

SINLOON®

低阻值薄膜貼片電阻

Resistance: 100m~990m (Ω)

TFL Series

Thin Film Low Ohm Chip Resistor

FEATURE

- ◆ Thin Film Passivity NiCr Resistor
- ◆ Very Tight Tolerance from ±1% ,±5%
- ◆ Extremely Low TCR from ±100~±250 ppm/°C
- ◆ Wide R-Value Range
- ◆ Rated Power : 1/8W ~ 2W

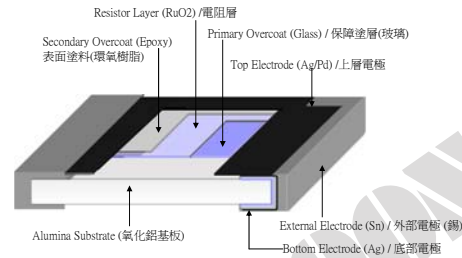
Applications

- ◆ Medical Equipment
- ◆ Testing / Measurement Equipment
- ◆ Consumer Product
- ◆ Printer Equipment
- ◆ Automatic Equipment Controller
- ◆ DC-DC Converters, Battery pack, Charge.
- ◆ Communication Device, Cell phone, GPS, PDA
- ◆ Measurement instruments

Figure



CONSTRUCTION



ORDERING INFORMATION

Example: W-TFL05FER30 (1/8W 0805 ±1% 100ppm 0.3R )

Power		Type Size	Part No		Tolerance	TCR(°C)	Resistance (Ω)	Packing
Standard	High Power		Standard	High Power				
1/8W	1/4W	0805	W-TFL05	V-TFL05	F = ±1% J = ±5%	E=±100ppm K=±150ppm F=±250ppm	100m=0R10	10K Reel
1/4W	1/2W	1206	V-TFL06	U-TFL06			220m=0R22	5K Reel
1/3W	3/5W	1210	J-TFL10	K-TFL10			330m=0R33	5K Reel
1/2W	1W	1812	U-TFL12	S-TFL12			470m=0R47	5K Reel
1/2W	1W	2010	U-TFL20	S-TFL20			510m=0R51	5K Reel
1W	---	1218	S-TFL18	---			620m=0R62	4K Reel
1W	2W	2512	S-TFL25	Q-TFL25			990m=0R99	4K Reel

DIMENSION

Power		Type Size	L	W	H	D1	D2	Fig.
Standard	High Power							
1/8W	1/4W	0805	2.00 ±0.20	1.25 ±0.15	0.50 ±0.15	0.35 ±0.15	0.35 ±0.15	Fig-1
1/4W	1/2W	1206	3.20 ±0.20	1.60 ±0.20	0.55 ±0.15	0.45 ±0.20	0.45 ±0.20	
1/3W	3/5W	1210	3.20 ±0.20	2.50 ±0.20	0.55 ±0.15	0.50 ±0.20	0.50 ±0.20	
1/2W	1W	1812	4.50 ±0.10	3.00 ±0.10	0.55 ±0.05	0.55 ±0.10	0.80 ±0.10	
1/2W	1W	2010	5.00 ±0.20	2.50 ±0.20	0.55 ±0.10	0.60 ±0.20	0.60 ±0.20	
1W	---	1218	3.10 ±0.10	4.60 ±0.10	0.55 ±0.05	0.45 ±0.10	0.40 ±0.10	Fig-2
1W	2W	2512	6.30 ±0.20	3.20 ±0.20	0.55 ±0.10	0.60 ±0.20	0.60 ±0.20	Fig-1

Fig-1

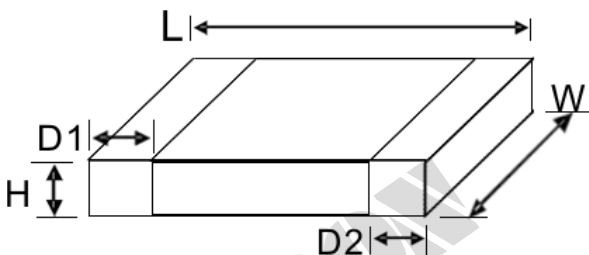
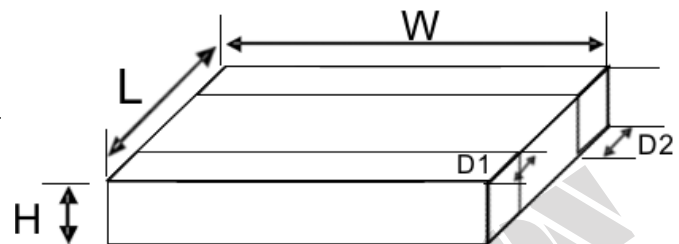


Fig-2



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Standard Electrical Specification:

Type	Size	Rated Power at 70°C	Rated Voltage	Maximum Voltage		Resistance (mΩ)	T.C.R. (ppm/°C)	Tolerance	Operating Temperature
				Working	Overload				
W-TFL05	0805	1/8W	0.04~0.35	0.35	0.875	330~990	±100	±1%, ±5%	-55°C ~ 155°C
V-TFL06	1206	1/4W	0.05~0.5	0.5	1.25	100~330	±250		
						331~990	±100		
J-TFL10	1210	1/3W	0.06~0.57	0.57	1.425	100~330	±250		
						331~990	±100		
U-TFL12	1812	1/2W	0.07~0.7	0.7	1.75	100~330	±250		
						331~990	±100		
U-TFL20	2010	1/2W	0.07~0.7	0.7	1.75	100~330	±250		
						331~990	±100		
S-TFL18	1218	1W	0.1~0.99	0.99	2.475	100~330	±250		
						331~990	±100		
S-TFL25	2512	1W	0.1~0.99	0.99	2.475	100~330	±150		
						331~990	±100		

High Power Electrical Specification:

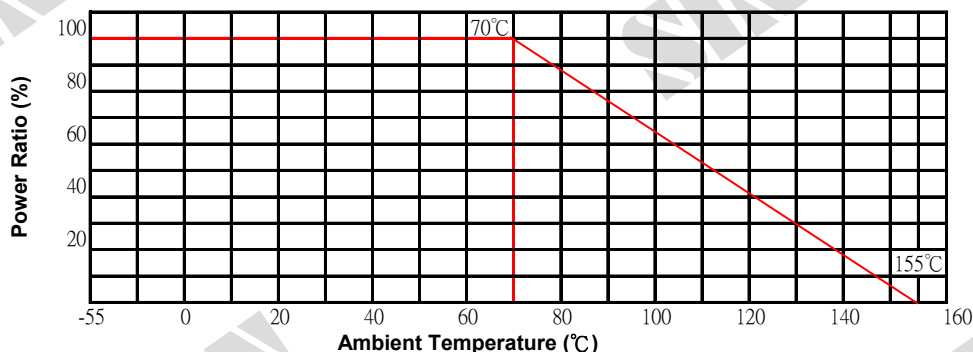
Type	Size	Rated Power at 70°C	Rated Voltage	Maximum Voltage		Resistance (mΩ)	T.C.R. (ppm/°C)	Tolerance	Operating Temperature
				Working	Overload				
V-TFL05	0805	1/4W	0.05~0.5	0.497	1.244	330~990	±100	±1%, ±5%	-55°C ~ 155°C
U-TFL06	1206	1/2W	0.07~0.7	0.704	1.759	100~330	±250		
						331~990	±100		
K-TFL10	1210	3/5W	0.08~0.81	0.808	2.201	100~330	±250		
						331~990	±100		
S-TFL12	1812	1W	0.1~0.99	0.995	2.487	100~330	±250		
						331~990	±100		
S-TFL20	2010	1W	0.1~0.99	0.995	2.487	100~330	±250		
						331~990	±100		
Q-TFL25	2512	2W	0.14~1.14	1.407	3.518	100~330	±150		
						331~990	±100		

\* In case resistors operating ambient temperature in excess of the temperature range -55°C ~ +155°C power ratio will be derated in accordance with the figure as shown on the right.

\* Others data not in the specification of data, please contact us.

如果你要求的規格不在本規格書裡請與我們聯絡。

POWER DERATING CURVE



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Resistance: 100m~990m (Ω)

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□ Test Procedures and Requirements

Test Item	Procedue	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R)	-55°C ~ +155°C, 20°C is the reference temperature	Refer to Rating	JIS C 5201-1 clause 4.8
Short Time Overload	General: 2.5 time RCWV or Max. Overload voltage for 5 seconds. Hifh Power: 2.5 times RCWV of Mac. Overload voltage for 2 seconds.	±1=±(1.0% +0.05Ω) ±5=±(2.0% +0.1Ω)	JIS C 5201-1 clause 4.13
IR Reflow	<p>Peak : 250<sup>+5</sup>/<sub>0</sub> °C 230°C or higher</p> <p>Pre Heating Zone</p> <p>180°C</p> <p>150°C</p> <p>90 ± 30 s</p> <p>30 ± 10 s</p> <p>Soldering Zone</p> <p>Heating time</p> <p>Soldering Profile</p>	±1=±(1.0% +0.05Ω) ±5=±(1.0% +0.05Ω)	SONY SS-00254
Leaching	260±5°C for 30 seconds	>95% Coverage	SONY SS-00254-9
Soldering Heat	260±5°C for 10 seconds	±1=±(1.0% +0.05Ω) ±5=±(1.0% +0.05Ω)	JIS C 5201-2 clause 4.18
Temperature Cycling	-55°C to +155°C 5 cycles	0.10%,0.50%,1% : ±(0.1%+0.05Ω) 2%,5%: ±(0.1%+0.01Ω)	JIS C 5201-2 clause 4.19
Electric Iron	Preheating temperature : 350±5°C Electric iron preheating time: 3+1/-0 second	±1=±(1.0% +0.05Ω) ±5=±(1.0% +0.05Ω)	SONY SS-00254-5
Resistance Solcent	The tested resistor be immersed into isproply alcohol of 20 ~ 25°C for 60 secs. Then the resistor is left in the room for 48 hours.	±1=±(1.0% +0.05Ω) ±5=±(1.0% +0.05Ω)	JIS C 5201-1 clause 4.29
Load life in Humidity	40±2°C, 90-95% R.H. or Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"	0.10%,0.50%,1% : ±(0.1%+0.05Ω) 2%,5%: ±(2%+0.05Ω)	JIS C 5201-1 clause 4.24
Load life (Endurance)	70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"	0.10%,0.50%,1% : ±(0.1%+0.05Ω) 2%,5%: ±(2%+0.05Ω)	JIS C 5201-1 clause 4.24
Insulation Resistance	Max. Overload voltage for 1 minute	≥ 10G Ω	JIS C 5201-1 clause 4.6

□ VOLTAGE RATING OR CURRENT RATING

Resistance Range: ≥ 1Ω

Rated Voltage: The resistor shall have a DC continuous working voltage or a RMS AC continuous working voltage at commercial-line frequency and wave form corresponding to the power rating, as determined formula as following:

$$E = \text{Rated voltage}(V) \quad E = \sqrt{R \times P} \quad P = \text{Power rating}(W) \quad R = \text{Nominal resistance}(\Omega)$$

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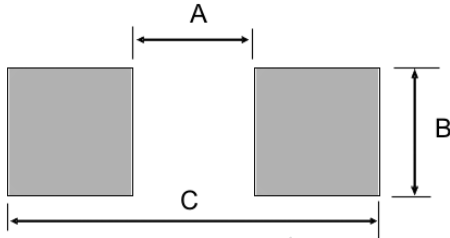
**TFL Series**

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**RECOMMEND LAND PATTERN DESIGN (For Reflow Soldering)**

Unit: mm

Type	TFL05	TFL06	TFL10	TFL12	TFL20	TFL28	TFL25
Dim.	0805	1206	1210	1812	2010	1218	2512
A	1.30	2.20	2.00	3.11	3.80	2.04	4.90
B	1.40	1.70	2.70	3.00	2.70	4.50	3.40
C	2.90	4.20	4.40	5.91	6.60	4.24	8.10

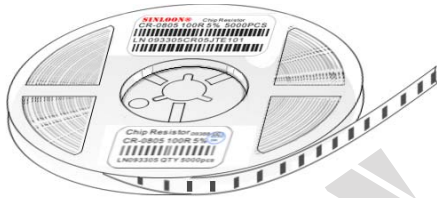


Marking Ex. : Value 330m (0.33R ohm)

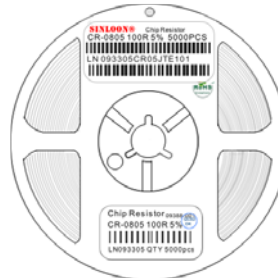


**PACKAGE SPECIFICATION**

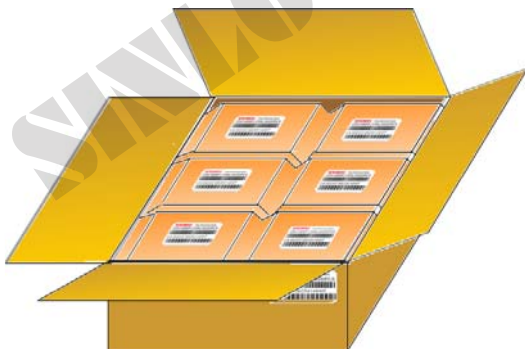
Power		Type Size	Quantity(ea)			SINLOON® ROHS Compliant 品質承諾標誌 QUALITY COMMITMENT
Standard	High Power		Paper Reel Tape		In Box	
1/8W	1/4W	0805	5,000 Pcs	7" Reel	50K pcs	300K pcs
1/4W	1/2W	1206	5,000 Pcs	7" Reel	50K pcs	300K pcs
1/3W	3/5W	1210	5,000 Pcs	7" Reel	40K pcs	300K pcs
1/2W	1W	1812	5,000 Pcs	7" Reel	40K pcs	300K pcs
1/2W	1W	2010	5,000 Pcs	7" Reel	40K pcs	300K pcs
1W	---	1218	4,000 Pcs	7" Reel	40K pcs	240K pcs
1W	2W	2512	4,000 Pcs	7" Reel	40K pcs	240K pcs



Paper Reel Tape



Reel Tape Leble



Carton Pack



In Box

※ 美隆電子產品規格特性參數的改變和更新,不會另行通知。

※ Mayloon characteristic parameters of electronic product specification changes or updates without prior notice。