

PRELIMINARY

SPECIFICATIONS

Customer	
Product Name	Multilayer Chip Splitter
Sunlord Part Number	SLFS31-2R450G-01T
Customer Part Number	

[☒New Released, ☐Revised]SPEC No.: **SLFS230013**

【This SPEC is total 9 pages including specifications】

【ROHS Compliant Parts】

Approved By	Checked By	Issued By
		

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【For Customer approval Only】

Date: _____

Qualification Status: ☐ Full ☐ Restricted ☐ Rejected

Approved By	Verified By	Re-checked By	Checked By

Comments:

【Version change history】

Rev.	Effective Date	Changed Contents	Change Reasons	Approved By
01	Dec.21,2023	New release	/	Jimmy Ko

Caution

All products listed in this specification are developed, designed and intended for use in general electronics equipment. The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require especially high reliability, or whose failure, malfunction or trouble might directly cause damage to society, person, or property. Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below. Please contact us for more details if you intend to use our products in the following applications.

1. Aircraft equipment
2. Aerospace equipment
3. Undersea equipment
4. nuclear control equipment
5. military equipment
6. Power plant equipment
7. Medical equipment
8. Transportation equipment (automobiles, trains, ships,etc.)
9. Traffic signal equipment
10. Disaster prevention / crime prevention equipment
11. Data-processing equipment
12. Applications of similar complexity or with reliability requirements comparable to the applications listed in the above

1. Scope

This specification applies to SLFS31-2R450G-01T of Multilayer Chip Splitter.

2. Product Description and Identification (Part Number)

- 1) Description:
Multi-layer Chip splitter
- 2) Product Identification (Part Number)

SLFS	31	-2R450G	-01	T
①	②	③	④	⑤

①	Type
SLFS	Multilayer Chip Splitter

②	External Dimensions (L×W) (mm)
31	3.2 × 1.6

③	Center Frequency
2R450G	2450 MHz

④	Series Code
	01

⑤	Packing
T	Tape Carrier Package

3. Electrical Characteristics

Part Number	SLFS31-2R450G-01T
Bandwidth (BW)	2225~2700 MHz
Insertion Loss in BW	1.1 dB max. @ 2225~2700 MHz 1.0 dB max. @ 2325~2600 MHz
Isolation	17 dB min. @ 2225~2700 MHz 20 dB min. @ 2325~2600 MHz
Return Loss (Input)	19 dB typ. @ 2225~2700 MHz 20 dB typ. @ 2325~2600 MHz
Return Loss (Output)	17 dB typ. @ 2225~2700 MHz
Amplitude Unbalance	±0.8 dB max. @ 2225~2700 MHz ±0.7 dB max. @ 2325~2600 MHz
Phase Unbalance	±6 deg max. @ 2225~2700 MHz ±6 deg max. @ 2325~2600 MHz
Power Input (as a splitter)	4 W max.
Characteristic Impedance	50 ohm

- a) Operating and storage temperature range (individual chip without packing): -40°C~ +125°C.
- b) Storage temperature range (packaging conditions): -10°C~ +40°C and RH 80% (Max.).
- c) Test equipment: Network Analyzer:E5071C.
- d) Electrical Performance: See **Fig. 3-1**.

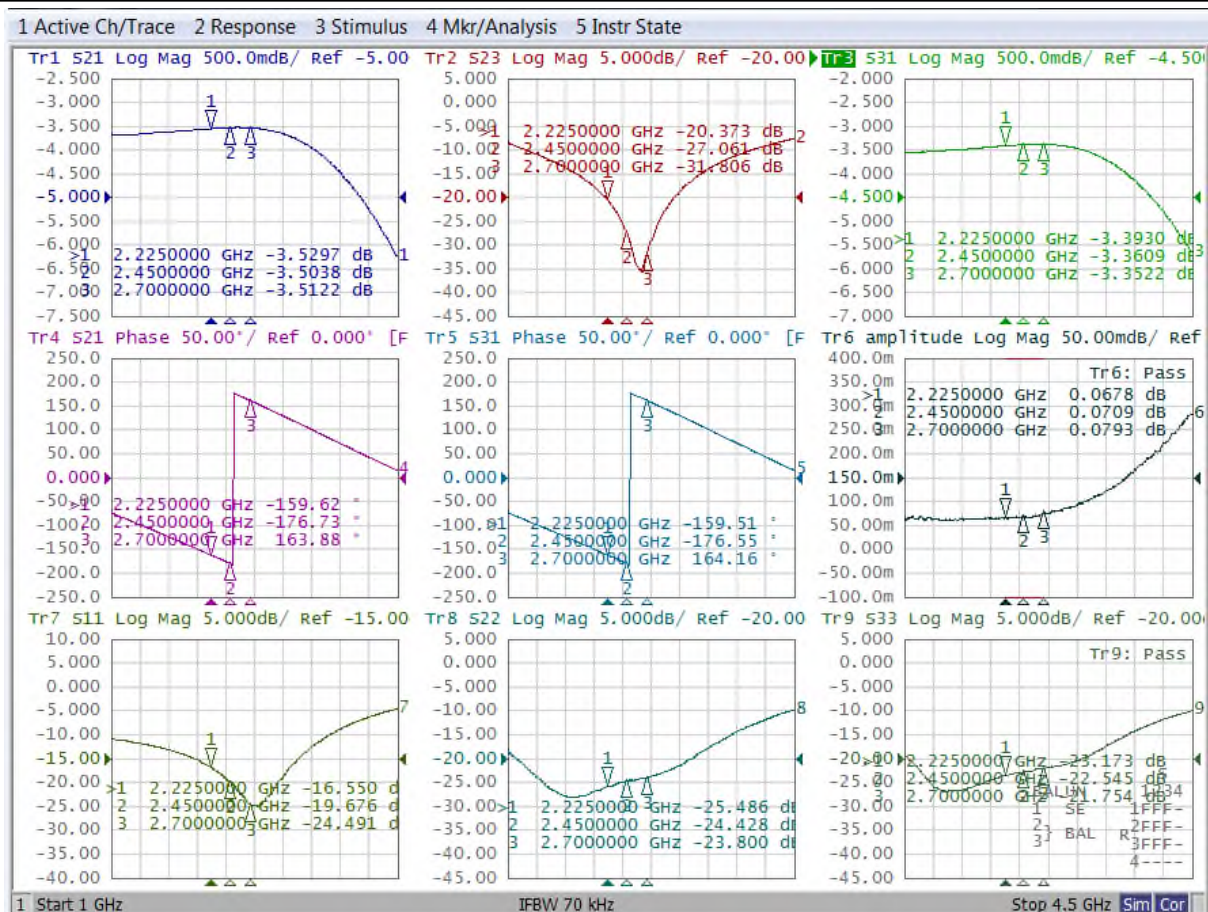
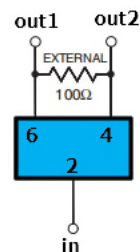


Fig. 3-1

Port1	Port2	Port3
Input	Output1	Output2



4. Shape and Dimensions

1) Dimensions and terminal configuration: See Fig. 4-1

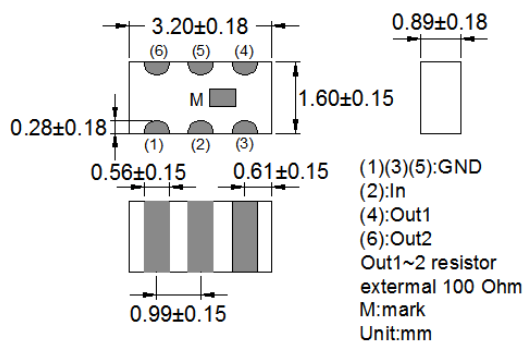
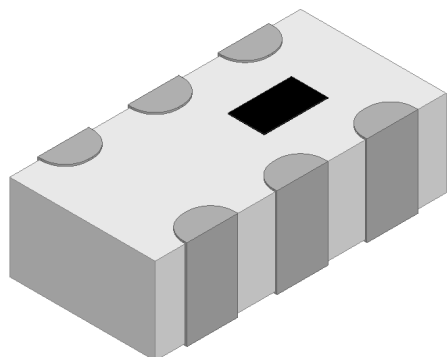


Fig. 4-1

2) Recommended Land Pattern: See Fig.4-2.

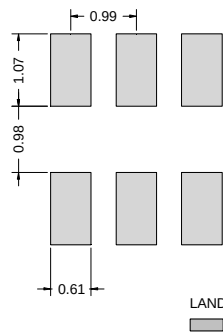


Fig. 4-2

5. Test and Measurement Procedures

5.1 Test Conditions

Unless otherwise specified, the standard atmospheric conditions for measurement/test as:

- Ambient Temperature: $20 \pm 15^\circ\text{C}$
- Relative Humidity: $65 \pm 20\%$
- Air Pressure: 86 KPa to 106 KPa

If any doubt on the results, measurements/tests should be made within the following limits:

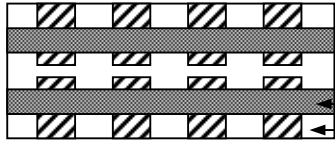
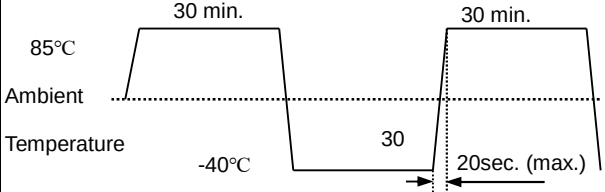
- Ambient Temperature: $20 \pm 2^\circ\text{C}$
- Relative Humidity: $65 \pm 5\%$
- Air Pressure: 86 KPa to 106 KPa

5.2 Visual Examination

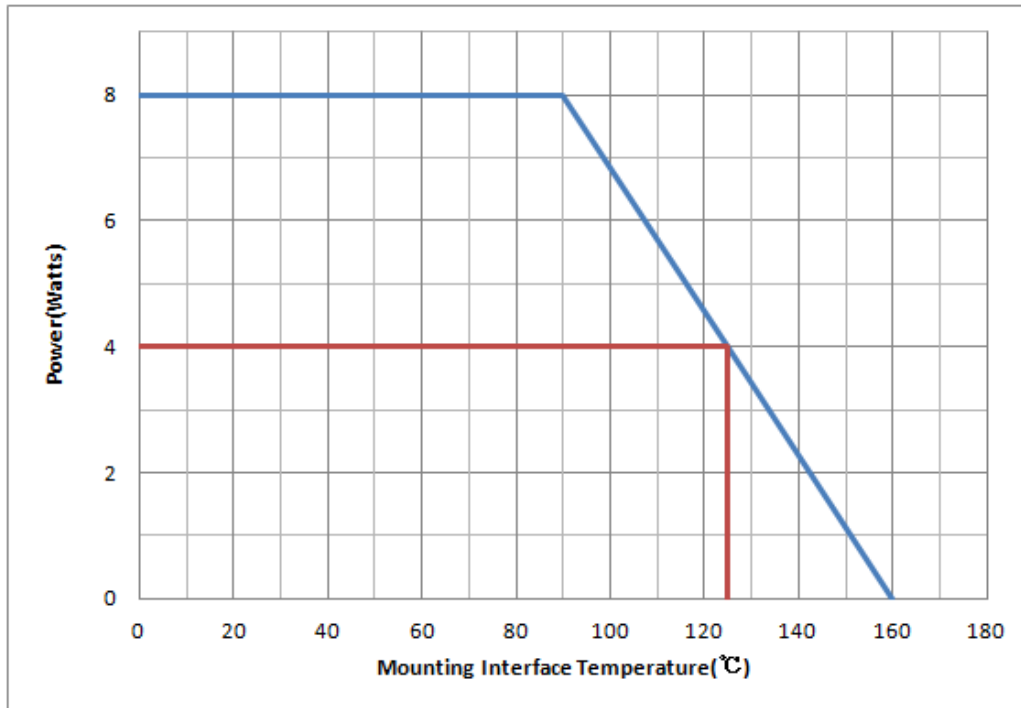
- Inspection Equipment: 20 X magnifier

5.3 Reliability Test

Items	Requirements	Test Methods and Remarks
5.3.1 Terminal Strength	No visible mechanical damage.	- Solder the inductor to the testing jig (glass epoxy board shown as the following figure) using leadfree solder. Then apply a force in the direction of the arrow. 15N force for 3216 series. - Keep time: $10 \pm 1\text{sec}$.
5.3.2 Resistance to Flexure	No visible mechanical damage.	- Solder the chip to the test jig (glass epoxy board) using a leadfree solder. Then apply a force in the direction shown as the following figure. Solder the chip to the test jig (glass epoxy board) using leadfree solder. Then apply a force in the direction. - Flexure: 2mm - Pressurizing Speed: 0.5mm/sec - Keep time: $\geq 30\text{ sec}$

5.3.3 Vibration	No visible mechanical damage.	① Solder the chip to the testing jig (glass epoxy board shown as the following figure) using leadfree solder. ② The chip shall be subjected to a simple harmonic motion having total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55 Hz. ③ The frequency range from 10 to 55 Hz and return to 10 Hz shall be traversed in approximately 1 minute. This motion shall be applied for a period of 2 hours in each 3 mutually perpendicular directions (total of 6 hours).  Glass Epoxy Board
5.3.4 Dropping	No visible mechanical damage.	Drop the chip 10 times on a concrete floor from a height of 100 cm.
5.3.5 Solderability	① No visible mechanical damage. ② Wetting shall be exceeded 75% coverage.	① Solder temperature: $240 \pm 2^\circ\text{C}$ ② Duration: 3sec ③ Solder: Sn/3.0Ag/0.5Cu ④ Flux: 25% Resin and 75% ethanol in weight
5.3.6 Resistance to Soldering Heat	No visible mechanical damage.	① Solder temperature: $260 \pm 5^\circ\text{C}$ ② Duration: 5 sec ③ Solder: Sn/3.0Ag/0.5Cu ④ Flux: 25% Resin and 75% ethanol in weight ⑤ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
5.3.7 Thermal Shock	① No visible mechanical damage. ② Satisfy electrical Characteristic.	① Temperature and time: -40°C for 30 ± 3 min $\rightarrow$ 85°C for 30 ± 3 min ② Transforming interval: Max. 20 sec. ③ Tested cycle: 100 cycles ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring. 
5.3.8 Damp Heat (Steady States)	① No visible mechanical damage. ② Satisfy electrical Characteristic.	① Temperature: $60 \pm 2^\circ\text{C}$ ② Humidity: 90% to 95% RH ③ Duration: 500^{+24} hours ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
5.3.9 Resistance to High temperature	① No visible mechanical damage. ② Satisfy electrical Characteristic.	① Temperature: $85 \pm 2^\circ\text{C}$ ② Duration: 500^{+24} hours ③ The chip shall be stabilized at normal condition for 1~2 hours before measuring.

5.4 Power Derating Curve:



6. Packaging and Storage

6.1 Packaging

There is one type of packaging for the Splitter. Please specify the packing code when ordering.

6.1.1 Tape Carrier Packaging:

Packaging code: T

- a. Tape carrier packaging are specified in attached figure **Fig. 6.1-1~3**
- b. Tape carrier packaging quantity please see the following table:

Type	3216[1206]
Tape	Embossed Tape
Quantity	3K

(1) Taping Drawings (Unit: mm)

Embossed Tape

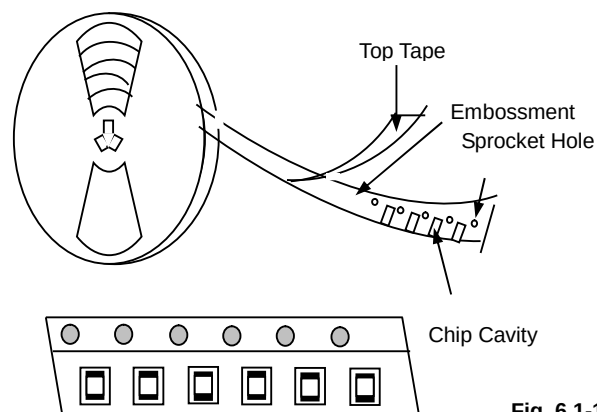


Fig. 6.1-1

Remark: The sprocket holes are to the right as the tape is pulled toward the user.

(2) Taping Dimensions (Unit: mm)

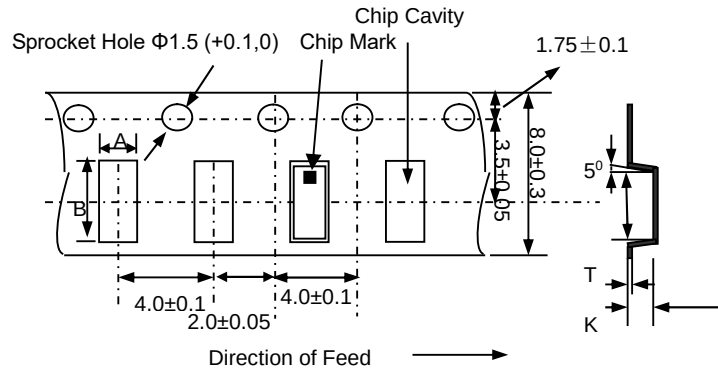


Fig. 6.1-2

Type	Chip Thickness	A	B	K max	T max
SLFS31	0.89 ± 0.18	1.88 ± 0.10	3.5 ± 0.1	1.27	0.27

(3) Reel Dimensions (Unit: mm)

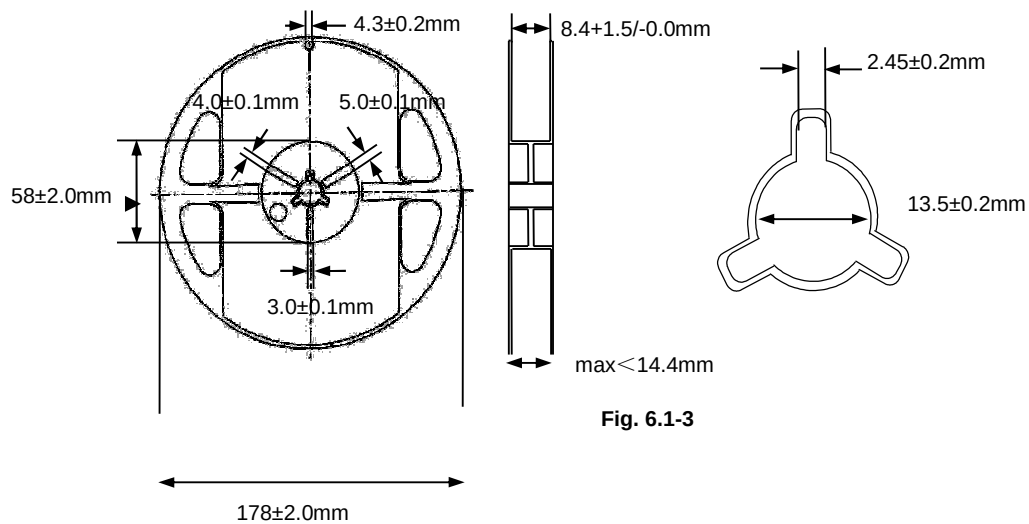


Fig. 6.1-3

6.2 Storage

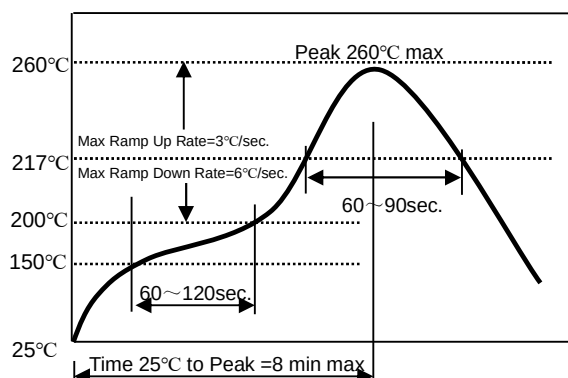
- The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to high humidity. Package must be stored at 40°C or less and 70% RH or less.
- The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to dust or harmful gas (e.g. HCl, sulfurous gas of H₂S).
- Packaging material may be deformed if package are stored where they are exposed to heat of direct sunlight.
- Solderability specified in **Clause 5.3.6** shall be guaranteed for 12 months from the date of delivery on condition that they are stored at the environment specified in **Clause 3**. For those parts, which passed more than 12 months shall be checked solder-ability before use.

7. Recommended Soldering Technologies

7.1 Re-flowing Profile

- △ Preheat condition: 150 ~ 200°C/60~120sec.
- △ Allowed time above 217°C: 60~90sec.
- △ Max temp: 260°C
- △ Max time at max temp: 10sec.
- △ Solder paste: Sn/3.0Ag/0.5Cu
- △ Allowed Reflow time: 3x max

[Note: The reflow profile in the above table is only for qualification and is not meant to specify board assembly profiles. Actual board assembly profiles must be based on the customer's specific board design, solder paste and process, and should not exceed the parameters as the Reflow profile shows.]



7.2 Iron Soldering Profile

- △ Iron soldering power: Max.30W
- △ Pre-heating: 150 °C / 60 sec.
- △ Soldering Tip temperature: 350°C Max.
- △ Soldering time: 3 sec Max.
- △ Solder paste: Sn/3.0Ag/0.5Cu
- △ Max.1 times for iron soldering

[Note: Take care not to apply the tip of the soldering iron to the terminal electrodes.]

