LIMITED WARRANTY AND SPECIFICATIONS

Between

and

Kaneka Corporation

For Kaneka Thin film PV MODULES

(T-SC120, T-SD120)

KANEKA CORPORATION

OVERSEAS MARKETING

SOLAR ENERGY DIVISION

3-2-4, NAKANOSHIMA,KITA-KU
OSAKA 530-8288, JAPAN

c UL US LISTED

Effective from April 01, 2006

A. Limited Warranty

1. Scope and period of warranty

This warranty applies exclusively to (user name) (hereinafter referred to as Customer) for the Kaneka thin-film silicon photovoltaic module(s) (twin-panel-type/ hereinafter referred to as the MODULE(S)) which is/are purchased directly from Kaneka Corporation (hereinafter referred to as Kaneka) or its sales agent. The warranty is limited to the terms and conditions stated herein.

2. Terms of warranty

Type	Model	Material/ workmanship	Output
T-type (Amorphous)	T-SC120 T-SD120	**5 years** after the shipment from Kaneka	**80%** of the specified minimum output of the each Sub-module for a **25-year** period after shipment from Kaneka

A MODULE applied for the types shown above respectively consists of two Kaneka thin-film silicon photovoltaic modules (single-panel-type). Such Kaneka thin-film silicon photovoltaic module (single-panel-type) is referred to as the Sub-module hereunder.

(1) Warranty on material and workmanship

Kaneka warrants that the MODULES have been manufactured conforming to the prescribed specifications and is free from defects in material and/or workmanship for a period set out in the above table. If any non-conformity to the specifications or defect in material and/or workmanship is found during the period set out in the above table, Kaneka will repair or replace the MODULES.

Warranty on workmanship shall not apply any defects of the MODULES arising from installation. For details, please see Item 3.Warranty Exemptions.

(2) Warranty on output

A MODULE consists of two Sub-modules of which electrical characteristics are guaranteed by Kaneka. Kaneka warrants that the Sub-module generate the output set out in the above table for the period set out in the same.

If the output becomes less than that during the period, Kaneka will replace the MODULES, or may compensate the output shortage by adding equivalent MODULES.

(3) If any defects are found, Customer shall notify Kaneka or its sales agent of the following items immediately:

a) Model name
b) Serial numbers of the MODULES
c) Details of the defect

(4) Repair, replacement, or addition of the MODULES shall be performed free of charge only if the MODULES are found to be non-conforming to the specifications, defective in material or workmanship, or short in output through an inspections by Kaneka. Kaneka's inspections shall be final and decisive for the existence or non-existence of the defect, non-conformity and/or output shortage.

(5) Repair, replacement, or addition of the MODULES shall be the sole and exclusive remedy under this warranty. Kaneka hereby disclaims any other responsibility or liability in connection with MODULES.

(6) If any of defects in material or workmanship, non-conforming to the specifications or output shortage are not found through an inspection by Kaneka, the MODULES shall be returned to Customer. Customer shall bear all expenses incurred by Kaneka.

(7) If Kaneka requests Customer to repair the MODULES, Customer shall repair in accordance with Kaneka's instruction for Customer's original consumer purchasers.

(8) If Kaneka requests Customer to replace the MODULES, and if Customer has its available stock, Customer shall replace the MODULES for Customer's original consumer purchasers.

(9) NO WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, HAVE BEEN MADE UNLESS EXPRESSLY INCLUDED HEREIN.

(10) Measurements of maximum output of the MODULES shall be made in the outdoors by Kaneka for the sake of the proportion to the actual one. This output shall be the one that Kaneka warrants. The methods of the measurements are stated herein.

a) The Method of the Measurements

1) There shall be 850W/m^2 or more of solar irradiation in the place where the measurement is carried out. The solar irradiation shall be measured by a pyranometer placed parallel to the MODULES.

2) The maximum output of the MODULES shall be measured according to I-V measurement method.

3) Utilizing the module temperature measured simultaneously, the maximum output shall be converted into the output with 1kW/m^2 solar irradiation and 25°C

of module temperature by calculation (hereinafter referred to as W_1).

4) W_1 shall be the one that Kaneka warrants.
(Hereinafter this method is referred to as "outdoor output measurement")

W_1 ≥ Warranted Output (hereinafter referred to as W_2) (W)
W_2 = Minimum tolerance of the maximum nominal output x 0.8 (W)
= Maximum nominal output x 0.95 x 0.8 (W)

b) Alternative to the Outdoor Output Measurement
In case it is impossible to take the outdoor output measurement method, it may be substituted by one of the following methods.

i) After ambient temperature in the sunshine reported by the Meteorological Agency have reached 20°C for at least 20 consecutive days, the maximum output measured by a solar simulator with Standard Test Conditions (STC) may take the place of W_1.

ii) The maximum output measured by a solar simulator with Standard Test Conditions (STC) after having the MODULES annealed with the given conditions (160°C, 1hour) in order to expel the influence of the climate condition to the output of the MODULES may also displace W_1.
*****This measurement is a rupture test. If output shortage is not found through the test, Customer shall bear the cost to replace the MODULES.

c) Other Conditions
The MODULES shall be warranted only if they are installed under the "normal condition": the MODULES are not to be placed in an area exposed to brine or mist of brine, an area where snow piles up on them significantly. The MODULE shall also be installed where the ambient temperature is from -20°C to 50°C, and with angle more than 10°. The temperature of MODULES shall be less than 80°C. The output measurements shall be made according to UL1703 with the front glass surface of the MODULES shall be cleaned.

3. Warranty Exemptions

This warranty does not apply to the following defects (non-conformity to the specifications or shortage in output) in material or workmanship, caused by the following reasons:

(1) failure to comply with the installation/handling procedures and precautions described in the module installation manual, "Instruction for using T-SC120" for T-SC120 or "Instruction for using T-SD120" for T-SD120, caution labels, and other written information provided by Kaneka;
(2) use for unusual purposes;
(3) use under an unusual condition or environment;
(4) any modification to the MODULES which has not been approved by Kaneka;
(5) force majeure, such as fire, explosion, war, riot, earthquake, eruption, tidal wave,

lightning, induced lightning, snow, freeze, frost, briny air, ground movement, ground cracking, earth flow, and pollution; provided, however, that exemption for these reasons for which UL set out the standard shall applies when they exceed UL's standard;

(6) noise, voltage fluctuation, and other trouble in an grid connected commercial power supply system;

(7) negligence or intention of you, the original consumer purchaser or a third party;

(8) naturally occurred scratches, stains, mechanical wear, rust, mold, degradation, discoloring, and other alteration that occurred after shipment from Kaneka but do not affect the power generation performance or mechanical strength of the MODULES.

4. Kaneka disclaims any and all warranties for the MODULES in the cases that:

a) the warranty period for the MODULES has been expired;

b) Customer fails to notify Kaneka immediately after the defect is discovered or should be discovered;

c) the defect which was discovered or should have been discovered is not notified to Kaneka immediately;

d) the MODULES are repaired by anyone other than Kaneka except when Kaneka instructed Customer to do so.

B. Specifications/T-type

1. MODULE Specifications

A MODULE consists of two Sub-modules of which electrical characteristics are guaranteed by Kaneka. Such two Sub-modules are electrically connected in parallel. The electrical characteristic of the Sub-module and expected total electrical characteristics of MODULES are as shown below table.
T-SC120 should be installed vertically, and T-SD120 should be installed horizontally. These types shall be selected up to application.

(1) Electrical Characteristics and Specifications

Table1. Specification lists

PRODUCT : **THIN-FILM SILICON PV MODULE**

MODEL: **T-SC120, T-SD120**	DATE: April 01, 2006		
SPECIFICATION LISTS	**UNIT**	**Total values of T-SC120, T-SD120**	**Guaranteed value of a SUB-module**
Performance at STC (stabilized)			
Nominal Power (Pmax)	**W**	**120** *1	**60.0** *1
Open Circuit Voltage (Voc)	**V**	**92.0** *1	**92.0** *1
Open circuit Voltage (Voc) at -10°C and 1250W/m^2	**V**	**101.2** *1	**101.2** *1
Short Circuit Current (Isc)	**A**	**2.38** *1	**1.19** *1
Short Circuit Current (Isc) at 70°C and 1250W/m^2	**A**	**3.06** *1	**1.53** *1
Voltage at Pmax (Vpm)	**V**	**67.0** *1	**67.0** *1
Current at Pmax (Ipm)	**A**	**1.80** *1	**0.90** *1
Max. System Voltage	**V**	**530**	-
Fire Rating		**Class C**	-
Dimension (Length x Width)	**mm**	**T-SC120: 1918.8 ± 2.5 x 990 ± 2.5** **T-SD120: 960 ± 2.5 x 1978.8 ± 2.5**	
Depth	**mm**	**46 ± 1.0**	
Weight	**kg**	**T-SC120: 27.5** **T-SD120: 27.0**	

(Remarks)

*1. Tolerance : ±10%

*2. During initial 6 weeks of operation, the MODULE has higher electrical output than rated output (See Performance at STC (stabilized)). The Pmax may be higher by 38% and Imp may be higher by 19%.

*3. The Electrical characteristics are within ±10% of the indicated values of Isc, Voc, and Pmax under Standard Test Conditions (irradiance of 100mW/cm^2, AM1.5 spectrum, and a cell temperature of 25°C(77°F)).

*4. Specifications subject to change without notice.

*5. Refer to Article 690-8 of the National Electrical Code for an additional multiply factor of 125% (80% derating) which may be applicable.

(2) Materials

a) Photovoltaic cell

Amorphous silicon-based

b) Superstrate (glass substrate)

Float glass (dimensions: 980 ± 1 mm x 950 ± 1 mm x 5 ± 0.2 mm,
squareness : 1/300 or less)

c) Back cover sheet

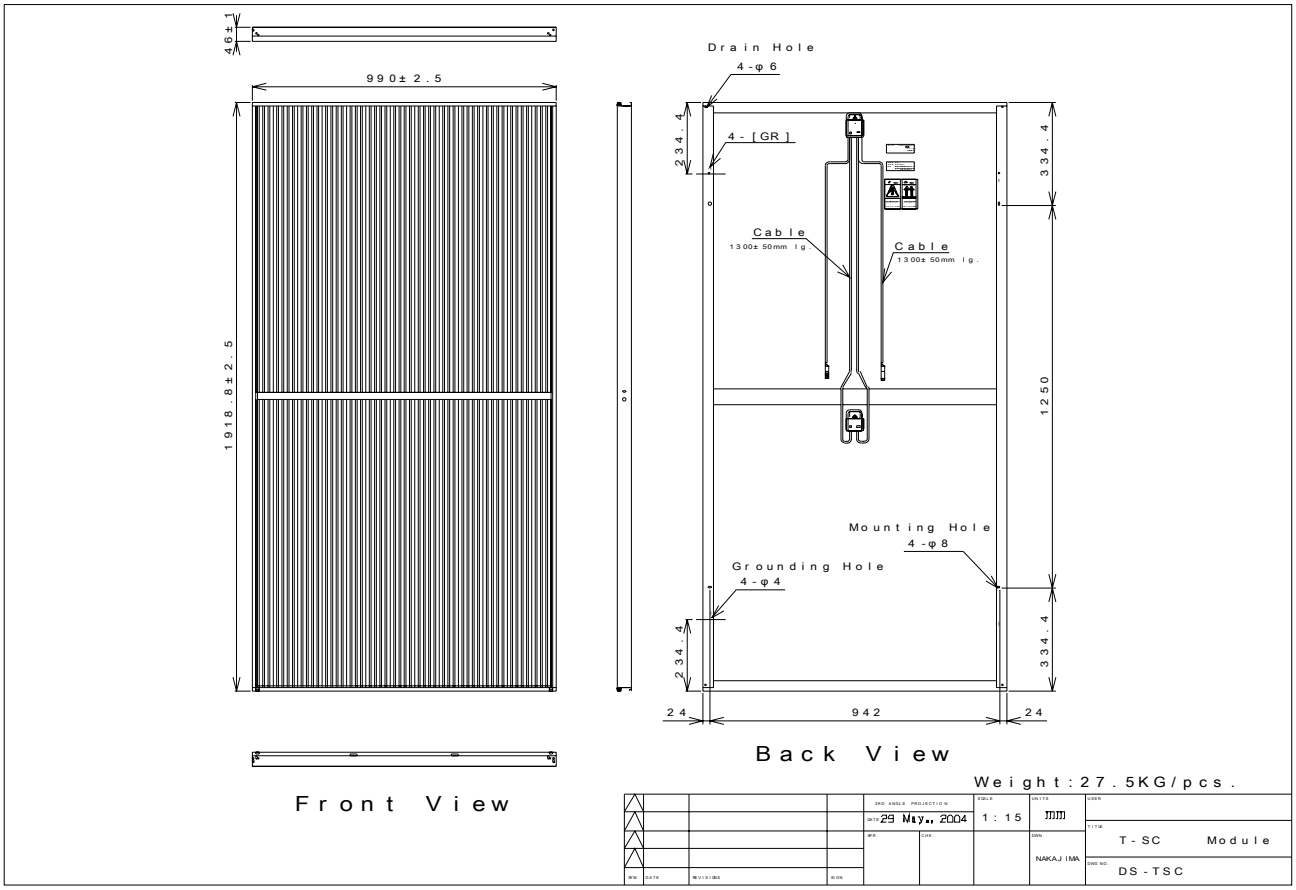
Stacked fluorine-based films (reference thickness: 0.18 mm) are fusion bonded by using EVA resin (reference thickness: 400 μm)

d) Frame, junction box, output cable, connectors

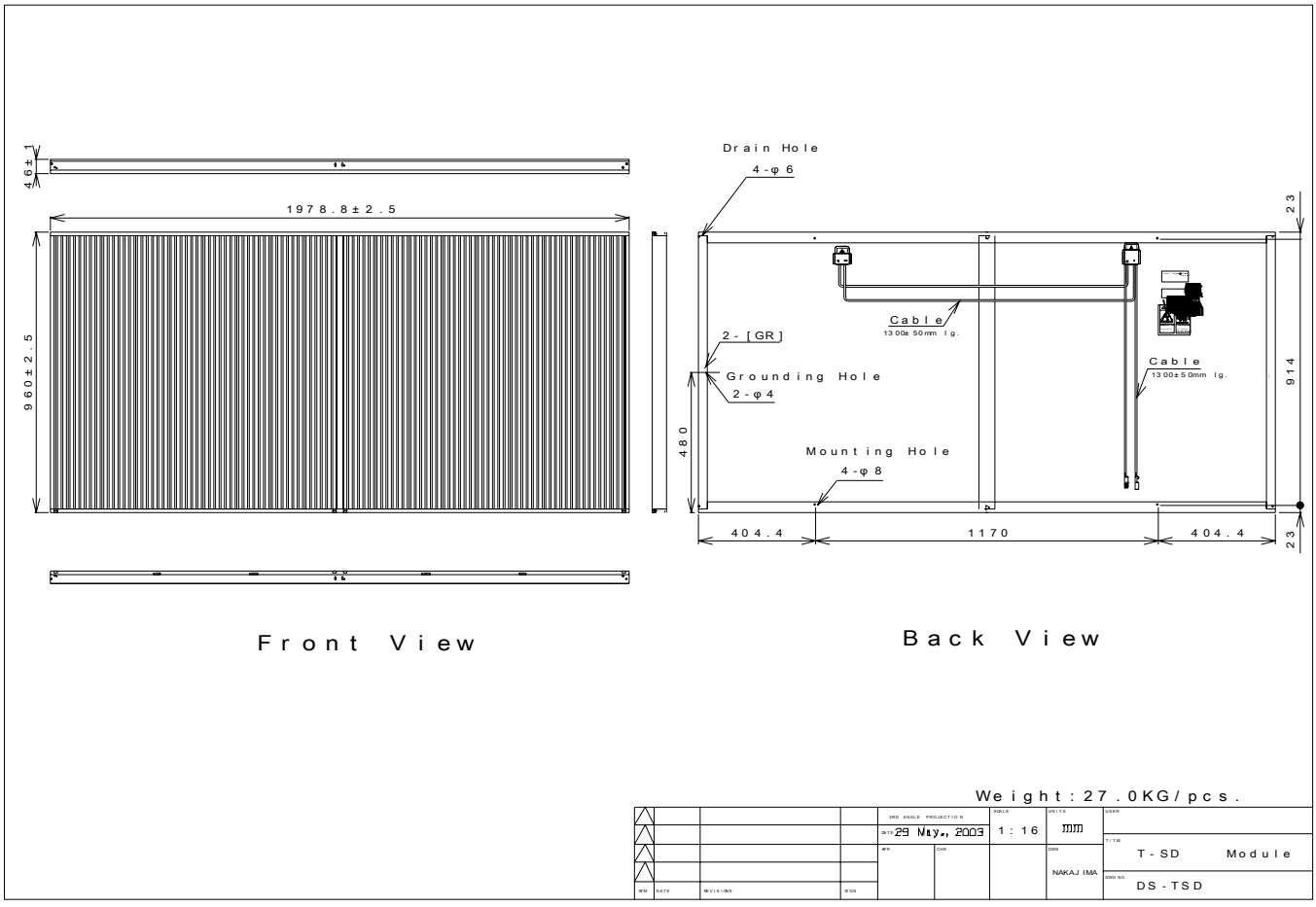
Frame: aluminum extrusion mold (inner-brim-type frame)
Junction box and cable:
FTWIN-B4/19USE (PVC-jacketed cross linked heat-resistant polyethylene, MC connectors)

(3) Dimensions

T-SC120 – Refer to the following diagram.



T-SD120 – Refer to the following diagram.



(4) Standard operating conditions

The MODULES should be installed at a place where they can receive sufficient sunlight. Places subjected to seawater or snowfall (1 m or more) should be avoided. Ambient temperature should be in the range between -20°C and 50 °C and with angle more than 10°. The temperature of MODULES should be in the range between -20°C to 80°C.

2. Packing Specifications

Minimum Shipment Lot: 40ft container (440 units, 52.80kW)