325	20
RSM120-6-330BMDG	40.30	10.30	34.05	9.70	330	20
RSM120-6-335BMDG	40.40	10.40	34.20	9.80	335	20



Certificate: 80016357
Project: 80151721

Master Contract: 249143
Date Issued: 2023-04-10

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)	Maximum over-current protection rating (A)
RSM120-6-340BMDG	40.50	10.50	34.40	9.90	340	20
RSM120-6-345BMDG	40.60	10.60	34.55	10.00	345	20
RSM120-6-350BMDG	40.70	10.70	34.70	10.10	350	20
RSM144-7-xxxBMDG (xxx = 425 to 455 W)						
RSM144-7-425BMDG	49.20	11.00	40.90	10.40	425	25
RSM144-7-430BMDG	49.30	11.10	40.96	10.50	430	25
RSM144-7-435BMDG	49.40	11.20	41.05	10.60	435	25
RSM144-7-440BMDG	49.50	11.30	41.13	10.70	440	25
RSM144-7-445BMDG	49.60	11.40	41.25	10.80	445	25
RSM144-7-450BMDG	49.70	11.50	41.30	10.90	450	25
RSM144-7-455BMDG	49.80	11.60	41.40	11.00	455	25
RSM132-7-xxxBMDG (xxx = 390 to 420 W)						
RSM132-7-390BMDG	45.10	10.90	37.43	10.50	390	25
RSM132-7-395BMDG	45.20	11.00	37.52	10.60	395	25
RSM132-7-400BMDG	45.30	11.10	37.60	10.70	400	25
RSM132-7-405BMDG	45.40	11.20	37.68	10.80	405	25
RSM132-7-410BMDG	45.50	11.30	37.77	10.90	410	25
RSM132-7-415BMDG	45.60	11.40	37.85	11.00	415	25
RSM132-7-420BMDG	45.70	11.50	37.93	11.10	420	25
RSM120-7-xxxBMDG (xxx = 355 to 380 W)						
RSM120-7-355BMDG	40.60	11.30	33.20	10.70	355	25
RSM120-7-360BMDG	40.70	11.42	33.35	10.80	360	25
RSM120-7-365BMDG	40.80	11.54	33.50	10.90	365	25
RSM120-7-370BMDG	40.90	11.66	33.65	11.00	370	25
RSM120-7-375BMDG	41.00	11.78	33.80	11.10	375	25
RSM120-7-380BMDG	41.10	11.90	33.95	11.20	380	25
RSM150-8-xxxBMDG (xxx = 465 to 510 W)						
RSM150-8-465BMDG	49.47	11.97	41.34	11.26	465	25
RSM150-8-470BMDG	49.69	12.04	41.56	11.32	470	25
RSM150-8-475BMDG	49.91	12.11	41.78	11.38	475	25
RSM150-8-480BMDG	50.13	12.18	42.00	11.44	480	25
RSM150-8-485BMDG	50.35	12.25	42.22	11.50	485	25
RSM150-8-490BMDG	50.57	12.32	42.44	11.56	490	25
RSM150-8-495BMDG	50.79	12.39	42.66	11.62	495	25
RSM150-8-500BMDG	51.01	12.46	42.88	11.68	500	25
RSM150-8-505BMDG	51.23	12.53	43.10	11.74	505	25
RSM150-8-510BMDG	51.45	12.60	43.32	11.80	510	25
RSM90-8-xxxBMDG (xxx = 285 to 300 W)						



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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)	Maximum over-current protection rating (A)
RSM90-8-285BMDG	29.94	12.11	25.07	11.38	285	25
RSM90-8-290BMDG	30.21	12.25	25.33	11.47	290	25
RSM90-8-295BMDG	30.46	12.32	25.57	11.56	285	25
RSM90-8-300BMDG	30.68	12.39	25.81	11.65	290	25
RSM144-9-xxxBMDG (xxx = 520 to 560 W)						
RSM144-9-520BMDG	49.20	13.35	41.55	12.52	520	25
RSM144-9-525BMDG	49.30	13.45	41.65	12.61	525	25
RSM144-9-530BMDG	49.40	13.55	41.75	12.70	530	25
RSM144-9-535BMDG	49.50	13.64	41.87	12.79	535	25
RSM144-9-540BMDG	49.60	13.73	41.99	12.88	540	25
RSM144-9-545BMDG	49.70	13.84	42.11	12.96	545	25
RSM144-9-550BMDG	49.80	13.94	42.20	13.04	550	25
RSM144-9-555BMDG	49.91	14.04	42.20	13.04	555	25
RSM144-9-560BMDG	50.01	14.14	42.38	13.22	560	25
RSM132-9-xxxBMDG (xxx = 480 to 510 W)						
RSM132-9-480BMDG	45.30	13.49	38.10	12.60	480	25
RSM132-9-485BMDG	45.40	13.59	38.20	12.70	485	25
RSM132-9-490BMDG	45.50	13.69	38.30	12.80	490	25
RSM132-9-495BMDG	45.60	13.79	38.40	12.90	495	25
RSM132-9-500BMDG	45.70	13.89	38.51	12.99	500	25
RSM132-9-505BMDG	45.80	13.99	38.62	13.08	505	25
RSM132-9-510BMDG	45.9	14.09	38.73	13.17	510	25
RSM120-9-xxxBMDG (xxx = 435 to 465 W)						
RSM120-9-435BMDG	40.30	13.47	34.68	12.55	435	25
RSM120-9-440BMDG	40.40	13.57	34.79	12.65	440	25
RSM120-9-445BMDG	40.50	13.68	34.91	12.75	445	25
RSM120-9-450BMDG	40.60	13.78	35.05	12.85	450	25
RSM120-9-455BMDG	40.70	13.88	35.15	12.95	455	25
RSM120-9-460BMDG	40.80	13.98	35.25	13.05	460	25
RSM120-9-465BMDG	40.91	14.04	35.35	13.12	465	25
RSM156-6-xxxBHDG (xxx = 435 to 465 W)						
RSM156-6-435BHDG	58.40	9.55	48.53	8.97	435	20
RSM156-6-440BHDG	58.70	9.60	48.83	9.02	440	20
RSM156-6-445BHDG	59.00	9.65	49.13	9.07	445	20
RSM156-6-450BHDG	59.30	9.70	49.43	9.12	450	20
RSM156-6-455BHDG	59.60	9.75	49.73	9.16	455	20
RSM156-6-460BHDG	59.90	9.80	50.03	9.20	460	20
RSM156-6-465BHDG	60.20	9.85	50.33	9.25	465	20



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RSM144-6-xxxBHDG (xxx = 400 to 430 W)						
RSM144-6-400BHDG	53.05	9.73	44.25	9.05	400	20
RSM144-6-405BHDG	53.20	9.77	44.55	9.10	405	20
RSM144-6-410BHDG	53.35	9.81	44.85	9.15	410	20
RSM144-6-415BHDG	53.45	9.85	45.15	9.20	415	20
RSM144-6-420BHDG	53.60	9.89	45.45	9.25	420	20
RSM144-6-425BHDG	53.75	9.93	45.80	9.29	425	20
RSM144-6-430BHDG	53.85	9.97	46.10	9.33	430	20
RSM120-6-xxxBHDG (xxx = 330 to 360 W)						
RSM120-6-330BHDG	44.10	9.70	36.60	9.03	330	20
RSM120-6-335BHDG	44.30	9.75	36.90	9.09	335	20
RSM120-6-340BHDG	44.45	9.79	37.25	9.14	340	20
RSM120-6-345BHDG	44.55	9.84	37.55	9.20	345	20
RSM120-6-350BHDG	44.65	9.89	37.85	9.26	350	20
RSM120-6-355BHDG	44.80	9.94	38.15	9.31	355	20
RSM120-6-360BHDG	44.90	9.98	38.45	9.37	360	20
RSM144-6-xxxHDGB (xxx = 400 to 430 W)						
RSM144-6-400HDGB	53.05	9.73	44.25	9.05	400	20
RSM144-6-405HDGB	53.20	9.77	44.55	9.10	405	20
RSM144-6-410HDGB	53.35	9.81	44.85	9.15	410	20
RSM144-6-415HDGB	53.45	9.85	45.15	9.20	415	20
RSM144-6-420HDGB	53.60	9.89	45.45	9.25	420	20
RSM144-6-425HDGB	53.75	9.93	45.80	9.29	425	20
RSM144-6-430HDGB	53.85	9.97	46.10	9.33	430	20
RSM132-6-xxxHDGB (xxx = 365 to 390 W)						
RSM132-6-365HDGB	48.70	9.47	41.05	8.90	365	20
RSM132-6-370HDGB	48.85	9.52	41.35	8.96	370	20
RSM132-6-375HDGB	49.10	9.57	41.70	9.00	375	20
RSM132-6-380HDGB	49.25	9.61	42.00	9.05	380	20
RSM132-6-385HDGB	49.35	9.65	42.30	9.11	385	20
RSM132-6-390HDGB	49.45	9.70	42.60	9.16	390	20
RSM120-6-xxxHDGB (xxx = 330 to 360 W)						
RSM120-6-330HDGB	44.10	9.70	36.60	9.03	330	20
RSM120-6-335HDGB	44.30	9.75	36.90	9.09	335	20
RSM120-6-340HDGB	44.45	9.79	37.25	9.14	340	20
RSM120-6-345HDGB	44.55	9.84	37.55	9.20	345	20
RSM120-6-350HDGB	44.65	9.89	37.85	9.26	350	20
RSM120-6-355HDGB	44.80	9.94	38.15	9.31	355	20



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RSM120-6-360HDGB	44.90	9.98	38.45	9.37	360	20
RSM120-8-xxxBMDG (xxx = 560 to 615 W)						
RSM120-8-560BMDG	39.98	17.84	33.25	16.85	560	35
RSM120-8-565BMDG	40.22	17.90	33.45	16.90	565	35
RSM120-8-570BMDG	40.44	17.95	33.64	16.95	570	35
RSM120-8-575BMDG	40.68	18.00	33.84	17.00	575	35
RSM120-8-580BMDG	40.90	18.06	34.04	17.05	580	35
RSM120-8-585BMDG	41.10	18.11	34.22	17.10	585	35
RSM120-8-590BMDG	41.30	18.16	34.42	17.15	590	35
RSM120-8-595BMDG	41.50	18.21	34.60	17.20	595	35
RSM120-8-600BMDG	41.70	18.26	34.80	17.25	600	35
RSM120-8-605BMDG	41.90	18.32	34.98	17.30	605	35
RSM120-8-610BMDG	42.20	18.37	35.18	17.35	610	35
RSM120-8-615BMDG	42.4	18.42	35.36	17.4	615	35
RSM110-8-xxxBMDG (xxx = 525 to 565 W)						
RSM110-8-525BMDG	37.22	17.97	30.96	16.97	525	35
RSM110-8-530BMDG	37.44	18.02	31.16	17.02	530	35
RSM110-8-535BMDG	37.66	18.07	31.36	17.07	535	35
RSM110-8-540BMDG	37.88	18.13	31.56	17.12	540	35
RSM110-8-545BMDG	38.10	18.18	31.76	17.17	545	35
RSM110-8-550BMDG	38.32	18.23	31.96	17.22	550	35
RSM110-8-555BMDG	38.54	18.28	32.16	17.27	555	35
RSM110-8-560BMDG	38.76	18.33	32.35	17.32	560	35
RSM110-8-565BMDG	38.98	18.38	32.55	17.37	565	35
RSM132-8-xxxBMDG (xxx = 635 to 675 W)						
RSM132-8-635BMDG	44.89	18.03	37.33	17.02	635	35
RSM132-8-640BMDG	45.09	18.08	37.51	17.07	640	35
RSM132-8-645BMDG	45.29	18.13	37.69	17.12	645	35
RSM132-8-650BMDG	45.49	18.18	37.87	17.17	650	35
RSM132-8-655BMDG	45.69	18.23	38.05	17.22	655	35
RSM132-8-660BMDG	45.89	18.28	38.23	17.27	660	35
RSM132-8-665BMDG	46.09	18.33	38.41	17.32	665	35
RSM132-8-670BMDG	46.29	18.38	38.59	17.37	670	35
RSM132-8-675BMDG	46.49	18.43	38.77	17.42	675	35
RSM132-8-xxxBNDG (xxx = 665 to 695 W)						
RSM132-8-665BNDG	46.71	18.18	38.82	17.16	665	35
RSM132-8-670BNDG	46.84	18.25	38.92	17.24	670	35
RSM132-8-675BNDG	46.97	18.33	39.03	17.32	675	35



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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)	Maximum over-current protection rating (A)
RSM132-8-680BNDG	47.10	18.40	39.16	17.39	680	35
RSM132-8-685BNDG	47.23	18.47	39.27	17.46	685	35
RSM132-8-690BNDG	47.36	18.54	39.38	17.55	690	35
RSM132-8-695BNDG	47.49	18.61	39.46	17.62	695	35
RSM120-8-xxxBNDG (xxx = 605 to 635 W)						
RSM120-8-605BNDG	42.45	18.2	35.29	17.17	605	35
RSM120-8-610BNDG	42.61	18.27	35.40	17.26	610	35
RSM120-8-615BNDG	42.76	18.35	35.51	17.34	615	35
RSM120-8-620BNDG	42.91	18.42	35.63	17.43	620	35
RSM120-8-625BNDG	43.07	18.49	35.74	17.51	625	35
RSM120-8-630BNDG	43.18	18.56	35.85	17.6	630	35
RSM120-8-635BNDG	43.29	18.63	35.96	17.68	635	35
RSM110-8-xxxBNDG (xxx = 550 to 580 W)						
RSM110-8-550BNDG	38.78	18.14	32.22	17.09	550	35
RSM110-8-555BNDG	38.92	18.21	32.35	17.18	555	35
RSM110-8-560BNDG	39.06	18.28	32.47	17.27	560	35
RSM110-8-565BNDG	39.23	18.36	32.59	17.35	565	35
RSM110-8-570BNDG	39.40	18.43	32.74	17.44	570	35
RSM110-8-575BNDG	39.56	18.50	32.86	17.52	575	35
RSM110-8-580BNDG	39.72	18.57	32.98	17.60	580	35
RSM132-8-xxxBHDG (xxx = 650 to 715 W)						
RSM132-8-650BHDG	48.93	16.97	41.03	15.86	650	35
RSM132-8-655BHDG	49.02	17.06	41.10	15.96	655	35
RSM132-8-660BHDG	49.11	17.14	41.18	16.05	660	35
RSM132-8-665BHDG	49.20	17.22	41.25	16.14	665	35
RSM132-8-670BHDG	49.29	17.31	41.33	16.23	670	35
RSM132-8-675BHDG	49.38	17.4	41.41	16.32	675	35
RSM132-8-680BHDG	49.47	17.48	41.48	16.41	680	35
RSM132-8-685BHDG	49.56	17.56	41.56	16.50	685	35
RSM132-8-690BHDG	49.65	17.66	41.63	16.60	690	35
RSM132-8-695BHDG	49.74	17.74	41.71	16.68	695	35
RSM132-8-700BHDG	49.83	17.82	41.78	16.77	700	35
RSM132-8-705BHDG	49.92	17.91	41.86	16.86	705	35
RSM132-8-710BHDG	50.01	18.00	41.93	16.95	710	35
RSM132-8-715BHDG	50.09	18.08	42.01	17.03	715	35
RSM120-8-xxxBHDG (xxx = 590 to 655 W)						
RSM120-8-590BHDG	44.45	16.95	37.27	15.85	590	35
RSM120-8-595BHDG	44.54	17.04	37.35	15.95	595	35



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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)	Maximum over-current protection rating (A)
RSM120-8-600BHDG	44.63	17.14	37.42	16.06	600	35
RSM120-8-605BHDG	44.72	17.24	37.50	16.15	605	35
RSM120-8-610BHDG	44.82	17.33	37.58	16.25	610	35
RSM120-8-615BHDG	44.91	17.43	37.66	16.35	615	35
RSM120-8-620BHDG	45.00	17.53	37.73	16.46	620	35
RSM120-8-625BHDG	45.09	17.62	37.81	16.55	625	35
RSM120-8-630BHDG	45.18	17.71	37.88	16.65	630	35
RSM120-8-635BHDG	45.27	17.8	37.96	16.75	635	35
RSM120-8-640BHDG	45.36	17.90	38.03	16.85	640	35
RSM120-8-645BHDG	45.45	17.99	38.11	16.94	645	35
RSM120-8-650BHDG	45.54	18.08	38.19	17.04	650	35
RSM120-8-655BHDG	45.63	18.17	38.26	17.14	655	35
RSM110-8-xxxBHDG (xxx = 540 to 600 W)						
RSM110-8-540BHDG	40.73	16.93	34.15	15.83	540	35
RSM110-8-545BHDG	40.82	17.04	34.23	15.95	545	35
RSM110-8-550BHDG	40.91	17.15	34.30	16.06	550	35
RSM110-8-555BHDG	41.00	17.25	34.38	16.17	555	35
RSM110-8-560BHDG	41.09	17.36	34.45	16.28	560	35
RSM110-8-565BHDG	41.18	17.47	34.53	16.39	565	35
RSM110-8-570BHDG	41.27	17.57	34.60	16.49	570	35
RSM110-8-575BHDG	41.36	17.67	34.68	16.60	575	35
RSM110-8-580BHDG	41.46	17.77	34.76	16.71	580	35
RSM110-8-585BHDG	41.55	17.88	34.84	16.81	585	35
RSM110-8-590BHDG	41.64	17.98	34.92	16.92	590	35
RSM110-8-595BHDG	41.73	18.08	34.99	17.03	595	35
RSM110-8-600BHDG	41.82	18.18	35.07	17.13	600	35

Note:

1. All electrical data are shown as relative to standard test conditions (STC) (1000 W/m², (25 ± 2) °C, AM 1.5 according to IEC 60904-3).
2. The manufacturer declared tolerance of Open-circuit voltage, Short-circuit current, Maximum power is ±3%, ±4%, ±3% respectively.
3. The maximum over-current protection rating is 20A or 25A or 35A.
4. The electrical power performance shown in the table above is only generated by front side of the module, more power may be generated if considering back side of the module.
5. The operating ambient temperature of these devices may exceed 40 °C at full load for all wire sizes if it is determined suitable in the field use application.



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APPLICABLE REQUIREMENTS

CSA-C22.2 No. 61730-1:19	Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction, 2019-12
CSA-C22.2 No. 61730-2:19	Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing, 2019-12
UL 61730-1 First Edition	Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction, 2017-12-04, revision date 2020-04-30
UL 61730-2 First Edition	Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing, 2017-12-04, revision date 2020-04-30

Notes:

Products certified under Class C531110 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). www.scc.ca





Supplement to Certificate of Compliance

Certificate: 70206445

Master Contract: 259668

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80151721	2023-04-10	Update report 70206445 to expend power rating for BHDG model series HJT PV modules and add related components, 95um HJT solar cell RSYCS210B (BBL)(24BB) from Risen, new Sn32Pb42Bi26 interconnect ribbon, new specification for end ribbon, new TT106/TT106 type PVB/PVB from Zhejiang Decent New Material Co., Ltd., new UV curable adhesive 1001 type from Shanghai Delangju New Material Co., Ltd., the power ratings of BMDG model series PV modules were expended based on the test data of the previous projects.
80136990	2022-11-23	Update report 70206445 to add RSM132-8-xxxBHDG, RSM120-8-xxxBHDG, RSM110-8-xxxBHDG HJT PV module series and related components, HJT solar cell RSYCS210B (BBL)(24BB) from Risen, Φ 0.18 interconnect ribbon, new EPE ISARD 3280 and wire carrier film Actinia 1046 from Crown Advanced Materials Co., Ltd., new UV curable adhesive 4336 from Yantai Darbond Technology Co., Ltd.
80136988	2022-09-26	Update report 70206445 to add new high strength alloy steel frame.
80136989	2022-08-16	Update report 70206445 to add new RSM132-8-xxxBNDG, RSM120-8-xxxBNDG, RSM110-8-xxxBNDG PV module series with N type solar cell RSTCS210S and Φ 0.25 interconnect ribbon, add new encapsulation material combination of POE/EVA(PO8110/ EVA9110T), add new 6005 T6 aluminum alloy frame.
80101846	2022-05-31	Update report 70206445 to add new label Seaprinting-TC-04 from Seaprinting Changzhou CO., LTD., new junction box potting 1533 from Tonsan Adhesive Inc., add new specifications for end ribbon and frame, Initial Factory Evaluation for RISEN SOLAR TECHNOLOGY SDN. BHD manufacturer.
80111916	2022-05-19	Update report 70206445 to add T1S-00000HE0B type 166mm*83mm new solar cell from Tainergy Tech Co., Ltd.
80101853	2022-05-05	Update report 70206445 to add RSTDB210S type 210mm*105mm new solar cell from RISEN SOLAR TECHNOLOGY SDN.BHD., add Φ 0.30 interconnect ribbon, add SA-104 type new label from SUNRISE PAPER (M) SDN. BHD., add alternative potting and adhesive for PV-SY030 type junction box, add alternative glass manufacturer, add alternative interconnect ribbon and end ribbon manufacturer, HF10 testing for RISEN SOLAR TECHNOLOGY SDN. BHD manufacturer.



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80108347	2022-02-15	Update report 70206445 to add new POE PO8110 from Zhejiang Sinopont Technology Co., Ltd.
80108346	2022-01-27	Update report 70206445 to add new EVA EVA9110T/EPE PO8110e from Zhejiang Sinopont Technology Co., Ltd.
80092717	2021-08-19	Update report 70206445 to add new RSM132-8-xxxBMDG model series PV module.
80092716	2021-08-17	Update report 70206445 to: (1) Add new model series RSM120-8-xxxBMDG (xxx = 560 to 610 W), RSM110-8-xxxBMDG (xxx = 525 to 560 W); (2) Add new 12BB bifacial 210mm*105mm cell RSTDB210S, manufactured by Risen Energy Co., Ltd.; (3) Add new junction box, type PV-SY030.
80089941	2021-08-04	Update report 70206445 to add new RSM144-6-xxxHDGB, RSM132-6-xxxHDGB, RSM120-6-xxxHDGB model series, new 1.6mm semi-tempered solar glass superstrate and substrate solar glass, new flux WTO-PV201 from Shenzhen Vital Material Company Limited., new POE SE557 from Changzhou Sveck Photovoltaic New Material Co., Ltd., new HT906Z black adhesive for junction box and frame, new 5299W-S black potting for junction box.
80059896	2021-04-12	Update report 70206445 to add new 9BB bifacial 158.75mm*79.395mm cell ECG19BSE2 type from ET Solar.
80030794	2021-03-25	Update report 70206445 to add new RSM156-6-xxxBHDG, RSM144-6-xxxBHDG, RSM120-6-xxxBHDG model series, add RSYCB158B type 158.75mm*79.38mm N type HJT new cell from Risen Energy Co., Ltd., add Sn43Pb43Bi14 new interconnect ribbon, add new UV-100 type fixing tape from 3M.
80067736	2021-03-03	Update report 70206445 to add new 9BB bifacial 158.75mm*79.375mm cell M158.75/D223 (16.8) -9BB-Bifacial-Half-PERC from Talesun Technologies (Thailand) Co., Ltd.
80066677	2021-02-23	Update report 70206445 to add new 9BB bifacial 166mm*83mm cell M166-9BB-Bifacial-Half-PERC from Talesun Technologies (Thailand) Co., Ltd.
80065071	2021-02-09	Update report 70206445 to add new RSM144-9-xxxBMDG, RSM132-9-xxxBMDG, RSM120-9-xxxBMDG model series, add new 10BB bifacial 182mm*91mm cell RSTDB182S from Risen, add new specifications for end ribbon, add new flux WTO-PV112B type from Shenzhen Vital Material Company Limited.
80059944	2020-11-20	Update report 70206445 to add new RSM150-8-xxxBMDG, RSM90-8-xxxBMDG model series, add new 9BB bifacial 1/3 cut cell M2109BPERCBP from Tongwei, new fixing tape FF-3665 from Cybrid Technologies Inc., new EVA 9110T/POE PO8110 combination from 3M China Ltd., new junction box potting JS-1184 and junction box adhesive JS-606 from Hangzhou Zhijiang Silicone Chemicals Co., Ltd., new frame adhesive JS-606 from Hangzhou Zhijiang Silicone Chemicals Co., Ltd.



Certificate: 70206445
Project: 80151721

Master Contract: 259668
Date Issued: 2023-04-10

80056572	2020-10-26	Update report 70206445 to add 531190 Class number for Risen Energy (Changzhou) Co., Ltd. (0000600986-Agreement contract).
80039515	2020-08-24	Update report 70206445 to add new RSM144-7-xxxBMDG, RSM132-7-xxxBMDG, RSM120-7-xxxBMDG model series, add new 9BB bifacial cell RSTDB166S from Risen, new flux SF105 from Asahi Solder, new fixing tape HZ UV-100 from Huizhou Zhikuan Technology, new EVA SV-15296P/POE SE556 combination from Changzhou Sveck PV New Material Co., Ltd., new junction box PV-SY017-25 from Zhejiang Twinsel and related cable, connector, bypass diode, potting, adhesive.
80039517	2020-06-10	Update report to add new POE PO8110 manufactured by 3M Company.
80041966	2020-05-07	Update report to add new junction box potting 5299W-S manufactured by Shanghai Huitian New Material Co., Ltd. and new junction box adhesive and frame adhesive manufactured by Shanghai Huitian New Material Co., Ltd.
80039516	2020-04-22	Update report to add new RSM72-6-xxxBMDG, RSM60-6-xxxBMDG model series.
80039894	2020-04-16	Update report to add a new manufacturer Risen Energy (YIWU) Co., Ltd., admin project to active the manufacturer in internal system.
80027015	2020-03-13	Update report to add new bifacial cell RSTDB156S (9BB) manufactured by TAINERGY TECH CO., LTD., add 0.35mm in diameter interconnect ribbon and update the standard from CAN/CSA-C22.2 No. 61730-1:11 to the latest standard CAN/CSA-C22.2 No. 61730-1:19.
80030795	2020-01-21	Update report to add a new manufacturer Risen Energy (YIWU) Co., Ltd.
80018285	2019-12-30	Update report to add new bifacial cell RSTDB156S (9BB) manufactured by Risen Energy Co., Ltd.
80027016	2019-12-20	Addition of new factory “Risen Energy (Changzhou) Co., Ltd.”
70206445	2019-05-29	CSA C/US Certification for Double Glass Bifacial PV Modules, Model Series RSM144-6-xxxBMDG (xxx = 360 to 405 W), RSM132-6-xxxBMDG (xxx = 330 to 370 W), and RSM120-6-xxxBMDG (xxx = 300 to 340 W).