Indoor Applications - under 200 Lux

Type Specifications	Dimension (mm)		Vop	Iop	Voc	Isc	Thickness
	(L)	(W)	(V)	(uA)	(V)	(uA)	(mm)
SS-1807	18.2	7.0	1.5	2.0	2.0	3.0	1.1
SS-1910	19.0	10.0	1.5	4.0	2.0	4.8	1.1
SS-1919	19.6	19.6	1.5	8.0	2.0	9.6	1.1
SS-2510	25.0	10.0	1.5	6.0	2.0	7.2	1.1
SS-2510DS	24.7	8.8	1.5	5.0	2.0	6.0	1.1
SS-2515	24.7	14.7	3.0	5.0	4.2	7.5	1.1
SS2724Y	27.0	24.0	3.6	6.0	4.4	9.0	1.1
SS-2997	29.4	96.6	1.8	55.0	2.3	62.0	1.1
SS-3012	29.6	11.8	1.5	8.0	2.0	9.5	1.1
SS-3012DS	29.6	10.0	1.5	7.0	2.0	8.5	1.1
SS-3111-A	31.4	10.8	3.0	5.0	3.5	6.0	1.1
SS-3124	31.2	23.6	2.2	9.4	3.0	11.0	1.1
SS-3310Y	33.4	10.0	3.0	4.7	3.8	5.6	1.1
SS-3514	35.1	13.7	1.5	11.5	2.0	14.0	1.1
SS-3813	38.0	12.5	1.5	11.5	2.0	14.0	1.1
SS-4111	41.2	11.0	3.0	3.5	3.8	3.8	1.1
SS-4909	48.5	9.0	3.0	5.0	4.4	7.0	1.1
SS-5314	53.0	13.8	1.5	13.5	2.0	16.0	1.1
SS-5314-A	53.0	13.8	3.0	11.0	3.6	14.0	1.1
SS-5514	55.0	13.5	1.8	15.0	2.3	18.0	1.1
SS-5516	55.0	15.5	3.0	12.5	3.6	15.5	1.1
SS-5520	55.0	20.0	3.0	14.0	4.0	17.0	1.1
SS-5541	55.0	40.5	1.8	50.0	2.2	60.0	1.1
SS-5649	56.1	48.6	3.5	36.0	4.4	39.0	1.1
SS-5816	57.8	16.0	5.0	3.0	6.0	5.0	1.1
SS-5816-A	58.7	16.6	1.5	20.0	2.2	24.0	1.1
SS5910	59.0	10.0	5.8	4.0	7.1	4.4	1.1
SS-6728	66.8	27.8	5.0	15.0	6.5	20.0	1.1
SS-6728-A	66.8	27.8	3.0	25.0	4.4	30.0	1.1
SS-9726	96.6	26.0	6.5	18.0	7.8	22.0	1.1
SS-9757	96.8	56.6	5.8	47.0	7.1	56.0	1.1
SS-9757-B	96.8	57.0	5.0	52.5	5.8	63.0	1.1
SS-9818Z	97.6	18.0	6.0	14.0	7.7	16.8	2.0

焊 線 說 明 書

1.儀器

1.1 焊槍(俗稱烙鐵):至少 60W 恆溫控制烙鐵且具溫度控制(±5℃)的靈敏度,公司目前使用 Nekotech AS-300A 高週波銲槍。

1.2 烙鐵頭形狀:斜面式或尖頭式。

1.3 測溫器:接觸式測溫器,需經校正。(Anritsu Model No.HL-100)

2.材料

2.1 銲錫絲(Solder wire):

2.1.1 一般銲錫:使用材料為共晶錫鉛 RSn 63A 焊錫線,直徑 1.0 mm。

2.1.2 無鉛銲錫:使用符合歐盟環保指令(RoHS 規範)之錫/銀/銅(Sn/Ag/Cu)焊錫線,公司目前使用為 KESTER 245 廠牌,直徑 0.8mm。

2.2 導線(電子線):

2.2.1 依客戶需求設計而有所不同,通常為 20~30 AWG 含鉛之先絞後鍍多蕊軟線。若為無鉛導線,其導線產品須符合歐盟環保指令(RoHS 規範)。

3.手焊操作步驟

3.1 操作環境:銲線操作應在清潔的環境中,且有抽風之設備。

3.2 銲錫溫度校正

3.2.1 測溫器:校正前及校正時,應在室溫下使其穩定。

3.2.2 校正

(1)校正時間:使用前及每使用 30 分鐘後,需作校正。

(2)校正步驟

A.使用一般焊絲(Sn63Pb37),烙鐵溫度應調整設定在 235(±5)℃之內,無鉛焊絲則應調整設定在 240(±5)℃之內。

B.以高溫烙鐵頭沾少許焊絲,再將烙鐵頭置於測溫器上持續 1 分鐘,量測溫度。

C.在校正的 1 分鐘內,使用一般焊絲銲接,其量測後烙鐵頭溫度應在 235(±5)℃之內,否則,調整溫度設定;使用無鉛焊絲銲接,其量測後烙鐵頭溫度應在 240(±5)℃之內,否則,調整溫度設定。

3.3 焊接操作:

步驟一:以清潔無鏽的鉻鐵頭與焊絲,同時接觸到待焊位置,熔入適量的錫絲銲料並使均勻分散,且不宜太多,待焊料熔化均勻後移開焊槍,整個步驟必須控制在 2 秒內完成。

步驟二:先將電子線沾上少量的焊錫,烙鐵頭與電子線同時接觸錫點,將電子完全熔著於焊點後移開焊槍,整個步驟必須控制在 2 秒內完成。

＊焊接過程為避免銅膠焊點破壞,任何時候烙鐵頭接觸焊點時間應小於 2 秒。

3.4 注意事項:(1)烙鐵頭與太陽電池成 30～45°。(2)導線與太陽電池成 15°。(3)銲接時間不宜過久(3.3 ＊),但要完全熔著,以免造成冷焊。(4)焊點完全冷卻前,不可移動。(5)使用錫鉛焊絲,焊點的表面要平滑、有光澤。4.檢驗規格

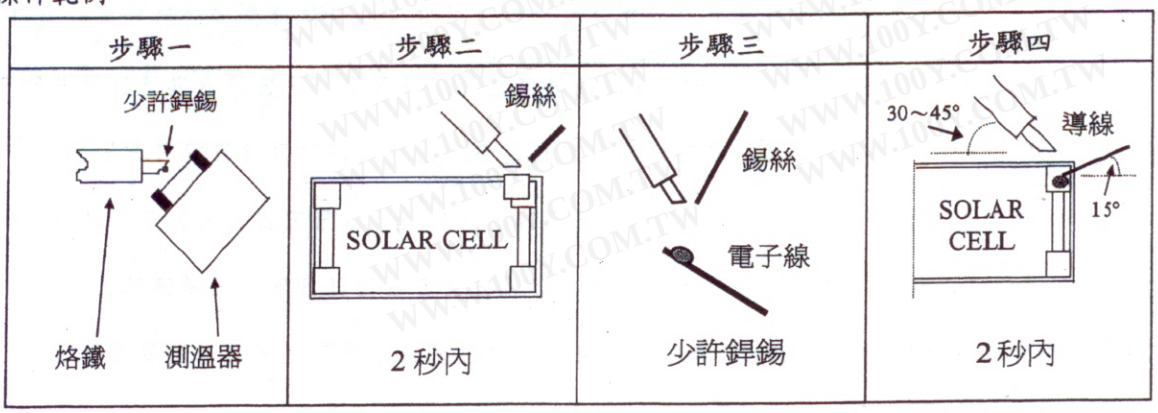
4.端子強度

4.1.垂直方向拉力:大於 500 克;水平方向拉力:大於 200 克。

註 1:測試拉力時,所銲的導線應為 28～30 AWG 之多蕊軟線。

註 2:導線斷開的情況除外。

5 操作範例



Soldering Operation Procedure

1. Apparatus
   1.1 Soldering iron: Temperature-controlled type with 60W heater at least and +/- 5℃ control range is recommended.
   1.2 Soldering iron tip: Slant type or point type.
   1.3 Temperature Measuring Device: A calibrated contact-type temperature meter (e.g. Anritsu Model No. HL-100).
2. Materials
   2.1 Solder wire:
   2.1.1Pb type：In *SINONAR*, using Alloy Sn63Pb37 , § 1.0 m/m , (e.g. Solnet, RSn63A).
   2.1.2Pb-free type：In *SINONAR*, using Sn96.5/Ag3.0/Cu0.5, § 0.8 m/m, (e.g. Kester 245) to comply with RoHS requirement.
   2.2 Lead wire: Dependent on the type of solar cell, use 20 ~ 30 AWG multi-threads stranded type. For Pb-free soldering, the lead wire component shall be complied with RoHS requirement.
3. Procedure
   3.1 Hand soldering
   3.1.1 Environment: Soldering operation shall be performed in a clean environment with ventilation to remove soldering fume during the operation.
   3.1.2 Soldering temperature calibration
   3.1.2.1 Temperature measuring device: The device (e.g. Anritsu Model No. HL-100) shall be stabilized at room temperature prior to and during calibration.
   3.1.2.2 Calibration
   3.1.2.2.1 Timing: Calibrate the soldering iron tip before the operation or every 30 minutes after the soldering.
   3.1.2.2.2 Procedure
   A. In Pb alloy soldering, the soldering iron shall be set up and stabilized at 240℃ before and in the calibration. For Pb-free solder wire, the soldering iron shall be set up and stabilized at 255℃ before and in the calibration.
   B. Take little solder wire on the soldering iron tip and put the tip in contact with the contact-pad of the temperature meter for 1 minute.
   C. Temperature shown on the temperature meter shall be 240℃ (Pb type)/ 255℃ (Pb-free) at least for one minute otherwise re-adjust the temperature setting of the soldering iron.
   3.1.3 Soldering operation
   Step 1：Make soldering iron tip and solder wire contact with the copper paste of solar cell together. At this moment, tin pot formed in a shape of half ball type or makes a plane type on the copper paste. All the processes shall be well done less than 2 seconds.
   Step 2：Melt solder wire on the top of solder lead wire. Weld the tin pot again and put the lead wire into the inside of tin pot. Take off the solder iron tip. Finish this step within 2 second also.
   ＊Soldering operation on the solar cell shall be non-destructive. At any time, only make the soldering iron tip contact the copper paste of the solar cell less than 2 seconds.
   3.1.4 Attention
   (1) Hold the soldering iron at an angle of 30°to 45° with the solar cell in the welding process.
   (2) Lead wire is in the contact with the copper paste at an angle of 15°.
   (3) Make sure the welding process not more than the time limit and the lead wire in good contact with copper paste through the solder(see 3.1.3 ＊). Please watch out the loose contact between the lead wire and the copper paste if any.
   (4) Do not move the lead wires and solar cell before cooling the tin pots.
   (5) Weld soldering is always with smooth surface and with shine.
4. Test criteria
   4.1 Pull strength in vertical direction: more than 500 gram.
   4.2 Pull strength in horizontal direction: more than 200gram.
   Note 1: For pull strength test, the lead wire used should be 28~ 30 AWG multi-threads stranded type.
   Note 2: Lead wire breakage is excluded.
5. Operation illustration

Step 1	Step 2	Step 3	Step 4