



Certificate of Compliance

Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

Issued To: Shanghai Aerospace Automobile Electromechanical Co., Ltd.
222 Caoxi Rd, the 8th Floor
of Spaceflight Building
Xuhui district, Shanghai, 200235
China

Attention: Gao Baowei

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: Sara Guo
Sara Guo

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 Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT72-156M(PDV)-BF-xxx (xxx=380-415, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT60-156M(PDV)-BF-xxx (xxx=310-345, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT72-156M(PDV)-CBF-xxx (xxx=385-420, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT60-156M(PDV)-CBF-xxx (xxx=315-350, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT72-166M(PD)-F-xxx (xxx=390-465, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT60-166M(PD)-F-xxx (xxx=340-390, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT78-18X(ND)-xxx (xxx=605-635, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.



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Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT72-18X(ND)-xxx (xxx=560-600, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT66-18X(ND)-xxx (xxx=510-550, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT60-18X(ND)-xxx (xxx=465-500, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT54-18X(ND)-xxx (xxx=415-450, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT32-18X(ND)-xxx (xxx=240-270, in steps of 5), Fuse rating 25A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT20-18X(ND)-xxx (xxx=155-165, in steps of 5), Fuse rating 25A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT16-18X(ND)-xxx (xxx=125-135, in steps of 5), Fuse rating 25A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT78-18X(ND)-F-xxx (xxx=605-635, in steps of 5), Fuse rating 25A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT72-18X(ND)-F-xxx (xxx=560-600, in steps of 5), Fuse rating 25A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT66-18X(ND)-F-xxx (xxx=510-550, in steps of 5), Fuse rating 25A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT60-18X(ND)-F-xxx (xxx=465-500, in steps of 5), Fuse rating 25A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT54-18X(ND)-F-xxx (xxx=415-450, in steps of 5), Fuse rating 25A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT32-18X(ND)-F-xxx (xxx=240-270, in steps of 5), Fuse rating 25A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT20-18X(ND)-F-xxx (xxx=155-165, in steps of 5), Fuse rating 25A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT16-18X(ND)-F-xxx (xxx=125-135, in steps of 5), Fuse rating 25A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT66-18X+(ND)-xxx (xxx=590-645, in steps of 5), Fuse rating 35A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT54-18X+(ND)-xxx (xxx=480-530, in steps of 5), Fuse rating 35A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT48-18X+(ND)-xxx (xxx=420-470, in steps of 5), Fuse rating 35A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT66-18X+(ND)-F-xxx (xxx=590-645, in steps of 5), Fuse rating 35A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT54-18X+(ND)-F-xxx (xxx=480-530, in steps of 5), Fuse rating 35A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT48-18X+(ND)-F-xxx (xxx=420-470, in steps of 5), Fuse rating 35A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT66-210(PD)-F-xxx -xxx (xxx=645-685, in steps of 5), Fuse rating 30A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 V dc, model series: HT60-210(PD)-F-xxx -xxx (xxx=585-625, in steps of 5), Fuse rating 30A, NMOT: 45+/-2°C.



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Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT66-210(ND)-xxx (xxx=675-710, in steps of 5), Fuse rating 35A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT60-210(ND)-xxx (xxx=610-645, in steps of 5), Fuse rating 35A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT66-210(ND)-F-xxx (xxx=675-710, in steps of 5), Fuse rating 35A.

Photovoltaic modules with Fire Performance (USA) Type 29, maximum system voltage of 1500 Vdc, model series: HT60-210(ND)-F-xxx (xxx=610-645, in steps of 5), Fuse rating 35A.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT72-156M(V)-xxx (xxx=380-420, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT60-156M(V)-xxx (xxx=305-345, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT72-156M(V)-C-xxx (xxx=385-420, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT60-156M(V)-C-xxx (xxx=315-350, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT72-166M-xxx (xxx=390-465, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT66-166M-xxx (xxx=380-420, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT60-166M-xxx (xxx=340-390, in steps of 5), Fuse rating 20A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT78-18X-xxx (xxx=560-605, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT72-18X-xxx (xxx=520-560, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT66-18X-xxx (xxx=475-515, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT60-18X-xxx (xxx=435-465, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT54-18X-xxx (xxx=390-420, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT78-18X-F-xxx (xxx=560-605, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT72-18X-F-xxx (xxx=520-560, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT66-18X-F-xxx (xxx=475-515, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT60-18X-F-xxx (xxx=435-465, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT54-18X-F-xxx (xxx=390-420, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT78-18X(N)-xxx (xxx=605-625, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT72-18X(N)-xxx (xxx=560-580, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.



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Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT66-18X(N)-xxx (xxx=510-530, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT60-18X(N)-xxx (xxx=465-485, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT54-18X(N)-xxx (xxx=415-435, in steps of 5), Fuse rating 25A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT66-210-xxx (xxx=645-685, in steps of 5), Fuse rating 30A, NMOT: 45+/-2°C.

Photovoltaic modules with Fire Performance (USA) Type 1, maximum system voltage of 1500 V dc, model series: HT60-210-xxx (xxx=585-625, in steps of 5), Fuse rating 30A, NMOT: 45+/-2°C.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT72-166M(Lm)-xxx (xxx=430-450, in steps of 5), Fuse rating 20A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT60-166M(Lm)-xxx (xxx=360-375, in steps of 5), Fuse rating 20A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT72-166M(Le)-xxx (xxx=430-450, in steps of 5), Fuse rating 20A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT60-166M(Le)-xxx (xxx=360-375, in steps of 5), Fuse rating 20A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT72-166(Lm)-xxx (xxx=430-450, in steps of 5), Fuse rating 20A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT60-166(Lm)-xxx (xxx=360-380, in steps of 5), Fuse rating 20A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT72-166(Le)-xxx (xxx=430-450, in steps of 5), Fuse rating 20A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT60-166(Le)-xxx (xxx=360-380, in steps of 5), Fuse rating 20A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT72-18X(NLm)-xxx (xxx=530-555, in steps of 5), Fuse rating 25A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT60-18X(NLm)-xxx (xxx=440-460, in steps of 5), Fuse rating 25A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT72-18X(NLe)-xxx (xxx=530-555, in steps of 5), Fuse rating 25A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT60-18X(NLe)-xxx (xxx=440-460, in steps of 5), Fuse rating 25A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT72-18X(Lm)-xxx (xxx=490-535, in steps of 5), Fuse rating 25A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT60-18X(Lm)-xxx (xxx=405-445, in steps of 5), Fuse rating 25A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT72-18X(Le)-xxx (xxx=495-535, in steps of 5), Fuse rating 25A.

Photovoltaic modules with maximum system voltage of 1500 Vdc, model series: HT60-18X(Le)-xxx (xxx=405-445, in steps of 5), Fuse rating 25A.

Notes:



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1. The electrical characteristics are within ± 5 , ± 5 , ± 3 percent of the rated values of I_{sc} (± 5), V_{oc} (± 5), and P_{max} (± 3) under standard test conditions (irradiance of 1000 W/m², AM 1.5 spectrum, and a cell temperature of 25°C (77°F)).
2. 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.

| 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) |
|---|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT72-156M(PDV)-BF-xxx (xxx=380-415, in steps of 5) | | | | | |
| HT72-156M(PDV)-BF-380 | 48.30 | 10.34 | 39.90 | 9.53 | 380 |
| HT72-156M(PDV)-BF-385 | 48.40 | 10.47 | 40.10 | 9.61 | 385 |
| HT72-156M(PDV)-BF-390 | 48.50 | 10.55 | 40.30 | 9.68 | 390 |
| HT72-156M(PDV)-BF-395 | 48.60 | 10.67 | 40.50 | 9.76 | 395 |
| HT72-156M(PDV)-BF-400 | 48.70 | 10.79 | 40.70 | 9.84 | 400 |
| HT72-156M(PDV)-BF-410 | 48.80 | 10.91 | 40.90 | 9.91 | 405 |
| HT72-156M(PDV)-BF-415 | 48.90 | 11.03 | 41.10 | 9.98 | 410 |
| HT60-156M(PDV)-BF-xxx (xxx=310-345, in steps of 5) | | | | | |
| HT60-156M(PDV)-BF-310 | 40.00 | 10.22 | 33.60 | 9.25 | 310 |
| HT60-156M(PDV)-BF-315 | 40.10 | 10.36 | 33.70 | 9.37 | 315 |
| HT60-156M(PDV)-BF-320 | 40.20 | 10.49 | 33.80 | 9.49 | 320 |
| HT60-156M(PDV)-BF-325 | 40.30 | 10.61 | 33.90 | 9.60 | 325 |
| HT60-156M(PDV)-BF-330 | 40.40 | 10.74 | 34.10 | 9.69 | 330 |
| HT60-156M(PDV)-BF-335 | 40.50 | 10.87 | 34.30 | 9.78 | 335 |
| HT60-156M(PDV)-BF-340 | 40.60 | 11.00 | 34.50 | 9.87 | 340 |
| HT60-156M(PDV)-BF-345 | 40.70 | 11.14 | 34.70 | 9.96 | 345 |
| HT72-156M(PDV)-CBF-xxx (xxx=385-420, in steps of 5) | | | | | |
| HT72-156M(PDV)-CBF-385 | 48.40 | 10.47 | 40.10 | 10.47 | 385 |
| HT72-156M(PDV)-CBF-390 | 48.50 | 10.55 | 40.30 | 10.55 | 390 |
| HT72-156M(PDV)-CBF-395 | 48.60 | 10.67 | 40.50 | 10.67 | 395 |
| HT72-156M(PDV)-CBF-400 | 48.70 | 10.79 | 40.70 | 10.79 | 400 |
| HT72-156M(PDV)-CBF-405 | 48.80 | 10.91 | 40.90 | 10.91 | 405 |
| HT72-156M(PDV)-CBF-410 | 48.90 | 11.03 | 41.10 | 11.03 | 410 |
| HT72-156M(PDV)-CBF-415 | 49.00 | 11.15 | 41.30 | 11.15 | 415 |
| HT72-156M(PDV)-CBF-420 | 49.10 | 11.26 | 41.50 | 11.26 | 420 |
| HT60-156M(PDV)-CBF-xxx (xxx=315-350, in steps of 5) | | | | | |
| HT60-156M(PDV)-CBF-315 | 40.10 | 10.36 | 33.70 | 9.37 | 315 |
| HT60-156M(PDV)-CBF-320 | 40.20 | 10.49 | 33.80 | 9.49 | 320 |
| HT60-156M(PDV)-CBF-325 | 40.30 | 10.61 | 33.90 | 9.60 | 325 |
| HT60-156M(PDV)-CBF-330 | 40.40 | 10.74 | 34.10 | 9.69 | 330 |
| HT60-156M(PDV)-CBF-335 | 40.50 | 10.87 | 34.30 | 9.78 | 335 |
| HT60-156M(PDV)-CBF-340 | 40.60 | 11.00 | 34.50 | 9.87 | 340 |
| HT60-156M(PDV)-CBF-345 | 40.70 | 11.14 | 34.70 | 9.96 | 345 |
| HT60-156M(PDV)-CBF-350 | 40.80 | 11.28 | 34.90 | 10.05 | 350 |
| HT72-166M(PD)-F-xxx (xxx=390-465, in steps of 5) | | | | | |
| HT72-166M(PD)-F-390 | 47.80 | 10.74 | 38.90 | 10.04 | 390 |



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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) |
|--|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT72-166M(PD)-F-395 | 48.00 | 10.83 | 39.10 | 10.11 | 395 |
| HT72-166M(PD)-F-400 | 48.20 | 10.92 | 39.30 | 10.19 | 400 |
| HT72-166M(PD)-F-405 | 48.40 | 11.01 | 39.50 | 10.26 | 405 |
| HT72-166M(PD)-F-410 | 48.60 | 11.11 | 39.70 | 10.34 | 410 |
| HT72-166M(PD)-F-415 | 48.80 | 11.20 | 39.90 | 10.41 | 415 |
| HT72-166M(PD)-F-420 | 49.00 | 11.29 | 40.10 | 10.49 | 420 |
| HT72-166M(PD)-F-425 | 49.20 | 11.38 | 40.30 | 10.56 | 425 |
| HT72-166M(PD)-F-430 | 49.40 | 11.46 | 40.50 | 10.63 | 430 |
| HT72-166M(PD)-F-435 | 49.60 | 11.53 | 40.70 | 10.70 | 435 |
| HT72-166M(PD)-F-440 | 49.80 | 11.60 | 40.90 | 10.77 | 440 |
| HT72-166M(PD)-F-445 | 49.90 | 11.72 | 41.00 | 10.86 | 445 |
| HT72-166M(PD)-F-450 | 50.00 | 11.83 | 41.10 | 10.96 | 450 |
| HT72-166M(PD)-F-455 | 50.10 | 11.96 | 41.40 | 10.99 | 455 |
| HT72-166M(PD)-F-460 | 50.20 | 12.06 | 41.50 | 11.09 | 460 |
| HT72-166M(PD)-F-465 | 50.30 | 12.16 | 41.60 | 11.18 | 465 |
| HT60-166M(PD)-F-xxx (xxx=340-390, in steps of 5) | | | | | |
| HT60-166M(PD)-F-340 | 40.30 | 11.11 | 32.90 | 10.35 | 340 |
| HT60-166M(PD)-F-345 | 40.50 | 11.22 | 33.10 | 10.44 | 345 |
| HT60-166M(PD)-F-350 | 40.70 | 11.33 | 33.30 | 10.53 | 350 |
| HT60-166M(PD)-F-355 | 40.90 | 11.43 | 33.50 | 10.61 | 355 |
| HT60-166M(PD)-F-360 | 41.10 | 11.53 | 33.70 | 10.69 | 360 |
| HT60-166M(PD)-F-365 | 41.30 | 11.63 | 33.90 | 10.77 | 365 |
| HT60-166M(PD)-F-370 | 41.50 | 11.72 | 34.10 | 10.86 | 370 |
| HT60-166M(PD)-F-375 | 41.60 | 11.85 | 34.20 | 10.98 | 375 |
| HT60-166M(PD)-F-380 | 41.70 | 11.98 | 34.60 | 10.99 | 380 |
| HT60-166M(PD)-F-385 | 41.80 | 12.12 | 34.70 | 11.10 | 385 |
| HT60-166M(PD)-F-390 | 41.90 | 12.25 | 34.80 | 11.21 | 390 |
| HT78-18X(ND)-xxx (xxx=605-635, in steps of 5) | | | | | |
| HT78-18X(ND)-605 | 55.17 | 13.95 | 45.42 | 13.32 | 605 |
| HT78-18X(ND)-610 | 55.31 | 14.03 | 45.60 | 13.38 | 610 |
| HT78-18X(ND)-615 | 55.44 | 14.11 | 45.77 | 13.44 | 615 |
| HT78-18X(ND)-620 | 55.58 | 14.19 | 45.93 | 13.50 | 620 |
| HT78-18X(ND)-625 | 55.72 | 14.27 | 46.10 | 13.56 | 625 |
| HT78-18X(ND)-630 | 55.86 | 14.35 | 46.27 | 13.62 | 630 |
| HT78-18X(ND)-635 | 55.98 | 14.43 | 46.41 | 13.68 | 635 |
| HT72-18X(ND)-xxx (xxx=560-600, in steps of 5) | | | | | |
| HT72-18X(ND)-560 | 50.50 | 14.07 | 42.30 | 13.25 | 560 |
| HT72-18X(ND)-565 | 50.70 | 14.15 | 42.50 | 13.31 | 565 |
| HT72-18X(ND)-570 | 50.90 | 14.23 | 42.70 | 13.37 | 570 |
| HT72-18X(ND)-575 | 51.10 | 14.31 | 42.90 | 13.41 | 575 |
| HT72-18X(ND)-580 | 51.30 | 14.39 | 43.10 | 13.47 | 580 |
| HT72-18X(ND)-585 | 51.50 | 14.47 | 43.30 | 13.53 | 585 |
| HT72-18X(ND)-590 | 51.70 | 14.55 | 43.50 | 13.59 | 590 |



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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) |
|---|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT72-18X(ND)-595 | 51.85 | 14.62 | 43.55 | 13.67 | 595 |
| HT72-18X(ND)-600 | 52.00 | 14.70 | 43.70 | 13.73 | 600 |
| HT66-18X(ND)-xxx (xxx=510-550, in steps of 5) | | | | | |
| HT66-18X(ND)-510 | 46.20 | 14.11 | 38.60 | 13.21 | 510 |
| HT66-18X(ND)-515 | 46.40 | 14.17 | 38.80 | 13.28 | 515 |
| HT66-18X(ND)-520 | 46.60 | 14.23 | 39.00 | 13.34 | 520 |
| HT66-18X(ND)-525 | 46.80 | 14.29 | 39.20 | 13.40 | 525 |
| HT66-18X(ND)-530 | 47.00 | 14.35 | 39.40 | 13.46 | 530 |
| HT66-18X(ND)-535 | 47.20 | 14.41 | 39.60 | 13.52 | 535 |
| HT66-18X(ND)-540 | 47.40 | 14.47 | 39.80 | 13.58 | 540 |
| HT66-18X(ND)-545 | 47.60 | 14.53 | 40.00 | 13.64 | 545 |
| HT66-18X(ND)-550 | 47.80 | 14.60 | 40.20 | 13.70 | 550 |
| HT60-18X(ND)-xxx (xxx=465-500, in steps of 5) | | | | | |
| HT60-18X(ND)-465 | 42.30 | 14.07 | 35.00 | 13.30 | 465 |
| HT60-18X(ND)-470 | 42.40 | 14.15 | 35.20 | 13.37 | 470 |
| HT60-18X(ND)-475 | 42.50 | 14.23 | 35.40 | 13.43 | 475 |
| HT60-18X(ND)-480 | 42.60 | 14.31 | 35.60 | 13.50 | 480 |
| HT60-18X(ND)-485 | 42.70 | 14.39 | 35.80 | 13.56 | 485 |
| HT60-18X(ND)-490 | 42.90 | 14.47 | 36.00 | 13.62 | 490 |
| HT60-18X(ND)-495 | 43.10 | 14.55 | 36.20 | 13.68 | 495 |
| HT60-18X(ND)-500 | 43.30 | 14.63 | 36.40 | 13.74 | 500 |
| HT54-18X(ND)-xxx (xxx=415-450, in steps of 5) | | | | | |
| HT54-18X(ND)-415 | 38.00 | 13.99 | 31.30 | 13.26 | 415 |
| HT54-18X(ND)-420 | 38.10 | 14.07 | 31.50 | 13.34 | 420 |
| HT54-18X(ND)-425 | 38.20 | 14.15 | 31.70 | 13.42 | 425 |
| HT54-18X(ND)-430 | 38.30 | 14.23 | 31.90 | 13.50 | 430 |
| HT54-18X(ND)-435 | 38.40 | 14.31 | 32.00 | 13.60 | 435 |
| HT54-18X(ND)-440 | 38.60 | 14.39 | 32.20 | 13.68 | 440 |
| HT54-18X(ND)-445 | 38.70 | 14.47 | 32.30 | 13.78 | 445 |
| HT54-18X(ND)-450 | 38.90 | 14.55 | 32.50 | 13.85 | 450 |
| HT32-18X(ND)-xxx (xxx=240-270, in steps of 5) | | | | | |
| HT32-18X(ND)-240 | 22.20 | 13.90 | 18.50 | 13.00 | 240 |
| HT32-18X(ND)-245 | 22.30 | 14.06 | 18.60 | 13.18 | 245 |
| HT32-18X(ND)-250 | 22.50 | 14.22 | 18.80 | 13.32 | 250 |
| HT32-18X(ND)-255 | 22.60 | 14.38 | 18.90 | 13.50 | 255 |
| HT32-18X(ND)-260 | 22.70 | 14.54 | 19.00 | 13.69 | 260 |
| HT32-18X(ND)-265 | 22.90 | 14.70 | 19.20 | 13.81 | 265 |
| HT32-18X(ND)-270 | 23.10 | 14.86 | 19.40 | 13.93 | 270 |
| HT20-18X(ND)-xxx (xxx=155-165, in steps of 5) | | | | | |
| HT20-18X(ND)-155 | 14.00 | 14.12 | 11.70 | 13.31 | 155 |
| HT20-18X(ND)-160 | 14.10 | 14.41 | 11.90 | 13.50 | 160 |
| HT20-18X(ND)-165 | 14.30 | 14.60 | 12.00 | 13.76 | 165 |
| HT16-18X(ND)-xxx (xxx=125-135, in steps of 5) | | | | | |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

| 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) |
|---|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT16-18X(ND)-125 | 11.30 | 14.06 | 9.40 | 13.32 | 125 |
| HT16-18X(ND)-130 | 11.40 | 14.41 | 9.60 | 13.55 | 130 |
| HT16-18X(ND)-135 | 11.60 | 14.76 | 9.80 | 13.78 | 135 |
| HT78-18X(ND)-F-xxx (xxx=605-635, in steps of 5) | | | | | |
| HT78-18X(ND)-F-605 | 55.17 | 13.95 | 45.42 | 13.32 | 605 |
| HT78-18X(ND)-F-610 | 55.31 | 14.03 | 45.60 | 13.38 | 610 |
| HT78-18X(ND)-F-615 | 55.44 | 14.11 | 45.77 | 13.44 | 615 |
| HT78-18X(ND)-F-620 | 55.58 | 14.19 | 45.93 | 13.50 | 620 |
| HT78-18X(ND)-F-625 | 55.72 | 14.27 | 46.10 | 13.56 | 625 |
| HT78-18X(ND)-F-630 | 55.86 | 14.35 | 46.27 | 13.62 | 630 |
| HT78-18X(ND)-F-635 | 55.98 | 14.43 | 46.41 | 13.68 | 635 |
| HT72-18X(ND)-F-xxx (xxx=560-600, in steps of 5) | | | | | |
| HT72-18X(ND)-F-560 | 50.50 | 14.07 | 42.30 | 13.25 | 560 |
| HT72-18X(ND)-F-565 | 50.70 | 14.15 | 42.50 | 13.31 | 565 |
| HT72-18X(ND)-F-570 | 50.90 | 14.23 | 42.70 | 13.37 | 570 |
| HT72-18X(ND)-F-575 | 51.10 | 14.31 | 42.90 | 13.41 | 575 |
| HT72-18X(ND)-F-580 | 51.30 | 14.39 | 43.10 | 13.47 | 580 |
| HT72-18X(ND)-F-585 | 51.50 | 14.47 | 43.30 | 13.53 | 585 |
| HT72-18X(ND)-F-590 | 51.70 | 14.55 | 43.50 | 13.59 | 590 |
| HT72-18X(ND)-F-595 | 51.85 | 14.62 | 43.55 | 13.67 | 595 |
| HT72-18X(ND)-F-600 | 52.00 | 14.70 | 43.70 | 13.73 | 600 |
| HT66-18X(ND)-F-xxx (xxx=510-550, in steps of 5) | | | | | |
| HT66-18X(ND)-F-510 | 46.20 | 14.11 | 38.60 | 13.21 | 510 |
| HT66-18X(ND)-F-515 | 46.40 | 14.17 | 38.80 | 13.28 | 515 |
| HT66-18X(ND)-F-520 | 46.60 | 14.23 | 39.00 | 13.34 | 520 |
| HT66-18X(ND)-F-525 | 46.80 | 14.29 | 39.20 | 13.40 | 525 |
| HT66-18X(ND)-F-530 | 47.00 | 14.35 | 39.40 | 13.46 | 530 |
| HT66-18X(ND)-F-535 | 47.20 | 14.41 | 39.60 | 13.52 | 535 |
| HT66-18X(ND)-F-540 | 47.40 | 14.47 | 39.80 | 13.58 | 540 |
| HT66-18X(ND)-F-545 | 47.60 | 14.53 | 40.00 | 13.64 | 545 |
| HT66-18X(ND)-F-550 | 47.80 | 14.60 | 40.20 | 13.70 | 550 |
| HT60-18X(ND)-F-xxx (xxx=465-500, in steps of 5) | | | | | |
| HT60-18X(ND)-F-465 | 42.30 | 14.07 | 35.00 | 13.30 | 465 |
| HT60-18X(ND)-F-470 | 42.40 | 14.15 | 35.20 | 13.37 | 470 |
| HT60-18X(ND)-F-475 | 42.50 | 14.23 | 35.40 | 13.43 | 475 |
| HT60-18X(ND)-F-480 | 42.60 | 14.31 | 35.60 | 13.50 | 480 |
| HT60-18X(ND)-F-485 | 42.70 | 14.39 | 35.80 | 13.56 | 485 |
| HT60-18X(ND)-F-490 | 42.90 | 14.47 | 36.00 | 13.62 | 490 |
| HT60-18X(ND)-F-495 | 43.10 | 14.55 | 36.20 | 13.68 | 495 |
| HT60-18X(ND)-F-500 | 43.30 | 14.63 | 36.40 | 13.74 | 500 |
| HT54-18X(ND)-F-xxx (xxx=420-450, in steps of 5) | | | | | |
| HT54-18X(ND)-F-420 | 38.10 | 14.07 | 31.50 | 13.34 | 420 |
| HT54-18X(ND)-F-425 | 38.20 | 14.15 | 31.70 | 13.42 | 425 |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

| 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) |
|---|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT54-18X(ND)-F-430 | 38.30 | 14.23 | 31.90 | 13.50 | 430 |
| HT54-18X(ND)-F-435 | 38.40 | 14.31 | 32.00 | 13.60 | 435 |
| HT54-18X(ND)-F-440 | 38.60 | 14.39 | 32.20 | 13.68 | 440 |
| HT54-18X(ND)-F-445 | 38.70 | 14.47 | 32.30 | 13.78 | 445 |
| HT54-18X(ND)-F-450 | 38.90 | 14.55 | 32.50 | 13.85 | 450 |
| HT32-18X(ND)-F-xxx (xxx=240-270, in steps of 5) | | | | | |
| HT32-18X(ND)-F-240 | 22.20 | 13.90 | 18.50 | 13.00 | 240 |
| HT32-18X(ND)-F-245 | 22.30 | 14.06 | 18.60 | 13.18 | 245 |
| HT32-18X(ND)-F-250 | 22.50 | 14.22 | 18.80 | 13.32 | 250 |
| HT32-18X(ND)-F-255 | 22.60 | 14.38 | 18.90 | 13.50 | 255 |
| HT32-18X(ND)-F-260 | 22.70 | 14.54 | 19.00 | 13.69 | 260 |
| HT32-18X(ND)-F-265 | 22.90 | 14.70 | 19.20 | 13.81 | 265 |
| HT32-18X(ND)-F-270 | 23.10 | 14.86 | 19.40 | 13.93 | 270 |
| HT20-18X(ND)-F-xxx (xxx=155-165, in steps of 5) | | | | | |
| HT20-18X(ND)-F-155 | 14.00 | 14.12 | 11.70 | 13.31 | 155 |
| HT20-18X(ND)-F-160 | 14.10 | 14.41 | 11.90 | 13.50 | 160 |
| HT20-18X(ND)-F-165 | 14.30 | 14.60 | 12.00 | 13.76 | 165 |
| HT16-18X(ND)-F-xxx (xxx=125-135, in steps of 5) | | | | | |
| HT16-18X(ND)-F-125 | 11.30 | 14.06 | 9.40 | 13.32 | 125 |
| HT16-18X(ND)-F-130 | 11.40 | 14.41 | 9.60 | 13.55 | 130 |
| HT16-18X(ND)-F-135 | 11.60 | 14.76 | 9.80 | 13.78 | 135 |
| HT66-18X+(ND)-xxx (xxx=590-645, in steps of 5) | | | | | |
| HT66-18X+(ND)-590 | 47.90 | 15.71 | 40.00 | 14.75 | 590 |
| HT66-18X+(ND)-595 | 48.10 | 15.77 | 40.15 | 14.82 | 595 |
| HT66-18X+(ND)-600 | 48.30 | 15.83 | 40.30 | 14.89 | 600 |
| HT66-18X+(ND)-605 | 48.50 | 15.89 | 40.45 | 14.96 | 605 |
| HT66-18X+(ND)-610 | 48.70 | 15.95 | 40.60 | 15.03 | 610 |
| HT66-18X+(ND)-615 | 48.90 | 16.02 | 40.75 | 15.10 | 615 |
| HT66-18X+(ND)-620 | 49.10 | 16.08 | 40.90 | 15.16 | 620 |
| HT66-18X+(ND)-625 | 49.30 | 16.14 | 41.05 | 15.23 | 625 |
| HT66-18X+(ND)-630 | 49.50 | 16.21 | 41.20 | 15.30 | 630 |
| HT66-18X+(ND)-635 | 49.70 | 16.27 | 41.35 | 15.36 | 635 |
| HT66-18X+(ND)-640 | 49.90 | 16.33 | 41.50 | 15.43 | 640 |
| HT66-18X+(ND)-645 | 50.10 | 16.40 | 41.65 | 15.49 | 645 |
| HT54-18X+(ND)-xxx (xxx=480-530, in steps of 5) | | | | | |
| HT54-18X+(ND)-480 | 39.03 | 15.68 | 32.59 | 14.73 | 480 |
| HT54-18X+(ND)-485 | 39.23 | 15.77 | 32.74 | 14.82 | 485 |
| HT54-18X+(ND)-490 | 39.43 | 15.84 | 32.89 | 14.90 | 490 |
| HT54-18X+(ND)-495 | 39.63 | 15.92 | 33.04 | 14.99 | 495 |
| HT54-18X+(ND)-500 | 39.83 | 16.00 | 33.19 | 15.07 | 500 |
| HT54-18X+(ND)-505 | 40.03 | 16.07 | 33.34 | 15.15 | 505 |
| HT54-18X+(ND)-510 | 40.23 | 16.15 | 33.49 | 15.23 | 510 |
| HT54-18X+(ND)-515 | 40.43 | 16.23 | 33.64 | 15.31 | 515 |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

| 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) |
|--|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT54-18X+(ND)-520 | 40.63 | 16.30 | 33.79 | 15.38 | 520 |
| HT54-18X+(ND)-525 | 40.83 | 16.38 | 33.94 | 15.47 | 525 |
| HT54-18X+(ND)-530 | 41.03 | 16.45 | 34.09 | 15.55 | 530 |
| HT48-18X+(ND)-xxx (xxx=420-470, in steps of 5) | | | | | |
| HT48-18X+(ND)-420 | 34.50 | 15.52 | 28.85 | 14.56 | 420 |
| HT48-18X+(ND)-425 | 34.70 | 15.62 | 29.00 | 14.66 | 425 |
| HT48-18X+(ND)-430 | 34.90 | 15.71 | 29.15 | 14.76 | 430 |
| HT48-18X+(ND)-435 | 35.10 | 15.79 | 29.30 | 14.85 | 435 |
| HT48-18X+(ND)-440 | 35.30 | 15.89 | 29.45 | 14.95 | 440 |
| HT48-18X+(ND)-445 | 35.50 | 15.97 | 29.60 | 15.04 | 445 |
| HT48-18X+(ND)-450 | 35.70 | 16.05 | 29.75 | 15.13 | 450 |
| HT48-18X+(ND)-455 | 35.90 | 16.13 | 29.90 | 15.22 | 455 |
| HT48-18X+(ND)-460 | 36.10 | 16.20 | 30.05 | 15.31 | 460 |
| HT48-18X+(ND)-465 | 36.30 | 16.29 | 30.20 | 15.40 | 465 |
| HT48-18X+(ND)-470 | 36.50 | 16.37 | 30.35 | 15.49 | 470 |
| HT66-18X+(ND)-F-xxx (xxx=590-645, in steps of 5) | | | | | |
| HT66-18X+(ND)-F-590 | 47.90 | 15.71 | 40.00 | 14.75 | 590 |
| HT66-18X+(ND)-F-595 | 48.10 | 15.77 | 40.15 | 14.82 | 595 |
| HT66-18X+(ND)-F-600 | 48.30 | 15.83 | 40.30 | 14.89 | 600 |
| HT66-18X+(ND)-F-605 | 48.50 | 15.89 | 40.45 | 14.96 | 605 |
| HT66-18X+(ND)-F-610 | 48.70 | 15.95 | 40.60 | 15.03 | 610 |
| HT66-18X+(ND)-F-615 | 48.90 | 16.02 | 40.75 | 15.10 | 615 |
| HT66-18X+(ND)-F-620 | 49.10 | 16.08 | 40.90 | 15.16 | 620 |
| HT66-18X+(ND)-F-625 | 49.30 | 16.14 | 41.05 | 15.23 | 625 |
| HT66-18X+(ND)-F-630 | 49.50 | 16.21 | 41.20 | 15.30 | 630 |
| HT66-18X+(ND)-F-635 | 49.70 | 16.27 | 41.35 | 15.36 | 635 |
| HT66-18X+(ND)-F-640 | 49.90 | 16.33 | 41.50 | 15.43 | 640 |
| HT66-18X+(ND)-F-645 | 50.10 | 16.40 | 41.65 | 15.49 | 645 |
| HT54-18X+(ND)-F-xxx (xxx=480-530, in steps of 5) | | | | | |
| HT54-18X+(ND)-F-480 | 39.03 | 15.68 | 32.59 | 14.73 | 480 |
| HT54-18X+(ND)-F-485 | 39.23 | 15.77 | 32.74 | 14.82 | 485 |
| HT54-18X+(ND)-F-490 | 39.43 | 15.84 | 32.89 | 14.90 | 490 |
| HT54-18X+(ND)-F-495 | 39.63 | 15.92 | 33.04 | 14.99 | 495 |
| HT54-18X+(ND)-F-500 | 39.83 | 16.00 | 33.19 | 15.07 | 500 |
| HT54-18X+(ND)-F-505 | 40.03 | 16.07 | 33.34 | 15.15 | 505 |
| HT54-18X+(ND)-F-510 | 40.23 | 16.15 | 33.49 | 15.23 | 510 |
| HT54-18X+(ND)-F-515 | 40.43 | 16.23 | 33.64 | 15.31 | 515 |
| HT54-18X+(ND)-F-520 | 40.63 | 16.30 | 33.79 | 15.38 | 520 |
| HT54-18X+(ND)-F-525 | 40.83 | 16.38 | 33.94 | 15.47 | 525 |
| HT54-18X+(ND)-F-530 | 41.03 | 16.45 | 34.09 | 15.55 | 530 |
| HT48-18X+(ND)-F-xxx (xxx=420-470, in steps of 5) | | | | | |
| HT48-18X+(ND)-F-420 | 34.50 | 15.52 | 28.85 | 14.56 | 420 |
| HT48-18X+(ND)-F-425 | 34.70 | 15.62 | 29.00 | 14.66 | 425 |



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|---|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT48-18X+(ND)-F-430 | 34.90 | 15.71 | 29.15 | 14.76 | 430 |
| HT48-18X+(ND)-F-435 | 35.10 | 15.79 | 29.30 | 14.85 | 435 |
| HT48-18X+(ND)-F-440 | 35.30 | 15.89 | 29.45 | 14.95 | 440 |
| HT48-18X+(ND)-F-445 | 35.50 | 15.97 | 29.60 | 15.04 | 445 |
| HT48-18X+(ND)-F-450 | 35.70 | 16.05 | 29.75 | 15.13 | 450 |
| HT48-18X+(ND)-F-455 | 35.90 | 16.13 | 29.90 | 15.22 | 455 |
| HT48-18X+(ND)-F-460 | 36.10 | 16.20 | 30.05 | 15.31 | 460 |
| HT48-18X+(ND)-F-465 | 36.30 | 16.29 | 30.20 | 15.40 | 465 |
| HT48-18X+(ND)-F-470 | 36.50 | 16.37 | 30.35 | 15.49 | 470 |
| HT66-210(PD)-F-xxx (xxx=645-665, in steps of 5) | | | | | |
| HT66-210(PD)-F-645 | 44.80 | 18.35 | 37.70 | 17.11 | 645 |
| HT66-210(PD)-F-650 | 45.00 | 18.39 | 37.90 | 17.16 | 650 |
| HT66-210(PD)-F-655 | 45.20 | 18.43 | 38.10 | 17.20 | 655 |
| HT66-210(PD)-F-660 | 45.40 | 18.47 | 38.30 | 17.24 | 660 |
| HT66-210(PD)-F-665 | 45.60 | 18.51 | 38.50 | 17.28 | 665 |
| HT66-210(PD)-F-670 | 45.80 | 18.55 | 38.70 | 17.32 | 670 |
| HT66-210(PD)-F-675 | 46.00 | 18.59 | 38.90 | 17.35 | 675 |
| HT66-210(PD)-F-680 | 46.20 | 18.63 | 39.10 | 17.39 | 680 |
| HT66-210(PD)-F-685 | 46.40 | 18.67 | 39.30 | 17.43 | 685 |
| HT60-210(PD)-F-xxx (xxx=585-625, in steps of 5) | | | | | |
| HT60-210(PD)-F-585 | 40.70 | 18.32 | 34.30 | 17.06 | 585 |
| HT60-210(PD)-F-590 | 40.90 | 18.37 | 34.50 | 17.11 | 590 |
| HT60-210(PD)-F-595 | 41.10 | 18.42 | 34.70 | 17.15 | 595 |
| HT60-210(PD)-F-600 | 41.30 | 18.47 | 34.90 | 17.20 | 600 |
| HT60-210(PD)-F-605 | 41.50 | 18.52 | 35.10 | 17.25 | 605 |
| HT60-210(PD)-F-610 | 41.70 | 18.57 | 35.30 | 17.28 | 610 |
| HT60-210(PD)-F-615 | 41.90 | 18.62 | 35.50 | 17.33 | 615 |
| HT60-210(PD)-F-620 | 42.10 | 18.67 | 35.70 | 17.37 | 620 |
| HT60-210(PD)-F-625 | 42.30 | 18.72 | 35.90 | 17.41 | 625 |
| HT66-210(ND)-xxx (xxx=675-710, in steps of 5) | | | | | |
| HT66-210(ND)-675 | 47.20 | 18.13 | 39.40 | 17.14 | 675 |
| HT66-210(ND)-680 | 47.40 | 18.18 | 39.60 | 17.18 | 680 |
| HT66-210(ND)-685 | 47.60 | 18.23 | 39.80 | 17.22 | 685 |
| HT66-210(ND)-690 | 47.80 | 18.28 | 40.00 | 17.25 | 690 |
| HT66-210(ND)-695 | 48.00 | 18.33 | 40.20 | 17.29 | 695 |
| HT66-210(ND)-700 | 48.20 | 18.38 | 40.40 | 17.33 | 700 |
| HT66-210(ND)-705 | 48.40 | 18.43 | 40.60 | 17.37 | 705 |
| HT66-210(ND)-710 | 48.60 | 18.48 | 40.80 | 17.41 | 710 |
| HT60-210(ND)-xxx (xxx=610-645, in steps of 5) | | | | | |
| HT60-210(ND)-610 | 42.80 | 18.10 | 35.70 | 17.09 | 610 |
| HT60-210(ND)-615 | 43.00 | 18.15 | 35.90 | 17.14 | 615 |
| HT60-210(ND)-620 | 43.20 | 18.20 | 36.10 | 17.18 | 620 |
| HT60-210(ND)-625 | 43.40 | 18.25 | 36.30 | 17.22 | 625 |



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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) |
|---|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT60-210(ND)-630 | 43.60 | 18.30 | 36.50 | 17.27 | 630 |
| HT60-210(ND)-635 | 43.80 | 18.35 | 36.70 | 17.31 | 635 |
| HT60-210(ND)-640 | 44.00 | 18.40 | 36.90 | 17.35 | 640 |
| HT60-210(ND)-645 | 44.20 | 18.45 | 37.10 | 17.39 | 645 |
| HT66-210(ND)-F-xxx (xxx=675-710, in steps of 5) | | | | | |
| HT66-210(ND)-F-675 | 47.20 | 18.13 | 39.40 | 17.14 | 675 |
| HT66-210(ND)-F-680 | 47.40 | 18.18 | 39.60 | 17.18 | 680 |
| HT66-210(ND)-F-685 | 47.60 | 18.23 | 39.80 | 17.22 | 685 |
| HT66-210(ND)-F-690 | 47.80 | 18.28 | 40.00 | 17.25 | 690 |
| HT66-210(ND)-F-695 | 48.00 | 18.33 | 40.20 | 17.29 | 695 |
| HT66-210(ND)-F-700 | 48.20 | 18.38 | 40.40 | 17.33 | 700 |
| HT66-210(ND)-F-705 | 48.40 | 18.43 | 40.60 | 17.37 | 705 |
| HT66-210(ND)-F-710 | 48.60 | 18.48 | 40.80 | 17.41 | 710 |
| HT60-210(ND)-F-xxx (xxx=610-645, in steps of 5) | | | | | |
| HT60-210(ND)-F-610 | 42.80 | 18.10 | 35.70 | 17.09 | 610 |
| HT60-210(ND)-F-615 | 43.00 | 18.15 | 35.90 | 17.14 | 615 |
| HT60-210(ND)-F-620 | 43.20 | 18.20 | 36.10 | 17.18 | 620 |
| HT60-210(ND)-F-625 | 43.40 | 18.25 | 36.30 | 17.22 | 625 |
| HT60-210(ND)-F-630 | 43.60 | 18.30 | 36.50 | 17.27 | 630 |
| HT60-210(ND)-F-635 | 43.80 | 18.35 | 36.70 | 17.31 | 635 |
| HT60-210(ND)-F-640 | 44.00 | 18.40 | 36.90 | 17.35 | 640 |
| HT60-210(ND)-F-645 | 44.20 | 18.45 | 37.10 | 17.39 | 645 |
| HT72-156M(V)-xxx (xxx=380-420, in steps of 5) | | | | | |
| HT72-156M(V)-380 | 48.30 | 10.34 | 39.90 | 9.53 | 380 |
| HT72-156M(V)-385 | 48.40 | 10.47 | 40.10 | 9.61 | 385 |
| HT72-156M(V)-390 | 48.50 | 10.55 | 40.30 | 9.68 | 390 |
| HT72-156M(V)-395 | 48.60 | 10.67 | 40.50 | 9.76 | 395 |
| HT72-156M(V)-400 | 48.70 | 10.79 | 40.70 | 9.84 | 400 |
| HT72-156M(V)-405 | 48.80 | 10.91 | 40.90 | 9.91 | 405 |
| HT72-156M(V)-410 | 48.90 | 11.03 | 41.10 | 9.98 | 410 |
| HT72-156M(V)-415 | 49.00 | 11.15 | 41.30 | 10.06 | 415 |
| HT72-156M(V)-420 | 49.10 | 11.26 | 41.50 | 10.13 | 420 |
| HT60-156M(V)-xxx (xxx=305-345, in steps of 5) | | | | | |
| HT60-156M(V)-305 | 39.90 | 10.07 | 33.40 | 9.15 | 305 |
| HT60-156M(V)-310 | 40.00 | 10.22 | 33.60 | 9.25 | 310 |
| HT60-156M(V)-315 | 40.10 | 10.36 | 33.70 | 9.37 | 315 |
| HT60-156M(V)-320 | 40.20 | 10.49 | 33.80 | 9.49 | 320 |
| HT60-156M(V)-325 | 40.30 | 10.61 | 33.90 | 9.60 | 325 |
| HT60-156M(V)-330 | 40.40 | 10.74 | 34.10 | 9.69 | 330 |
| HT60-156M(V)-335 | 40.50 | 10.87 | 34.30 | 9.78 | 335 |
| HT60-156M(V)-340 | 40.60 | 11.00 | 34.50 | 9.87 | 340 |
| HT60-156M(V)-345 | 40.70 | 11.14 | 34.70 | 9.96 | 345 |
| HT72-156M(V)-C-xxx (xxx=385-420, in steps of 5) | | | | | |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

| 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) |
|---|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT72-156M(V)-C-385 | 48.40 | 10.47 | 40.10 | 9.61 | 385 |
| HT72-156M(V)-C-390 | 48.50 | 10.55 | 40.30 | 9.68 | 390 |
| HT72-156M(V)-C-395 | 48.60 | 10.67 | 40.50 | 9.76 | 395 |
| HT72-156M(V)-C-400 | 48.70 | 10.79 | 40.70 | 9.84 | 400 |
| HT72-156M(V)-C-405 | 48.80 | 10.91 | 40.90 | 9.91 | 405 |
| HT72-156M(V)-C-410 | 48.90 | 11.03 | 41.10 | 9.98 | 410 |
| HT72-156M(V)-C-415 | 49.00 | 11.15 | 41.30 | 10.06 | 415 |
| HT72-156M(V)-C-420 | 49.10 | 11.26 | 41.50 | 10.13 | 420 |
| HT60-156M(V)-C-xxx (xxx=315-350, in steps of 5) | | | | | |
| HT60-156M(V)-C-315 | 40.10 | 10.36 | 33.70 | 9.37 | 315 |
| HT60-156M(V)-C-320 | 40.20 | 10.49 | 33.80 | 9.49 | 320 |
| HT60-156M(V)-C-325 | 40.30 | 10.61 | 33.90 | 9.60 | 325 |
| HT60-156M(V)-C-330 | 40.40 | 10.74 | 34.10 | 9.69 | 330 |
| HT60-156M(V)-C-335 | 40.50 | 10.87 | 34.30 | 9.78 | 335 |
| HT60-156M(V)-C-340 | 40.60 | 11.00 | 34.50 | 9.87 | 340 |
| HT60-156M(V)-C-345 | 40.70 | 11.14 | 34.70 | 9.96 | 345 |
| HT60-156M(V)-C-350 | 40.80 | 11.28 | 34.90 | 10.05 | 350 |
| HT72-166M-xxx (xxx=390-465, in steps of 5) | | | | | |
| HT72-166M-390 | 47.80 | 10.74 | 38.90 | 10.04 | 390 |
| HT72-166M-395 | 48.00 | 10.83 | 39.10 | 10.11 | 395 |
| HT72-166M-400 | 48.20 | 10.92 | 39.30 | 10.19 | 400 |
| HT72-166M-405 | 48.40 | 11.01 | 39.50 | 10.26 | 405 |
| HT72-166M-410 | 48.60 | 11.11 | 39.70 | 10.34 | 410 |
| HT72-166M-415 | 48.80 | 11.20 | 39.90 | 10.41 | 415 |
| HT72-166M-420 | 49.00 | 11.29 | 40.10 | 10.49 | 420 |
| HT72-166M-425 | 49.20 | 11.38 | 40.30 | 10.56 | 425 |
| HT72-166M-430 | 49.40 | 11.46 | 40.50 | 10.63 | 430 |
| HT72-166M-435 | 49.60 | 11.53 | 40.70 | 10.70 | 435 |
| HT72-166M-440 | 49.80 | 11.60 | 40.90 | 10.77 | 440 |
| HT72-166M-445 | 49.90 | 11.72 | 41.00 | 10.86 | 445 |
| HT72-166M-450 | 50.00 | 11.83 | 41.10 | 10.96 | 450 |
| HT72-166M-455 | 50.10 | 11.96 | 41.40 | 10.99 | 455 |
| HT72-166M-460 | 50.20 | 12.06 | 41.50 | 11.09 | 460 |
| HT72-166M-465 | 50.30 | 12.16 | 41.60 | 11.18 | 465 |
| HT66-166M-xxx (xxx=380-420, in steps of 5) | | | | | |
| HT66-166M-380 | 45.10 | 11.10 | 37.50 | 10.15 | 380 |
| HT66-166M-385 | 45.20 | 11.21 | 37.60 | 10.25 | 385 |
| HT66-166M-390 | 45.30 | 11.33 | 37.70 | 10.36 | 390 |
| HT66-166M-395 | 45.40 | 11.44 | 37.80 | 10.46 | 395 |
| HT66-166M-400 | 45.50 | 11.54 | 37.90 | 10.56 | 400 |
| HT66-166M-405 | 45.60 | 11.67 | 38.00 | 10.66 | 405 |
| HT66-166M-410 | 45.70 | 11.80 | 38.10 | 10.77 | 410 |
| HT66-166M-415 | 45.80 | 11.93 | 38.20 | 10.88 | 415 |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

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|--|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT66-166M-420 | 45.50 | 11.77 | 38.30 | 10.97 | 420 |
| HT60-166M-xxx (xxx=340-390, in steps of 5) | | | | | |
| HT60-166M-340 | 40.30 | 11.11 | 32.90 | 10.35 | 340 |
| HT60-166M-345 | 40.50 | 11.22 | 33.10 | 10.44 | 345 |
| HT60-166M-350 | 40.70 | 11.33 | 33.30 | 10.53 | 350 |
| HT60-166M-355 | 40.90 | 11.43 | 33.50 | 10.61 | 355 |
| HT60-166M-360 | 41.10 | 11.53 | 33.70 | 10.69 | 360 |
| HT60-166M-365 | 41.30 | 11.63 | 33.90 | 10.77 | 365 |
| HT60-166M-370 | 41.50 | 11.72 | 34.10 | 10.86 | 370 |
| HT60-166M-375 | 41.60 | 11.85 | 34.20 | 10.98 | 375 |
| HT60-166M-380 | 41.70 | 11.98 | 34.60 | 10.99 | 380 |
| HT60-166M-385 | 41.80 | 12.12 | 34.70 | 11.10 | 385 |
| HT60-166M-390 | 41.90 | 12.25 | 34.80 | 11.21 | 390 |
| HT78-18X-xxx (xxx=560-605, in steps of 5) | | | | | |
| HT78-18X-560 | 52.89 | 13.54 | 44.38 | 12.62 | 560 |
| HT78-18X-565 | 53.04 | 13.61 | 44.53 | 12.69 | 565 |
| HT78-18X-570 | 53.19 | 13.68 | 44.68 | 12.76 | 570 |
| HT78-18X-575 | 53.34 | 13.75 | 44.83 | 12.83 | 575 |
| HT78-18X-580 | 53.49 | 13.82 | 44.98 | 12.90 | 580 |
| HT78-18X-585 | 53.64 | 13.89 | 45.13 | 12.97 | 585 |
| HT78-18X-590 | 53.79 | 13.96 | 45.28 | 13.04 | 590 |
| HT78-18X-595 | 53.94 | 14.03 | 45.43 | 13.11 | 595 |
| HT78-18X-600 | 54.09 | 14.10 | 45.58 | 13.17 | 600 |
| HT78-18X-605 | 54.24 | 14.17 | 45.73 | 13.24 | 605 |
| HT72-18X-xxx (xxx=520-560, in steps of 5) | | | | | |
| HT72-18X-520 | 48.90 | 13.63 | 41.05 | 12.68 | 520 |
| HT72-18X-525 | 49.05 | 13.70 | 41.20 | 12.75 | 525 |
| HT72-18X-530 | 49.20 | 13.76 | 41.35 | 12.83 | 530 |
| HT72-18X-535 | 49.35 | 13.83 | 41.50 | 12.90 | 535 |
| HT72-18X-540 | 49.50 | 13.90 | 41.65 | 12.97 | 540 |
| HT72-18X-545 | 49.65 | 13.95 | 41.80 | 13.05 | 545 |
| HT72-18X-550 | 49.80 | 14.00 | 41.95 | 13.12 | 550 |
| HT72-18X-555 | 49.95 | 14.07 | 42.10 | 13.20 | 555 |
| HT72-18X-560 | 50.10 | 14.14 | 42.25 | 13.27 | 560 |
| HT66-18X-xxx (xxx=475-515, in steps of 5) | | | | | |
| HT66-18X-475 | 44.80 | 13.58 | 37.26 | 12.64 | 475 |
| HT66-18X-480 | 44.95 | 13.65 | 37.77 | 12.72 | 480 |
| HT66-18X-485 | 45.10 | 13.73 | 37.92 | 12.80 | 485 |
| HT66-18X-490 | 45.25 | 13.79 | 38.07 | 12.88 | 490 |
| HT66-18X-495 | 45.40 | 13.86 | 38.22 | 12.96 | 495 |
| HT66-18X-500 | 45.55 | 13.93 | 38.37 | 13.04 | 500 |
| HT66-18X-505 | 45.70 | 13.99 | 38.52 | 13.12 | 505 |
| HT66-18X-510 | 45.85 | 14.06 | 38.67 | 13.20 | 510 |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

| 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) |
|---|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT66-18X-515 | 46.00 | 14.13 | 38.82 | 13.28 | 515 |
| HT60-18X-xxx (xxx=435-465, in steps of 5) | | | | | |
| HT60-18X-435 | 40.88 | 13.69 | 34.33 | 12.68 | 435 |
| HT60-18X-440 | 41.03 | 13.76 | 34.48 | 12.77 | 440 |
| HT60-18X-445 | 41.18 | 13.83 | 34.63 | 12.86 | 445 |
| HT60-18X-450 | 41.33 | 13.90 | 34.78 | 12.95 | 450 |
| HT60-18X-455 | 41.48 | 13.97 | 34.93 | 13.04 | 455 |
| HT60-18X-460 | 41.63 | 14.04 | 35.08 | 13.13 | 460 |
| HT60-18X-465 | 41.78 | 14.11 | 35.23 | 13.22 | 465 |
| HT54-18X-xxx (xxx=390-420, in steps of 5) | | | | | |
| HT54-18X-390 | 36.73 | 13.67 | 30.85 | 12.66 | 390 |
| HT54-18X-395 | 36.90 | 13.75 | 31.01 | 12.74 | 395 |
| HT54-18X-400 | 37.05 | 13.83 | 31.17 | 12.84 | 400 |
| HT54-18X-405 | 37.19 | 13.91 | 31.31 | 12.95 | 405 |
| HT54-18X-410 | 37.33 | 13.98 | 31.44 | 13.05 | 410 |
| HT54-18X-415 | 37.48 | 14.06 | 31.60 | 13.14 | 415 |
| HT54-18X-420 | 37.63 | 14.14 | 31.74 | 13.24 | 420 |
| HT78-18X-F-xxx (xxx=560-605, in steps of 5) | | | | | |
| HT78-18X-F-560 | 52.89 | 13.54 | 44.38 | 12.62 | 560 |
| HT78-18X-F-565 | 53.04 | 13.61 | 44.53 | 12.69 | 565 |
| HT78-18X-F-570 | 53.19 | 13.68 | 44.68 | 12.76 | 570 |
| HT78-18X-F-575 | 53.34 | 13.75 | 44.83 | 12.83 | 575 |
| HT78-18X-F-580 | 53.49 | 13.82 | 44.98 | 12.90 | 580 |
| HT78-18X-F-585 | 53.64 | 13.89 | 45.13 | 12.97 | 585 |
| HT78-18X-F-590 | 53.79 | 13.96 | 45.28 | 13.04 | 590 |
| HT78-18X-F-595 | 53.94 | 14.03 | 45.43 | 13.11 | 595 |
| HT78-18X-F-600 | 54.09 | 14.10 | 45.58 | 13.17 | 600 |
| HT78-18X-F-605 | 54.24 | 14.17 | 45.73 | 13.24 | 605 |
| HT72-18X-F-xxx (xxx=520-560, in steps of 5) | | | | | |
| HT72-18X-F-520 | 48.90 | 13.63 | 41.05 | 12.68 | 520 |
| HT72-18X-F-525 | 49.05 | 13.70 | 41.20 | 12.75 | 525 |
| HT72-18X-F-530 | 49.20 | 13.76 | 41.35 | 12.83 | 530 |
| HT72-18X-F-535 | 49.35 | 13.83 | 41.50 | 12.90 | 535 |
| HT72-18X-F-540 | 49.50 | 13.90 | 41.65 | 12.97 | 540 |
| HT72-18X-F-545 | 49.65 | 13.95 | 41.80 | 13.05 | 545 |
| HT72-18X-F-550 | 49.80 | 14.00 | 41.95 | 13.12 | 550 |
| HT72-18X-F-555 | 49.95 | 14.07 | 42.10 | 13.20 | 555 |
| HT72-18X-F-560 | 50.10 | 14.14 | 42.25 | 13.27 | 560 |
| HT66-18X-F-xxx (xxx=475-515, in steps of 5) | | | | | |
| HT66-18X-F-475 | 44.80 | 13.58 | 37.26 | 12.64 | 475 |
| HT66-18X-F-480 | 44.95 | 13.65 | 37.77 | 12.72 | 480 |
| HT66-18X-F-485 | 45.10 | 13.73 | 37.92 | 12.80 | 485 |
| HT66-18X-F-490 | 45.25 | 13.79 | 38.07 | 12.88 | 490 |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

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|--|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT66-18X-F-495 | 45.40 | 13.86 | 38.22 | 12.96 | 495 |
| HT66-18X-F-500 | 45.55 | 13.93 | 38.37 | 13.04 | 500 |
| HT66-18X-F-505 | 45.70 | 13.99 | 38.52 | 13.12 | 505 |
| HT66-18X-F-510 | 45.85 | 14.06 | 38.67 | 13.20 | 510 |
| HT66-18X-F-515 | 46.00 | 14.13 | 38.82 | 13.28 | 515 |
| HT60-18X-F-xxx (xxx=435-465, in steps of 5) | | | | | |
| HT60-18X-F-435 | 40.88 | 13.69 | 34.33 | 12.68 | 435 |
| HT60-18X-F-440 | 41.03 | 13.76 | 34.48 | 12.77 | 440 |
| HT60-18X-F-445 | 41.18 | 13.83 | 34.63 | 12.86 | 445 |
| HT60-18X-F-450 | 41.33 | 13.90 | 34.78 | 12.95 | 450 |
| HT60-18X-F-455 | 41.48 | 13.97 | 34.93 | 13.04 | 455 |
| HT60-18X-F-460 | 41.63 | 14.04 | 35.08 | 13.13 | 460 |
| HT60-18X-F-465 | 41.78 | 14.11 | 35.23 | 13.22 | 465 |
| HT54-18X-F-xxx (xxx=390-420, in steps of 5) | | | | | |
| HT54-18X-F-390 | 36.73 | 13.67 | 30.85 | 12.66 | 390 |
| HT54-18X-F-395 | 36.90 | 13.75 | 31.01 | 12.74 | 395 |
| HT54-18X-F-400 | 37.05 | 13.83 | 31.17 | 12.84 | 400 |
| HT54-18X-F-405 | 37.19 | 13.91 | 31.31 | 12.95 | 405 |
| HT54-18X-F-410 | 37.33 | 13.98 | 31.44 | 13.05 | 410 |
| HT54-18X-F-415 | 37.48 | 14.06 | 31.60 | 13.14 | 415 |
| HT54-18X-F-420 | 37.63 | 14.14 | 31.74 | 13.24 | 420 |
| HT78-18X(N)-xxx (xxx=605-625, in steps of 5) | | | | | |
| HT78-18X(N)-605 | 55.17 | 13.95 | 45.42 | 13.32 | 605 |
| HT78-18X(N)-610 | 55.31 | 14.03 | 45.60 | 13.38 | 610 |
| HT78-18X(N)-615 | 55.44 | 14.11 | 45.77 | 13.44 | 615 |
| HT78-18X(N)-620 | 55.58 | 14.19 | 45.93 | 13.50 | 620 |
| HT78-18X(N)-625 | 54.72 | 14.27 | 46.10 | 13.56 | 625 |
| HT72-18X(N)-xxx (xxx=560-580, in steps of 5) | | | | | |
| HT72-18X(N)-560 | 50.50 | 14.07 | 42.30 | 13.25 | 560 |
| HT72-18X(N)-565 | 50.70 | 14.15 | 42.50 | 13.30 | 565 |
| HT72-18X(N)-570 | 50.90 | 14.23 | 42.70 | 13.37 | 570 |
| HT72-18X(N)-575 | 51.10 | 14.31 | 42.90 | 13.41 | 575 |
| HT72-18X(N)-580 | 51.30 | 14.39 | 43.10 | 13.46 | 580 |
| HT66-18X(N)-xxx (xxx=510-530, in steps of 5) | | | | | |
| HT66-18X(N)-510 | 46.20 | 14.11 | 38.60 | 13.22 | 510 |
| HT66-18X(N)-515 | 46.40 | 14.17 | 38.80 | 13.28 | 515 |
| HT66-18X(N)-520 | 46.60 | 14.20 | 39.00 | 13.34 | 520 |
| HT66-18X(N)-525 | 46.80 | 14.29 | 39.20 | 13.40 | 525 |
| HT66-18X(N)-530 | 47.00 | 14.35 | 39.40 | 13.46 | 530 |
| HT60-18X(N)-xxx (xxx=465-485, in steps of 5) | | | | | |
| HT60-18X(N)-465 | 42.30 | 14.07 | 35.00 | 13.29 | 465 |
| HT60-18X(N)-470 | 42.40 | 14.15 | 35.20 | 13.36 | 470 |
| HT60-18X(N)-475 | 42.50 | 14.23 | 35.40 | 13.42 | 475 |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

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|--|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT60-18X(N)-480 | 42.60 | 14.31 | 35.60 | 13.50 | 480 |
| HT60-18X(N)-485 | 42.70 | 14.39 | 35.80 | 13.56 | 485 |
| HT54-18X(N)-xxx (xxx=415-435, in steps of 5) | | | | | |
| HT54-18X(N)-415 | 38.00 | 13.99 | 31.30 | 13.26 | 415 |
| HT54-18X(N)-420 | 38.10 | 14.07 | 31.50 | 13.34 | 420 |
| HT54-18X(N)-425 | 38.20 | 14.15 | 31.70 | 13.41 | 425 |
| HT54-18X(N)-430 | 38.40 | 14.23 | 31.90 | 13.48 | 430 |
| HT54-18X(N)-435 | 38.60 | 14.31 | 32.10 | 13.55 | 435 |
| HT66-210-xxx (xxx=645-685, in steps of 5) | | | | | |
| HT66-210-645 | 44.80 | 18.35 | 37.70 | 17.11 | 645 |
| HT66-210-650 | 45.00 | 18.39 | 37.90 | 17.16 | 650 |
| HT66-210-655 | 45.20 | 18.43 | 38.10 | 17.20 | 655 |
| HT66-210-660 | 45.40 | 18.47 | 38.30 | 17.24 | 660 |
| HT66-210-665 | 45.60 | 18.51 | 38.50 | 17.28 | 665 |
| HT66-210-670 | 45.80 | 18.55 | 38.70 | 17.32 | 670 |
| HT66-210-675 | 46.00 | 18.59 | 38.90 | 17.35 | 675 |
| HT66-210-680 | 46.20 | 18.63 | 39.10 | 17.39 | 680 |
| HT66-210-685 | 46.40 | 18.67 | 39.30 | 17.43 | 685 |
| HT60-210-xxx (xxx=585-625, in steps of 5) | | | | | |
| HT60-210-585 | 40.70 | 18.32 | 34.30 | 17.06 | 585 |
| HT60-210-590 | 40.90 | 18.37 | 34.50 | 17.11 | 590 |
| HT60-210-595 | 41.10 | 18.42 | 34.70 | 17.15 | 595 |
| HT60-210-600 | 41.30 | 18.47 | 34.90 | 17.20 | 600 |
| HT60-210-605 | 41.50 | 18.52 | 35.10 | 17.25 | 605 |
| HT60-210-610 | 41.70 | 18.57 | 35.30 | 17.28 | 610 |
| HT60-210-615 | 41.90 | 18.62 | 35.50 | 17.33 | 615 |
| HT60-210-620 | 42.10 | 18.67 | 35.70 | 17.37 | 620 |
| HT60-210-625 | 42.30 | 18.72 | 35.90 | 17.41 | 625 |
| HT72-166M(Lm)-xxx (xxx=430-450, in steps of 5) | | | | | |
| HT72-166M(Lm)-430 | 49.60 | 11.36 | 40.60 | 10.60 | 430 |
| HT72-166M(Lm)-435 | 49.70 | 11.48 | 40.70 | 10.69 | 435 |
| HT72-166M(Lm)-440 | 49.80 | 11.60 | 40.90 | 10.77 | 440 |
| HT72-166M(Lm)-445 | 49.90 | 11.72 | 41.00 | 10.86 | 445 |
| HT72-166M(Lm)-450 | 50.00 | 11.83 | 41.10 | 10.96 | 450 |
| HT60-166M(Lm)-xxx (xxx=360-375, in steps of 5) | | | | | |
| HT60-166M(Lm)-360 | 41.10 | 11.53 | 33.70 | 10.69 | 360 |
| HT60-166M(Lm)-365 | 41.30 | 11.63 | 33.90 | 10.77 | 365 |
| HT60-166M(Lm)-370 | 41.50 | 11.72 | 34.10 | 10.86 | 370 |
| HT60-166M(Lm)-375 | 41.60 | 11.85 | 34.20 | 10.98 | 375 |
| HT72-166M(Le)-xxx (xxx=430-450, in steps of 5) | | | | | |
| HT72-166M(Le)-430 | 49.60 | 11.36 | 40.60 | 10.60 | 430 |
| HT72-166M(Le)-435 | 49.70 | 11.48 | 40.70 | 10.69 | 435 |
| HT72-166M(Le)-440 | 49.80 | 11.60 | 40.90 | 10.77 | 440 |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

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|--|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT72-166M(Le)-445 | 49.90 | 11.72 | 41.00 | 10.86 | 445 |
| HT72-166M(Le)-450 | 50.00 | 11.83 | 41.10 | 10.96 | 450 |
| HT60-166M(Le)-xxx (xxx=360-375, in steps of 5) | | | | | |
| HT60-166M(Le)-360 | 41.10 | 11.53 | 33.70 | 10.69 | 360 |
| HT60-166M(Le)-365 | 41.30 | 11.63 | 33.90 | 10.77 | 365 |
| HT60-166M(Le)-370 | 41.50 | 11.72 | 34.10 | 10.86 | 370 |
| HT60-166M(Le)-375 | 41.60 | 11.85 | 34.20 | 10.98 | 375 |
| HT72-166(Lm)-xxx (xxx=430-450, in steps of 5) | | | | | |
| HT72-166(Lm)-430 | 49.60 | 11.36 | 40.60 | 10.60 | 430 |
| HT72-166(Lm)-435 | 49.70 | 11.48 | 40.70 | 10.69 | 435 |
| HT72-166(Lm)-440 | 49.80 | 11.60 | 40.90 | 10.77 | 440 |
| HT72-166(Lm)-445 | 49.90 | 11.72 | 41.00 | 10.86 | 445 |
| HT72-166(Lm)-450 | 50.00 | 11.83 | 41.10 | 10.96 | 450 |
| HT60-166(Lm)-xxx (xxx=360-380, in steps of 5) | | | | | |
| HT60-166(Lm)-360 | 41.10 | 11.53 | 33.70 | 10.69 | 360 |
| HT60-166(Lm)-365 | 41.30 | 11.63 | 33.90 | 10.77 | 365 |
| HT60-166(Lm)-370 | 41.50 | 11.72 | 34.10 | 10.86 | 370 |
| HT60-166(Lm)-375 | 41.60 | 11.85 | 34.20 | 10.98 | 375 |
| HT60-166(Lm)-380 | 41.70 | 11.98 | 34.30 | 11.09 | 380 |
| HT72-166(Le)-xxx (xxx=430-450, in steps of 5) | | | | | |
| HT72-166(Le)-430 | 49.60 | 11.36 | 40.60 | 10.60 | 430 |
| HT72-166(Le)-435 | 49.70 | 11.48 | 40.70 | 10.69 | 435 |
| HT72-166(Le)-440 | 49.80 | 11.60 | 40.90 | 10.77 | 440 |
| HT72-166(Le)-445 | 49.90 | 11.72 | 41.00 | 10.86 | 445 |
| HT72-166(Le)-450 | 50.00 | 11.83 | 41.10 | 10.96 | 450 |
| HT60-166(Le)-xxx (xxx=360-380, in steps of 5) | | | | | |
| HT60-166(Le)-360 | 41.10 | 11.53 | 33.70 | 10.69 | 360 |
| HT60-166(Le)-365 | 41.30 | 11.63 | 33.90 | 10.77 | 365 |
| HT60-166(Le)-370 | 41.50 | 11.72 | 34.10 | 10.86 | 370 |
| HT60-166(Le)-375 | 41.60 | 11.85 | 34.20 | 10.98 | 375 |
| HT60-166(Le)-380 | 41.70 | 11.98 | 34.30 | 11.09 | 380 |
| HT72-18X(NLm)-xxx (xxx=530-555, in steps of 5) | | | | | |
| HT72-18X(NLm)-530 | 49.30 | 13.59 | 41.10 | 12.90 | 530 |
| HT72-18X(NLm)-535 | 49.50 | 13.67 | 41.30 | 12.96 | 535 |
| HT72-18X(NLm)-540 | 49.70 | 13.75 | 41.50 | 13.02 | 540 |
| HT72-18X(NLm)-545 | 49.90 | 13.83 | 41.70 | 13.07 | 545 |
| HT72-18X(NLm)-550 | 50.10 | 13.91 | 41.90 | 13.13 | 550 |
| HT72-18X(NLm)-555 | 50.30 | 13.99 | 42.10 | 13.19 | 555 |
| HT60-18X(NLm)-xxx (xxx=440-460, in steps of 5) | | | | | |
| HT60-18X(NLm)-440 | 41.03 | 13.76 | 34.48 | 12.77 | 440 |
| HT60-18X(NLm)-445 | 41.18 | 13.83 | 34.63 | 12.86 | 445 |
| HT60-18X(NLm)-450 | 41.33 | 13.90 | 34.78 | 12.94 | 450 |
| HT60-18X(NLm)-455 | 41.48 | 13.97 | 34.93 | 13.03 | 455 |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

| 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) |
|--|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT60-18X(NLm)-460 | 41.63 | 14.04 | 35.08 | 13.12 | 460 |
| HT72-18X(NLe)-xxx (xxx=530-555, in steps of 5) | | | | | |
| HT72-18X(NLe)-530 | 49.30 | 13.59 | 41.10 | 12.90 | 530 |
| HT72-18X(NLe)-535 | 49.50 | 13.67 | 41.30 | 12.96 | 535 |
| HT72-18X(NLe)-540 | 49.70 | 13.75 | 41.50 | 13.02 | 540 |
| HT72-18X(NLe)-545 | 49.90 | 13.83 | 41.70 | 13.07 | 545 |
| HT72-18X(NLe)-550 | 50.10 | 13.91 | 41.90 | 13.13 | 550 |
| HT72-18X(NLe)-555 | 50.30 | 13.99 | 42.10 | 13.19 | 555 |
| HT60-18X(NLe)-xxx (xxx=440-460, in steps of 5) | | | | | |
| HT60-18X(NLe)-440 | 41.03 | 13.76 | 34.48 | 12.77 | 440 |
| HT60-18X(NLe)-445 | 41.18 | 13.83 | 34.63 | 12.86 | 445 |
| HT60-18X(NLe)-450 | 41.33 | 13.90 | 34.78 | 12.94 | 450 |
| HT60-18X(NLe)-455 | 41.48 | 13.97 | 34.93 | 13.03 | 455 |
| HT60-18X(NLe)-460 | 41.63 | 14.04 | 35.08 | 13.12 | 460 |
| HT72-18X(Lm)-xxx (xxx=490-535, in steps of 5) | | | | | |
| HT72-18X(Lm)-490 | 48.70 | 13.21 | 40.15 | 12.21 | 490 |
| HT72-18X(Lm)-495 | 48.85 | 13.28 | 40.30 | 12.30 | 495 |
| HT72-18X(Lm)-500 | 49.00 | 13.35 | 40.45 | 12.37 | 500 |
| HT72-18X(Lm)-505 | 49.15 | 13.42 | 40.60 | 12.45 | 505 |
| HT72-18X(Lm)-510 | 49.30 | 13.50 | 40.75 | 12.54 | 510 |
| HT72-18X(Lm)-515 | 49.45 | 13.56 | 40.90 | 12.61 | 515 |
| HT72-18X(Lm)-520 | 49.60 | 13.63 | 41.05 | 12.68 | 520 |
| HT72-18X(Lm)-525 | 49.75 | 13.70 | 41.20 | 12.75 | 525 |
| HT72-18X(Lm)-530 | 49.90 | 13.76 | 41.35 | 12.83 | 530 |
| HT72-18X(Lm)-535 | 50.05 | 13.83 | 41.50 | 12.91 | 535 |
| HT60-18X(Lm)-xxx (xxx=405-445, in steps of 5) | | | | | |
| HT60-18X(Lm)-405 | 40.68 | 13.27 | 33.43 | 12.13 | 405 |
| HT60-18X(Lm)-410 | 40.83 | 13.34 | 33.58 | 12.22 | 410 |
| HT60-18X(Lm)-415 | 40.98 | 13.41 | 33.73 | 12.31 | 415 |
| HT60-18X(Lm)-420 | 41.13 | 13.48 | 33.88 | 12.41 | 420 |
| HT60-18X(Lm)-425 | 41.28 | 13.55 | 34.03 | 12.51 | 425 |
| HT60-18X(Lm)-430 | 41.43 | 13.62 | 34.18 | 12.60 | 430 |
| HT60-18X(Lm)-435 | 41.58 | 13.69 | 34.33 | 12.68 | 435 |
| HT60-18X(Lm)-440 | 41.73 | 13.76 | 34.48 | 12.77 | 440 |
| HT60-18X(Lm)-445 | 41.88 | 13.83 | 34.63 | 12.86 | 445 |
| HT72-18X(Le)-xxx (xxx=495-535, in steps of 5) | | | | | |
| HT72-18X(Le)-490 | 48.70 | 13.21 | 40.15 | 12.21 | 490 |
| HT72-18X(Le)-495 | 48.85 | 13.28 | 40.30 | 12.30 | 495 |
| HT72-18X(Le)-500 | 49.00 | 13.35 | 40.45 | 12.37 | 500 |
| HT72-18X(Le)-505 | 49.15 | 13.42 | 40.60 | 12.45 | 505 |
| HT72-18X(Le)-510 | 49.30 | 13.50 | 40.75 | 12.54 | 510 |
| HT72-18X(Le)-515 | 49.45 | 13.56 | 40.90 | 12.61 | 515 |
| HT72-18X(Le)-520 | 49.60 | 13.63 | 41.05 | 12.68 | 520 |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

| 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) |
|---|------------------------------------|-------------------------------------|-----------------------------|-----------------------------|------------------------------------|
| HT72-18X(Le)-525 | 49.75 | 13.70 | 41.20 | 12.75 | 525 |
| HT72-18X(Le)-530 | 49.90 | 13.76 | 41.35 | 12.83 | 530 |
| HT72-18X(Le)-535 | 50.05 | 13.83 | 41.50 | 12.91 | 535 |
| HT60-18X(Le)-xxx (xxx=405-445, in steps of 5) | | | | | |
| HT60-18X(Le)-405 | 40.68 | 13.27 | 33.43 | 12.13 | 405 |
| HT60-18X(Le)-410 | 40.83 | 13.34 | 33.58 | 12.22 | 410 |
| HT60-18X(Le)-415 | 40.98 | 13.41 | 33.73 | 12.31 | 415 |
| HT60-18X(Le)-420 | 41.13 | 13.48 | 33.88 | 12.41 | 420 |
| HT60-18X(Le)-425 | 41.28 | 13.55 | 34.03 | 12.51 | 425 |
| HT60-18X(Le)-430 | 41.43 | 13.62 | 34.18 | 12.60 | 430 |
| HT60-18X(Le)-435 | 41.58 | 13.69 | 34.33 | 12.68 | 435 |
| HT60-18X(Le)-440 | 41.73 | 13.76 | 34.48 | 12.77 | 440 |
| HT60-18X(Le)-445 | 41.88 | 13.83 | 34.63 | 12.86 | 445 |

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 1st: Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, 2017-12-04, revision date 2020-04-30.

UL 61730-2 1st: 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: 80033900

Master Contract: 252024

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 |
|----------|------------|---|
| 80234424 | 2024-12-03 | Update report 80033900 to (1) add new model series (HT32-18X(ND)-F, HT20-18X(ND)-F, HT16-18X(ND)-F). (2) add new model series HT72-166(Lm), HT60-166(Lm), HT72-166(Le), HT60-166(Le), the construction and the components of model series HT72-166(Lm), HT60-166(Lm), HT72-166(Le), HT60-166(Le) are identical with previous models HT72-166M(Lm), HT60-166M(Lm), HT72-166M(Le), HT60-166M(Le), only difference at the module model for different markets. (3) add new model series HT32-18X(ND), HT20-18X(ND), HT16-18X(ND), the construction and the components of model series HT32-18X(ND), HT20-18X(ND), HT16-18X(ND) are identical with previous models HT32-18X(ND)-F, HT20-18X(ND)-F, HT16-18X(ND)-F, only difference at the module model for different markets. |
| 80222255 | 2024-10-31 | Update report 80033900 to (1) add new model series HT60-18X(Le), HT72-18X(Le), HT60-18X(Lm), HT72-18X(Lm) series with new BOM. (2)expand power range of series HT72-18X(ND)-F, from 585 to 600, HT66-18X(ND)-F, from 530 to 550, HT60-18X(ND)-F, from 485 to 500, HT54-18X(ND)-F, from 435 to 450, HT72-18X(ND), from 585 to 600, HT66-18X(ND), from 530 to 550, HT60-18X(ND), from 485 to 500, HT54-18X(ND), from 435 to 450. (3) add cell type G10L-A-16BB, made by PT. BINTAN CELLULAR INDONESIA in HT78-18X(ND)-F, HT72-18X(ND)-F, HT66-18X(ND)-F, HT60-18X(ND)-F, HT60-18X(ND)-F, HT54-18X(ND)-F, HT78-18X(ND), HT72-18X(ND), HT66-18X(ND), HT60-18X(ND), HT60-18X(ND), HT54-18X(ND) module series.(4) the cell manufacturer “HT Fellow Enerji Anonim Şirketi” is changed to “FELLOW ENERJİ ANONİM ŞİRKETİ” including cell types of HT-M182BP, HT-M182P, M166 9BBPERCBP, M1585BBPERCBP, FE-210, FE-182(N), M210TOPCONBF, M210RTOPCONBF |
| 80217929 | 2024-09-26 | Update report 80033900 to add new model series 18X(ND), 18X(ND)-F, 18X+(ND), 18X+(ND)-F, 18X-F, 210(ND) and 210(ND)-F. |
| 80196792 | 2024-03-08 | Update report 80033900 to add new model series (18X(NLe or NLm) or 166M(Le or Lm)) with new BOM, correct the description for TFB-30(plus)-T-1. |
| 80187807 | 2023-12-28 | Update report 80033900 to add a new 182mm cell double glass module series with new components. |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

| | | |
|----------|------------|---|
| 80151642 | 2023-11-22 | Update report 80033900 to add a new Topcon cell module series with new components, extend the power rating for HT60-210 & HT66-210 series. |
| 80182140 | 2023-09-28 | Update report 80033900 to add a new 210mm cell module series with new components. |
| 80159921 | 2023-07-24 | Update report 80033900 to add a new factory (Lianyungang Shenzhou New Energy Co., Ltd., ID: 4831053). |
| 80147487 | 2023-05-21 | Update report 80033900 to add new cell type M182-10BB-Bifacial-Half-PERC and M166-9BB-Bifacial-Half-PERC made by LONGI MALAYSIA SDN. BHD or VINA CELL TECHNOLOGY CO., LTD, add new frame adhesive (1527), update the information for junction box type JM07w based on UL report (E486341), add 30 height frame for HT54-18X, HT60-18X, HT66-18X, HT72-18X, HT72-166M, HT66-166M, HT60-166M series, add new overall dimension for HT54-18X, HT72-18X series, add new transparent substrate type TPCw1 made by LUCKY FILM CO LTD (E331402) according to UL file E486341 with related test data. |
| 80119618 | 2022-07-05 | Update report 80033900 to add new cell type M182-10BB-Bifacial-Half-PERC and M166-9BB-Bifacial-Half-PERC made by Runergy, add new black string ribbon with new EPE cover, new flux(SF105), add new HT66-166M, HT54-18X module series. |
| 80128498 | 2022-06-17 | Update report 80033900 to add new cell type M182-10BB-Bifacial-Half-PERC and M166-9BB-Bifacial-Half-PERC made by Talesun, add new string ribbon, new flux(AATF9800). |
| 80114232 | 2022-03-25 | Update report 80033900 to increase the fire performance (from type 4 to type 1) for model series HT60/66/72/78-18X. |
| 80081359 | 2021-07-09 | Update report 80033900 to add new factory (HT FELLOW ENERJI ANONIM SIRKETI), alternate new junction box adhesive for PV-JM07 (adhesive type HT906Z) and PV-JM07w (adhesive type 1527(a)), alternate new potting material for PV-JM07 (5299W-S, 5299W) and PV-JM07w (1521A/1521B), update the thickness of EVA and POE, correct the thickness of cell type HT-M182P and HT-M182BP. |
| 80073913 | 2021-07-09 | Update report 80033900 to add new full cell (M1585BBPERCPB) made by HT Fellow Enerji Anonim Şirketi. |
| 80073912 | 2021-07-09 | Update report 80033900 to add new half cell (M1585BBPERCPB) made by HT Fellow Enerji Anonim Şirketi. |
| 80073911 | 2021-07-09 | Update report 80033900 to add new cell (M166 9BBPERCPB) made by HT Fellow Enerji Anonim Şirketi, add new cell connector (0.6*0.2 mm). |
| 80073907 | 2021-06-04 | Update report 80033900 to add new model series HT60-18X, HT66-18X, HT72-18X, HT78-18X with new glass (CSG), new cell (HT-M182BP, HT-M182P), new cell ribbon (10 bus strips), new EVA combination (F406P&F806P), new substrate (TFB-30(plus)-T-1, FFC-JW30(plus)-B, FFC-JW30(plus)), new junction box (JM07w), new frame tape (57006), new flux |



Certificate: 80033900

Master Contract: 252024

Project: 80234424

Date Issued: 2024-12-03

(SF56, PV105A), add black type frame, update the standard version, APT lab assessment for Leading Edge Construction Materials Testing Company Limited.

80047462 2020-11-04

Update report 80033900 to add new cell with series HT72-166M, HT72-166M(PD)-F, HT60-166M and HT60-166M(PD)-F.

80033900 2020-11-04

Original certificate, new model series HT72-156M(V), HT72-156M(PDV), HT60-156M(V) and HT60-156M(PDV) series.