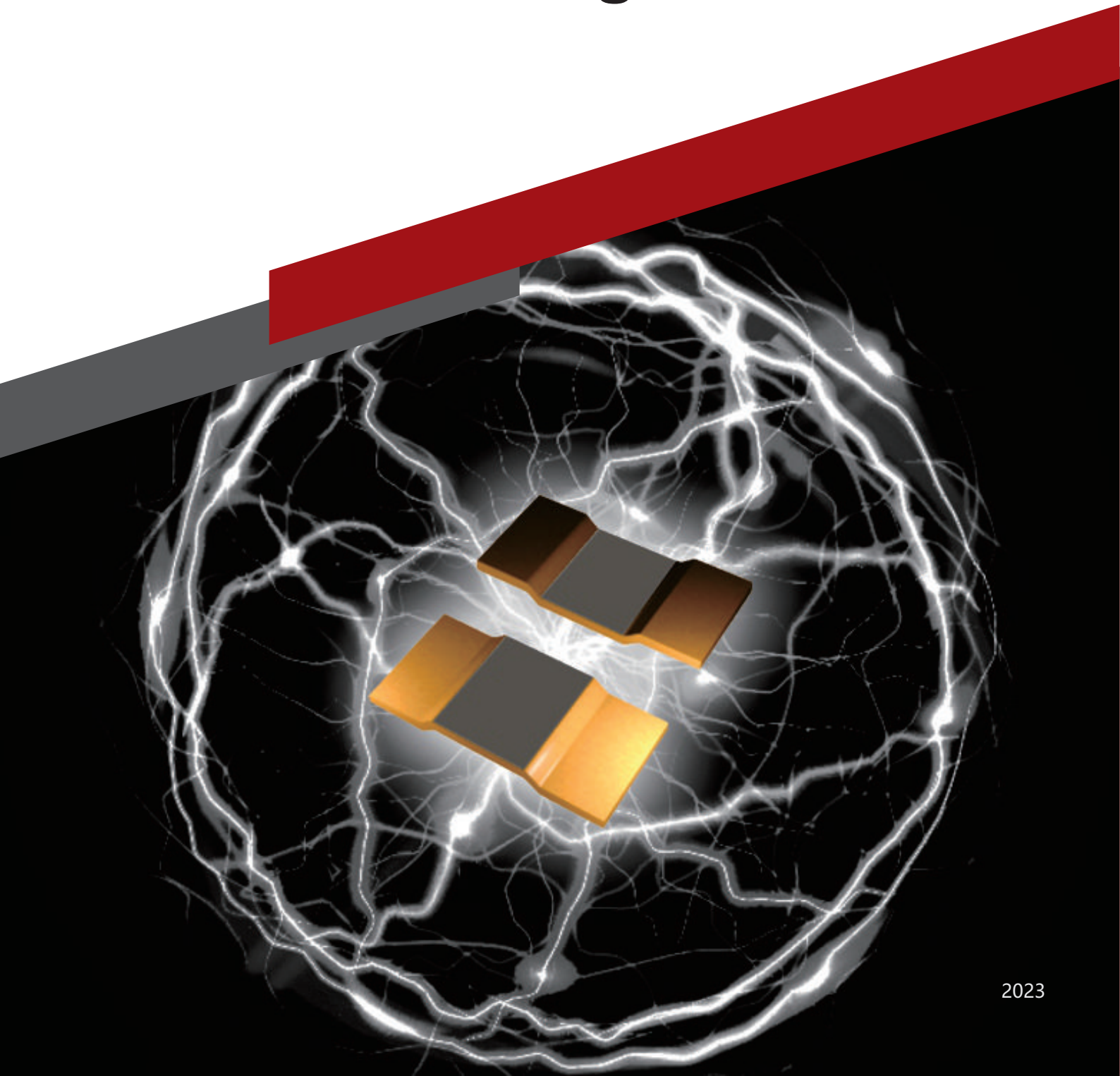




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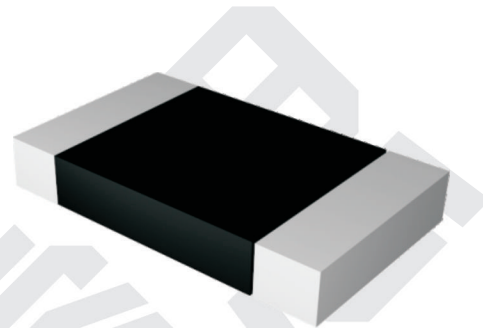
Catalogue

PCSR	02-03
PCSK	04-05
SEWF2512	06-07
SEWF3920	08-10
SEWF5930	11-12
EBWM2512	13-14
EBWK2512	15-16
PEWF2512	17-18
PEWM3920	19-20
PEWK3920	21-22

TCR $\leq \pm 15 \text{ ppm}/^\circ\text{C}$ (-55~125°C, +20°C Ref), Tightest tolerance $\pm 0.1\%$
Excellent long-term stability Low thermal EMF
AEC-Q200 qualified

Introduction

This series is made from a precision Nickel-Chrome alloy and which is then precisely machined and welded using exclusive EB-Welding equipment designed and manufactured independently by C&B Group. PCSR series is molded version which can achieve ultra-low TCR within $\pm 15 \text{ ppm}/^\circ\text{C}$ and high tolerance up to $\pm 0.1\%$. With an operating temperature range of -65°C to +170°C, the series is ideal for current sensing circuits which ask for high precision and low TCR at the same time. Visit www.resistor.today to check stock and more information.



Application

- Precision Instrument
- Semiconductor ATE
- Battery test equipment
- Precision power supply

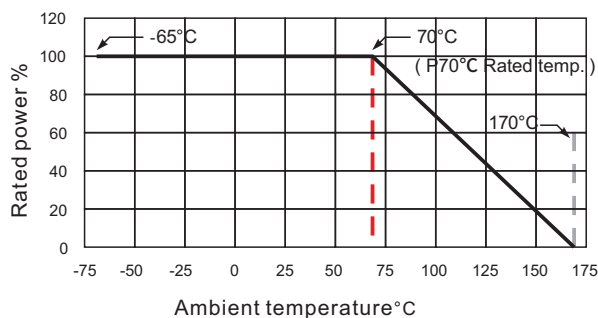
Specifications (mm)								
Series	Size	Rated Power	Resistance range	Tolerance	TCR	Operating temp	Material	Packaging
PCSR	2512	1W	10mΩ~100mΩ	$\pm 0.1\%$ $\pm 0.5\%$ $\pm 1\%$ $\pm 5\%$	$\leq \pm 15 \text{ ppm}/^\circ\text{C}$ (-55°C~+125°C, +20°C Ref)	-65°C~+170°C	Nickel-Chrome	tape&reel 4000pcs/reel
Dimensions								
L	W	H	D	a	b	c		
6.40±0.2	3.2±0.2	0.8±0.1	0.8±0.2	3.6±0.1	3.6±0.1	2.0±0.1		

Part Number Information

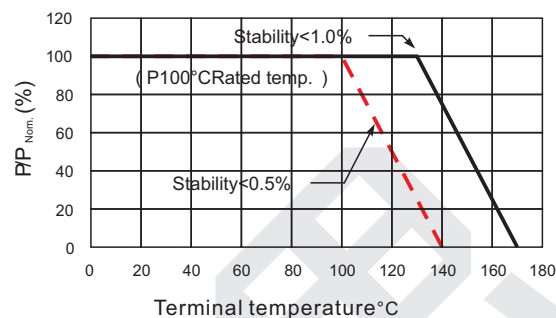
Example: PCSR2512BR010M9 (PCSR 2512 $\pm 0.1\%$ 10m Ω $\pm 15\text{ppm}/^\circ\text{C}$ Standard)

P	C	S	R	2	5	1	2	B	R	0	1	0	M	9
Series PCSR		Size 2512		Tolerance B= $\pm 0.1\%$ D= $\pm 0.5\%$ F= $\pm 1\%$ J= $\pm 5\%$		Resistance R010=10m Ω R015=15m Ω R020=20m Ω R050=50m Ω R100=100m Ω		TCR M= $\pm 15\text{ppm}/^\circ\text{C}$		Code 9=Standard 6=Unmarked				

Derating curve(Ambient temp.)



Derating curve(Terminal temp.)



Performance

Test Item	Test Method	Standard	Typical	Maximum
Short-time overload	5x rated power for 5s, measured 24±2h after test	MIL-STD-202 Method 201	±0.1%	±0.3%
High temp. storage	+170°C, 1000h, no load, measured 24±2h after test	MIL-STD-202 Method 108	±0.2%	±0.5%
Moisture resistance	T=24h/cycle, no load, 7a and 7b not required, measured 24±2h after test	MIL-STD-202 Method 106	±0.02%	±0.05%
Load life	+70°C, 2000h, rated power, measured 24±2h after test	MIL-STD-202 Method 108	±0.2%	±0.5%
Resistance to soldering heat	+260°C±5°C, 10s±1s, measured 24±2h after test	MIL-STD-202 Method 210	±0.05%	±0.3%
Thermal shock	-55°C~+125°C, 1000 cycles, measured 24±2h after test	JESD22 Method JA-104	±0.1%	±0.5%
High temp. & high humidity	+85°C, 85%RH, 10% of rated power, 1000h, measured 24±2h after test	MIL-STD-202 Method 103	±0.05%	±0.3%
Solderability	+235°C±5°C, 2s±0.5s	J-STD-202	95% covered	

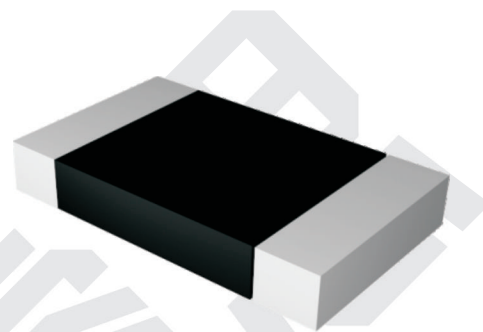
Popular Part Number

Part Number	Size	Tolerance	Resistance	TCR
PCSR2512JR010M9	2512	±5%	10mΩ	±15ppm/°C
PCSR2512JR015M9	2512	±5%	15mΩ	±15ppm/°C
PCSR2512JR020M9	2512	±5%	20mΩ	±15ppm/°C
PCSR2512JR050M9	2512	±5%	50mΩ	±15ppm/°C
PCSR2512JR100M9	2512	±5%	100mΩ	±15ppm/°C
PCSR2512FR010M9	2512	±1%	10mΩ	±15ppm/°C
PCSR2512FR015M9	2512	±1%	15mΩ	±15ppm/°C
PCSR2512FR020M9	2512	±1%	20mΩ	±15ppm/°C
PCSR2512FR050M9	2512	±1%	50mΩ	±15ppm/°C
PCSR2512FR100M9	2512	±1%	100mΩ	±15ppm/°C
PCSR2512DR010M9	2512	±0.5%	10mΩ	±15ppm/°C
PCSR2512DR015M9	2512	±0.5%	15mΩ	±15ppm/°C
PCSR2512DR020M9	2512	±0.5%	20mΩ	±15ppm/°C
PCSR2512DR050M9	2512	±0.5%	50mΩ	±15ppm/°C
PCSR2512DR100M9	2512	±0.5%	100mΩ	±15ppm/°C
PCSR2512BR010M9	2512	±0.1%	10mΩ	±15ppm/°C
PCSR2512BR015M9	2512	±0.1%	15mΩ	±15ppm/°C
PCSR2512BR020M9	2512	±0.1%	20mΩ	±15ppm/°C
PCSR2512BR050M9	2512	±0.1%	50mΩ	±15ppm/°C
PCSR2512BR100M9	2512	±0.1%	100mΩ	±15ppm/°C

TCR $\leq \pm 25 \text{ ppm}/^\circ\text{C}$ (-55~125°C, +20°C Ref), Tightest tolerance $\pm 0.5\%$
Excellent long-term stability Low thermal EMF
AEC-Q200 qualified

Introduction

This series is made from a precision Nickel-Chrome alloy and which is then precisely machined and welded using exclusive EB-Welding equipment designed and manufactured independently by C&B Group. PCSK series is molded version which can achieve ultra-low TCR within $\pm 15 \text{ ppm}/^\circ\text{C}$ and high tolerance up to $\pm 0.1\%$. With an operating temperature range of -65°C to +170°C, the series is ideal for current sensing circuits which ask for high precision and low TCR at the same time. Visit www.resistor.today to check stock and more information.



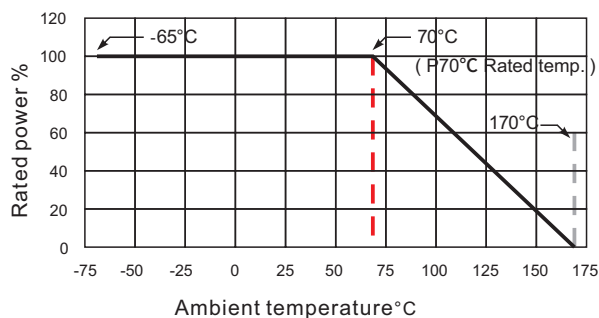
Application

- Precision Instrument
- Semiconductor ATE
- Battery test equipment
- Precision power supply

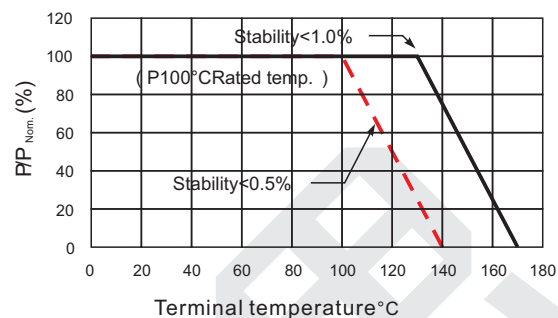
Specifications (mm)								
Series	Size	Rated Power	Resistance range	Tolerance	TCR	Operating temp	Material	Packaging
PCSK	2512	1W	10mΩ~100mΩ	$\pm 0.5\%$ $\pm 1\%$ $\pm 5\%$	$\leq \pm 25 \text{ ppm}/^\circ\text{C}$ (-55°C~+125°C, +20°C Ref)	-65°C~+170°C	Nickel-Chrome	tape&reel 4000pcs/reel
Dimensions								
L	W	H	D	a	b	c		
6.40±0.2	3.2±0.2	0.8±0.1	0.8±0.2	3.6±0.1	3.6±0.1	2.0±0.1		

Part Number Information													
Example: PCSK2512BR010P9 (PCSK 2512 $\pm 1\%$ 10mΩ $\pm 25 \text{ ppm}/^\circ\text{C}$ Standard)													
P	C	S	K	2	5	1	2	F	R	0	1	0	P 9
Series PCSK		Size 2512		Tolerance D= $\pm 0.5\%$ F= $\pm 1\%$ J= $\pm 5\%$		Resistance R010=10mΩ R015=15mΩ R020=20mΩ R050=50mΩ R100=100mΩ		TCR M= $\pm 25 \text{ ppm}/^\circ\text{C}$		Code 9=Standard 6=Unmarked			

Derating curve(Ambient temp.)



Derating curve(Terminal temp.)



Performance

Test Item	Test Method	Standard	Typical	Maximum
Short-time overload	5x rated power for 5s, measured 24±2h after test	MIL-STD-202 Method 201	±0.1%	±0.3%
High temp. storage	+170°C, 1000h, no load, measured 24±2h after test	MIL-STD-202 Method 108	±0.2%	±0.5%
Moisture resistance	T=24h/cycle, no load, 7a and 7b not required, measured 24±2h after test	MIL-STD-202 Method 106	±0.02%	±0.05%
Load life	+70°C, 2000h, rated power, measured 24±2h after test	MIL-STD-202 Method 108	±0.2%	±0.5%
Resistance to soldering heat	+260°C±5°C, 10s±1s, measured 24±2h after test	MIL-STD-202 Method 210	±0.05%	±0.3%
Thermal shock	-55°C~+125°C, 1000 cycles, measured 24±2h after test	JESD22 Method JA-104	±0.1%	±0.5%
High temp. & high humidity	+85°C, 85%RH, 10% of rated power, 1000h, measured 24±2h after test	MIL-STD-202 Method 103	±0.05%	±0.3%
Solderability	+235°C±5°C, 2s±0.5s	J-STD-202	95% covered	

Popular Part Number

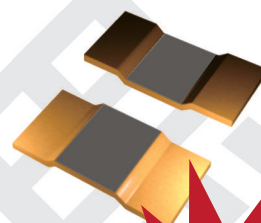
Part Number	Size	Tolerance	Resistance	TCR
PCSK2512JR010P9	2512	±5%	10mΩ	±25ppm/°C
PCSK2512JR015P9	2512	±5%	15mΩ	±25ppm/°C
PCSK2512JR020P9	2512	±5%	20mΩ	±25ppm/°C
PCSK2512JR050P9	2512	±5%	50mΩ	±25ppm/°C
PCSK2512JR100P9	2512	±5%	100mΩ	±25ppm/°C
PCSK2512FR010P9	2512	±1%	10mΩ	±25ppm/°C
PCSK2512FR015P9	2512	±1%	15mΩ	±25ppm/°C
PCSK2512FR020P9	2512	±1%	20mΩ	±25ppm/°C
PCSK2512FR050P9	2512	±1%	50mΩ	±25ppm/°C
PCSK2512FR100P9	2512	±1%	100mΩ	±25ppm/°C
PCSK2512DR010P9	2512	±0.5%	10mΩ	±25ppm/°C
PCSK2512DR015P9	2512	±0.5%	15mΩ	±25ppm/°C
PCSK2512DR020P9	2512	±0.5%	20mΩ	±25ppm/°C
PCSK2512DR050P9	2512	±0.5%	50mΩ	±25ppm/°C
PCSK2512DR100P9	2512	±0.5%	100mΩ	±25ppm/°C

**TCR $\leq \pm 25 \text{ ppm}/^\circ\text{C}$ (-55~+170°C, +20°C Ref), tightest tolerance $\pm 0.5\%$
No trimming & Non-hot-spot design, Low EMF
AEC-Q200 qualified**

Introduction

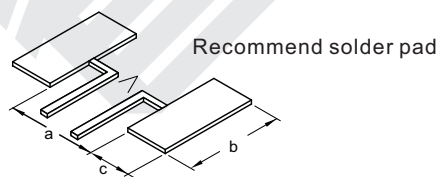
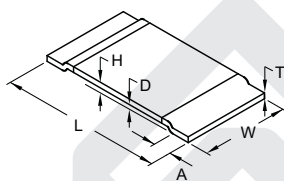
This series is made from a precision metal alloy and which is then precisely machined and welded using exclusive EB-Welding equipment designed and manufactured independently by C&B Group. The combination of excellent consistency of metal alloy, the precision machining capability and the efficient welding process allow the product to achieve a tight tolerance up to $\pm 0.5\%$ without trimming. The "Trimming Free" technology avoids the loss of rated current and the hot-spot due to notches in the trimming process, which greatly increases the reliability of the product. At the same time, the improved welding quality ensures very low EMF and high stability of the product. From the raw material to equipment and core process, whole process is strictly controlled inside of the house to make sure stable quality and timely delivery.

This series is ideal for high current sensing circuits which ask for high precision at the same time. Visit www.resistor.today to learn more.



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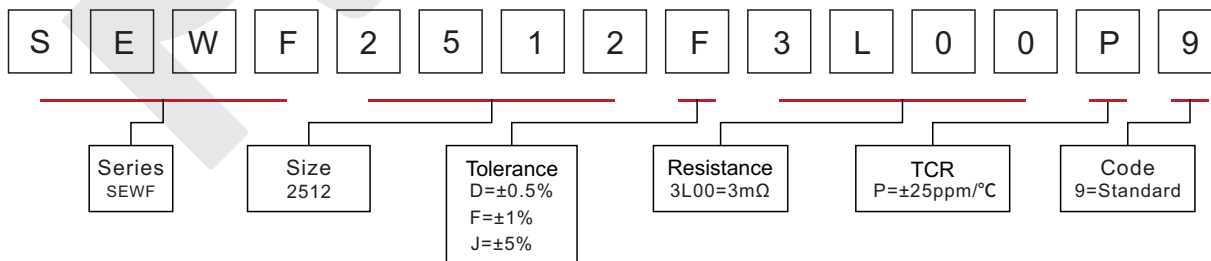
Specifications (mm)



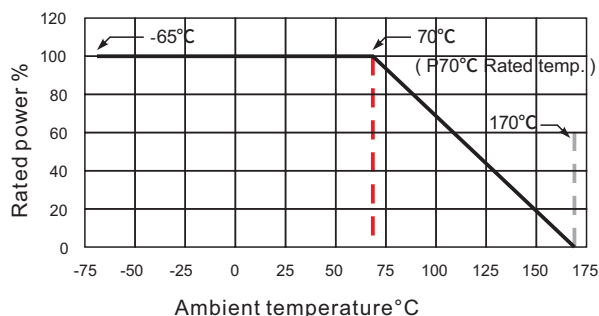
Series	Size	Rated Power	Resistance range	Tolerance	TCR	Operating temp	Packaging		
SEWF2512J2L00P9	2512	4W	3mΩ	±5%	≤±25ppm/°C (-55~+170°C,+20°C Ref)	-65~+170°C	tape&reel 4000pcs/reel		
SEWF2512F2L00P9				±1%					
SEWF2512D2L00P9				±0.5%					
Dimensions									
Size	L	W	A	D	T	H	a	b	c
2512	6.3±0.2	3.0±0.2	1.0±0.2	0.35±0.1	0.45±0.1	0.8±0.2	3.9±0.25	3.4±0.25	1.8±0.25

Part Number Information

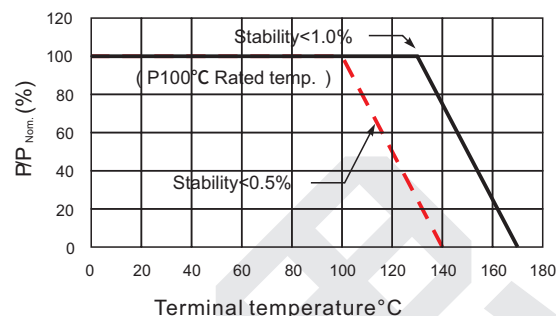
Example: SEWF2512F3L00P9 (SEWF 2512 $\pm 1\%$ 3mΩ $\pm 25 \text{ ppm}/^\circ\text{C}$ Standard)



Derating curve(Ambient temp.)



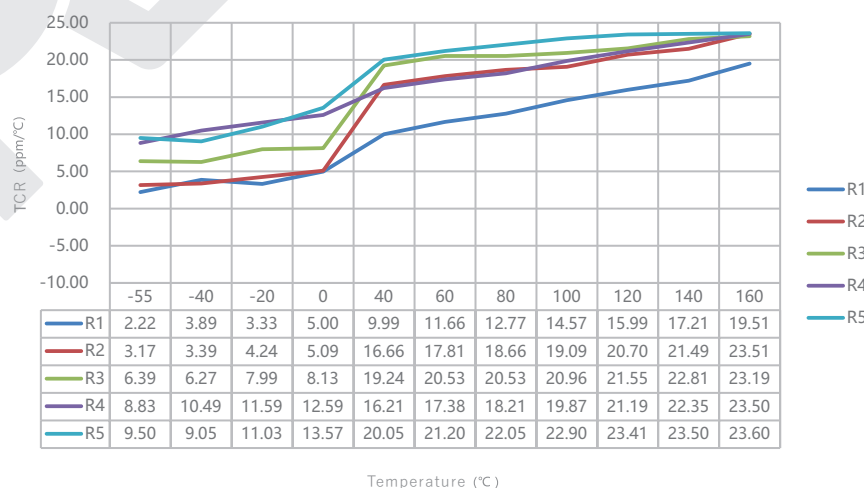
Derating curve(Terminal temp.)



Performance

Test Item	Test Method	Standard	Typical	Maximum
Short-time overload	5x rated power for 5s,measured 24±2h after test	MIL-STD-202 Method 201	±0.1%	±0.5%
Thermal shock	-55°C~+125°C,1000 cycles,measured 24±2h after test	JESD22 Method JA-104	±0.1%	±0.5%
Moisture resistance	T=24h/cycle,no load,7a and 7b not required,measured 24±2h after test	MIL-STD-202 Method 106	±0.2%	±0.5%
Load life	+70°C,2000h,rated power,measured 24±2h after test	MIL-STD-202 Method 108	±0.5%	±1.0%
Resistance to soldering heat	+260,±5°C,10s±1s,measured 24±2h after test	MIL-STD-202 Method 210	±0.2%	±0.5%
High temp. & high humidity	+85°C,85%RH,10% of rated power,1000h,measured 24±2h after test	MIL-STD-202 Method 103	±0.2%	±0.5%
Low temp. storage	-65°C for 96h,measured 24±2h after test	IEC 60068-2-1	±0.1%	±0.5%
Vibration	Frequency varied 10Hz to 2000Hz in 20 minutes,acceleration 5g X-Y-Z direction°C12 cycles	MIL-STD-202 Method 204	±0.05%	±0.2%
Mechanical shock	100g,6ms,half-sine shock wave,3 times/direction,18 times measured 24±2h after test	MIL-STD-202 Method 107	±0.05%	±0.2%
Resistance to solvent	Immerse in solvent for 3 min and then wipe 10 times 3 cycles of 3 solvents,clear and dry at ambient temperature	MIL-STD-202 Method 215	Clear marking No visible damage	
Solderability	+235°C±5°C,2s±0.5s	J-STD-202	95% covered	
TCR	-55°C and +170°C,+20°C Ref.	IEC 60115-1 4.8	Within the nominal value range	
Substrate bending	2mm,for 60s	AEC-Q200-005	±0.01%	±0.1%
Terminal strength	Force 17.7N,hold for 60s	AEC-Q200-006	±0.01%	±0.1%
Low temp. operation	-55°C,no load for 1h,rated voltage load for 45 min,no load for 15 min	IEC 60115-1 4.36	±0.2%	±0.5%

TCR Test Chart-3mΩ

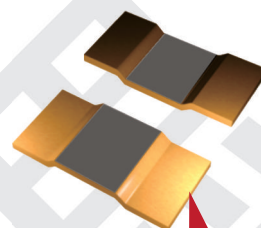


**TCR $\leq \pm 25 \text{ ppm}/^\circ\text{C}$ (-55~+170°C, +20°C Ref), tightest tolerance $\pm 0.5\%$
No trimming & Non-hot-spot design, Low EMF
AEC-Q200 qualified**

Introduction

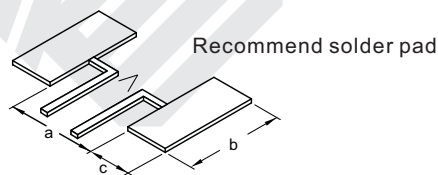
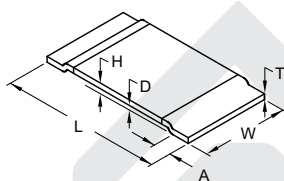
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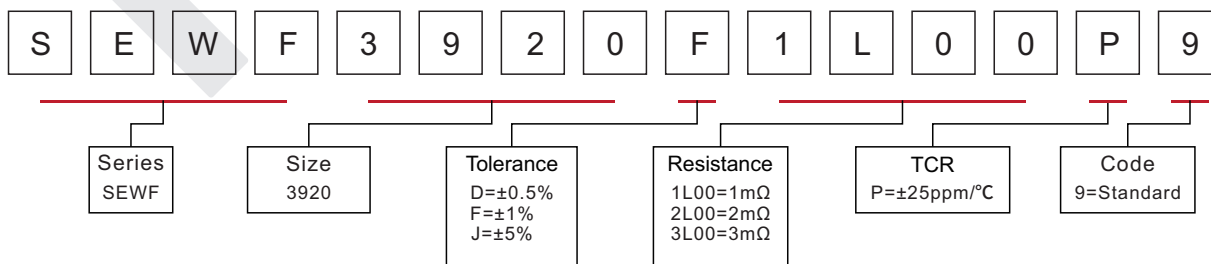
Specifications (mm)



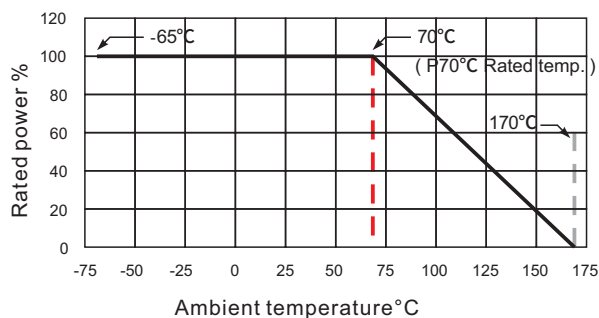
Series	Size	Rated Power	Resistance range	Tolerance	TCR	Operating temp.	Packaging			
SEWF3920	3920	8W	1mΩ	±5% ±1% ±0.5%	≤±25ppm/°C (-55~+70°C,+20°C Ref)	-65~+170°C	tape&reel 2000pcs/reel			
		6W	2mΩ							
		5W	3mΩ							
Dimensions										
Size	Resistance	L	W	A	D	T	H	a	b	c
3920	1mΩ	10.0±0.2	5.2±0.2	2.0±0.2	0.5±0.2	1.3±0.1	1.8±0.2	5.6±0.1	6.2±0.2	2.7±0.2
	2mΩ	10.0±0.2	5.2±0.2	2.0±0.2	0.5±0.2	0.65±0.1	1.15±0.2	5.6±0.1	6.2±0.2	2.7±0.2
	3mΩ	10.0±0.2	5.2±0.2	2.0±0.2	0.5±0.2	0.45±0.1	0.95±0.2	5.6±0.1	6.2±0.2	2.7±0.2

Part Number Information

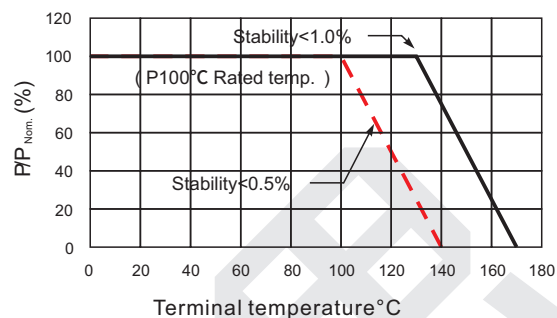
Example: SEWF3920F1L00P9 (SEWF 3920 ±1% 1mΩ ±25ppm/°C Standard)



Derating curve(Ambient temp.)



Derating curve(Terminal temp.)

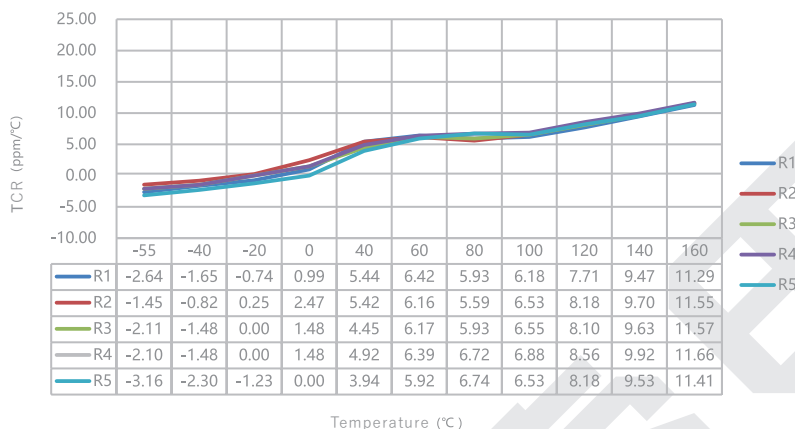
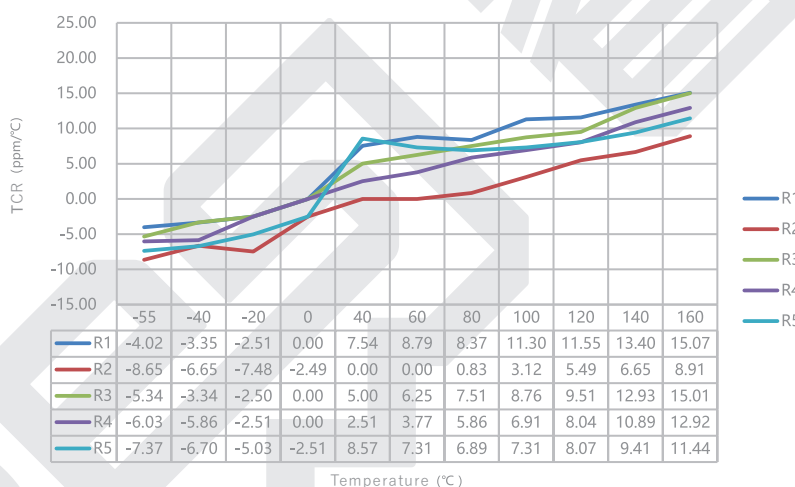
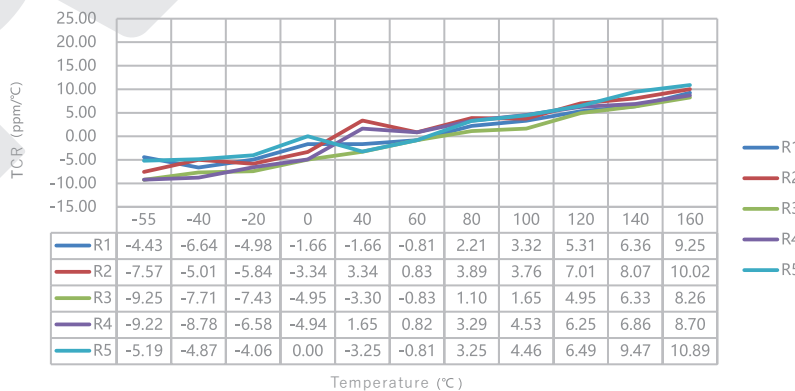


Performance

Test Item	Test Method	Standard	Typical	Maximum
Short-time overload	5x rated power for 5s, measured 24±2h after test	MIL-STD-202 Method 201	±0.1%	±0.5%
Thermal shock	-55°C~+125°C, 1000 cycles, measured 24±2h after test	JESD22 Method JA-104	±0.1%	±0.5%
Moisture resistance	T=24h/cycle, no load, 7a and 7b not required, measured 24±2h after test	MIL-STD-202 Method 106	±0.2%	±0.5%
Load life	+70°C, 2000h, rated power, measured 24±2h after test	MIL-STD-202 Method 108	±0.5%	±1.0%
Resistance to soldering heat	+260, ±5°C, 10s±1s, measured 24±2h after test	MIL-STD-202 Method 210	±0.2%	±0.5%
High temp. & high humidity	+85°C, 85%RH, 10% of rated power, 1000h, measured 24±2h after test	MIL-STD-202 Method 103	±0.2%	±0.5%
Low temp. storage	-65°C for 96h, measured 24±2h after test	IEC 60068-2-1	±0.1%	±0.5%
Vibration	Frequency varied 10Hz to 2000Hz in 20 minutes, acceleration 5g X-Y-Z direction °C 12 cycles	MIL-STD-202 Method 204	±0.05%	±0.2%
Mechanical shock	100g, 6ms, half-sine shock wave, 3 times/direction, 18 times measured 24±2h after test	MIL-STD-202 Method 107	±0.05%	±0.2%
Resistance to solvent	Immerse in solvent for 3 min and then wipe 10 times 3 cycles of 3 solvents, clean and dry at ambient temperature	MIL-STD-202 Method 215	Clear marking No visible damage	
Solderability	+235°C±5°C, 2s±0.5s	J-STD-202	95% covered	
TCR	-55°C and +170°C, +20°C Ref.	IEC 60115-1 4.8	Within the nominal value range	
Substrate bending	2mm, for 60s	AEC-Q200-005	±0.01%	±0.1%
Terminal strength	Force 17.7N, hold for 60s	AEC-Q200-006	±0.01%	±0.1%
Low temp. operation	-55°C, no load for 1h, rated voltage load for 45 min, no load for 15 min	IEC 60115-1 4.36	±0.2%	±0.5%

Popular Part Number

Part Number	Size	Tolerance	Resistance	TCR
SEWF3920J1L00P9	3920	±5%	1mΩ	±25ppm/°C
SEWF3920F1L00P9	3920	±1%	1mΩ	±25ppm/°C
SEWF3920D1L00P9	3920	±0.5%	1mΩ	±25ppm/°C
SEWF3920J2L00P9	3920	±5%	2mΩ	±25ppm/°C
SEWF3920F2L00P9	3920	±1%	2mΩ	±25ppm/°C
SEWF3920D2L00P9	3920	±0.5%	2mΩ	±25ppm/°C
SEWF3920J3L00P9	3920	±5%	3mΩ	±25ppm/°C
SEWF3920F3L00P9	3920	±1%	3mΩ	±25ppm/°C
SEWF3920D3L00P9	3920	±0.5%	3mΩ	±25ppm/°C

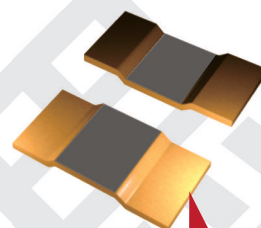
TCR Test Chart-1mΩ

TCR Test Chart-2mΩ

TCR Test Chart-3mΩ


**TCR $\leq \pm 25 \text{ ppm}/^\circ\text{C}$ (-55~+170 $^\circ\text{C}$, +20 $^\circ\text{C}$ Ref), tightest tolerance $\pm 0.5\%$
No trimming & Non-hot-spot design, Low EMF
AEC-Q200 qualified**

Introduction

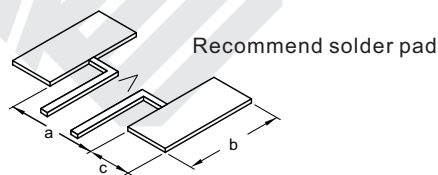
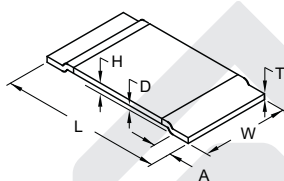
This series is made from a precision metal alloy and which is then precisely machined and welded using exclusive EB-Welding equipment designed and manufactured independently by C&B Group. The combination of excellent consistency of metal alloy, the precision machining capability and the efficient welding process allow the product to achieve a tight tolerance up to $\pm 0.5\%$ without trimming. The "Trimming Free" technology avoids the loss of rated current and the hot-spot due to notches in the trimming process, which greatly increases the reliability of the product. At the same time, the improved welding quality ensures very low EMF and high stability of the product. From the raw material to equipment and core process, whole process is strictly controlled inside of the house to make sure stable quality and timely delivery.

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Only for
DC current
sensing circuits

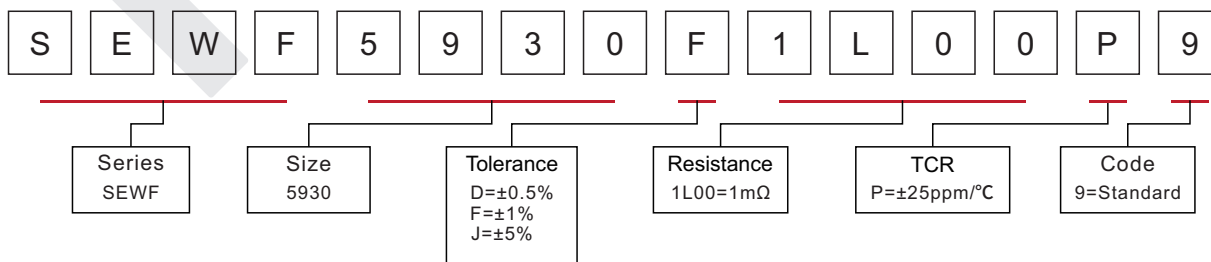
Specifications (mm)

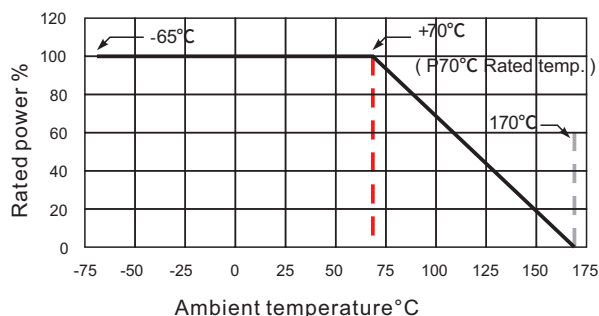
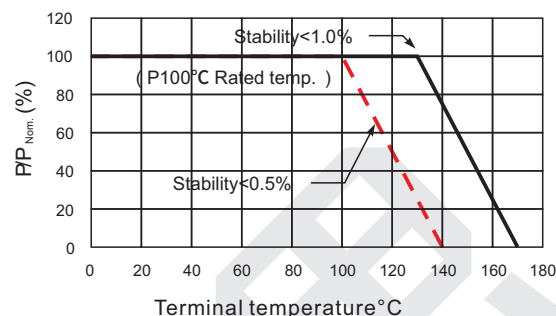


Series	Size	Rated Power	Resistance range	Tolerance	TCR	Operating temp	Packaging			
SEWF5930J1L00P9	5930	10W	1mΩ	±5%	≤±25ppm/°C (-55~+170°C,+20°C Ref)	-65~+170°C	tape&reel 2000pcs/reel			
SEWF5930F1L00P9				±1%						
SEWF5930D1L00P9				±0.5%						
Dimensions										
Size	Resistance	L	W	A	D	T	H	a	b	c
5930	1mΩ	15.0±0.3	7.75±0.3	4.0±0.2	0.5±0.2	1.05±0.1	1.65±0.2	5.6±0.1	8.75±0.2	5.2±0.2

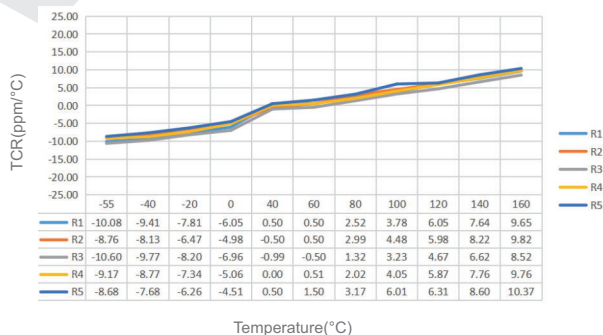
Part Number Information

Example: SEWF5930F1L00P9 (SEWF 5930 $\pm 1\%$ 1m Ω $\pm 25 \text{ ppm}/^\circ\text{C}$ Standard)



Derating curve(Ambient temp.)

Derating curve(Terminal temp.)

Performance

Test Item	Test Method	Standard	Typical	Maximum
Short-time overload	5x rated power for 5s,measured 24±2h after test	MIL-STD-202 Method 201	±0.1%	±0.5%
Thermal shock	-55°C~+125°C,1000 cycles,measured 24±2h after test	JESD22 Method JA-104	±0.1%	±0.5%
Moisture resistance	T=24h/cycle,no load,7a and 7b not required,measured 24±2h after test	MIL-STD-202 Method 106	±0.2%	±0.5%
Load life	+70°C,2000h,rated power,measured 24±2h after test	MIL-STD-202 Method 108	±0.5%	±1.0%
Resistance to soldering heat	+260,±5°C,10s±1s,measured 24±2h after test	MIL-STD-202 Method 210	±0.2%	±0.5%
High temp. & high humidity	+85°C,85%RH,10% of rated power,1000h,measured 24±2h after test	MIL-STD-202 Method 103	±0.2%	±0.5%
Low temp. storage	-65°C for 96h,measured 24±2h after test	IEC 60068-2-1	±0.1%	±0.5%
Vibration	Frequency varied 10Hz to 2000Hz in 20 minutes,acceleration 5g X-Y-Z direction°C12 cycles	MIL-STD-202 Method 204	±0.05%	±0.2%
Mechanical shock	100g,6ms,half-sine shock wave,3 times/direction,18 times measured 24±2h after test	MIL-STD-202 Method 107	±0.05%	±0.2%
Resistance to solvent	Immerse in solvent for 3 min and then wipe 10 times 3 cycles of 3 solvents,clear and dry at ambient temperature	MIL-STD-202 Method 215	Clear marking No visible damage	
Solderability	+235°C±5°C,2s±0.5s	J-STD-202	95% covered	
TCR	-55°C and +170°C,+20°C Ref.	IEC 60115-1 4.8	Within the nominal value range	
Substrate bending	2mm,for 60s	AEC-Q200-005	±0.01%	±0.1%
Terminal strength	Force 17.7N,hold for 60s	AEC-Q200-006	±0.01%	±0.1%
Low temp. operation	-55°C,no load for 1h,rated voltage load for 45 min,no load for 15 min	IEC 60115-1 4.36	±0.2%	±0.5%

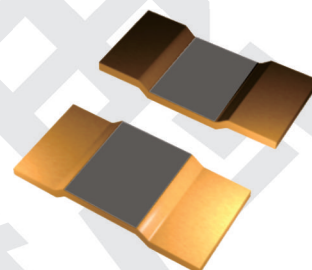
TCR Test Chart-1mΩ


TCR $\leq \pm 200 \text{ ppm}/^\circ\text{C}$ (-55~+170°C, +20°C Ref), tightest tolerance $\pm 0.5\%$
No trimming & Non-hot-spot design, Low EMF
AEC-Q200 qualified

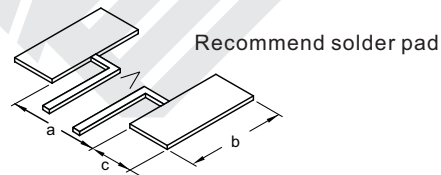
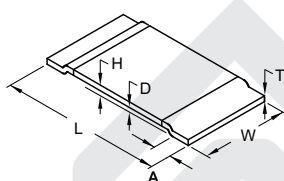
Introduction

This series is made from a precision Manganin alloy and which is then precisely machined and welded using exclusive EB-Welding equipment designed and manufactured independently by C&B Group. The combination of excellent consistency of metal alloy, the precision machining capability and the efficient welding process allow the product to achieve a tight tolerance up to $\pm 0.5\%$ without trimming. The "Trimming Free" technology avoids the loss of rated current and the hot-spot due to notches in the trimming process, which greatly increases the reliability of the product. At the same time, the improved welding quality ensures very low EMF and high stability of the product. From the raw material to equipment and core process, whole process is strictly controlled inside of the house to make sure stable quality and timely delivery.

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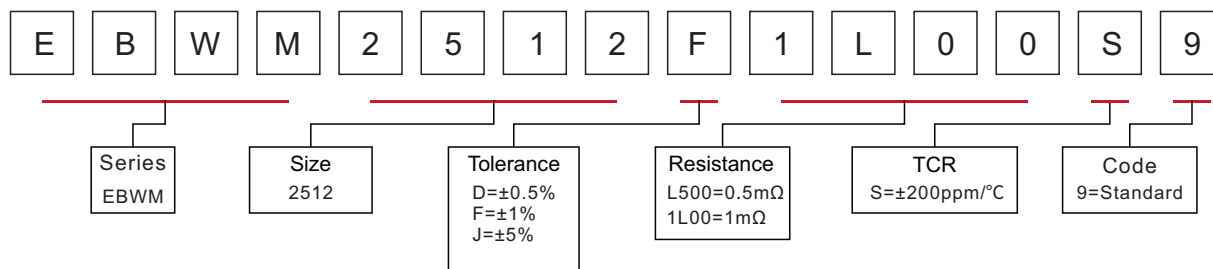
Specifications (mm)

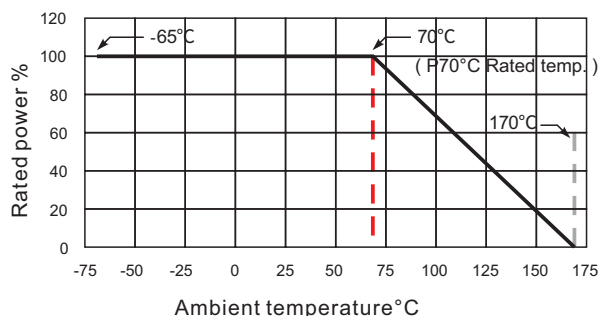
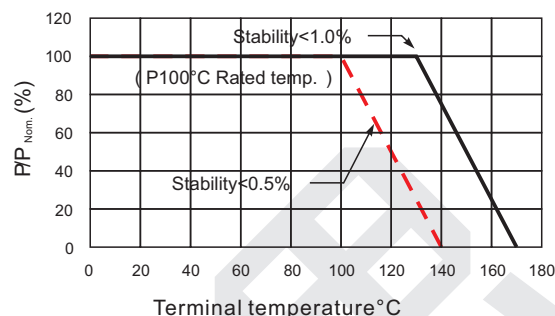


Series	Size	Rated Power	Resistance range	Tolerance	TCR	Operating temp	Material	Packaging		
EBWM2512JL500S9	2512	6W	0.5mΩ	±5%	≤±200ppm/°C (-55~+170°C,+20°C Ref)	-65~+170°C	Manganese-Copper	tape&reel 4000pcs/reel		
EBWM2512FL500S9				±1%						
EBWM2512DL500S9				±0.5%						
EBWM2512J1L00S9	2512	6W	1mΩ	±5%	≤±200ppm/°C (-55~+170°C,+20°C Ref)	-65~+170°C	Manganese-Copper	tape&reel 4000pcs/reel		
EBWM2512F1L00S9				±1%						
EBWM2512D1L00S9				±0.5%						
Dimensions										
Size	Resistance	L	W	A	D	T	H	a	b	c
2512	0.5mΩ	6.3±0.2	3.0±0.2	1.0±0.2	0.35±0.1	0.9±0.1	1.25±0.2	3.9±0.25	3.4±0.25	1.8±0.25
	1mΩ	6.3±0.2	3.0±0.2	1.0±0.2	0.35±0.1	0.4±0.1	0.75±0.2	3.9±0.25	3.4±0.25	1.8±0.25

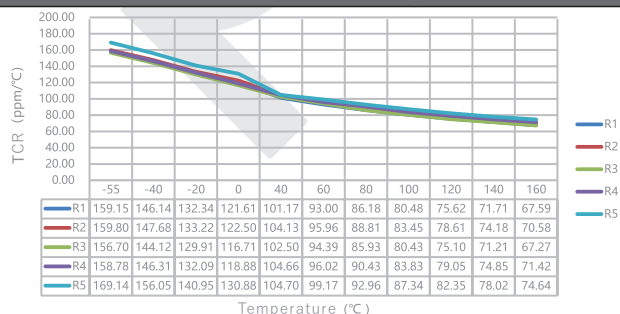
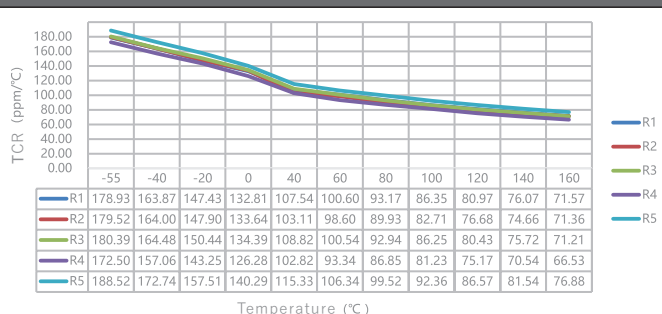
Part Number Information

Example: EBWM2512F1L00S9 (EBWM 2512 $\pm 1\%$ 1mΩ $\pm 200 \text{ ppm}/^\circ\text{C}$ Standard)



Derating curve(Ambient temp.)

Derating curve(Terminal temp.)

Performance

Test Item	Test Method	Standard	Typical	Maximum
Short-time overload	5x rated power for 5s,measured 24±2h after test	MIL-STD-202 Method 201	±0.1%	±0.5%
Thermal shock	-55°C~+125°C,1000 cycles,measured 24±2h after test	JESD22 Method JA-104	±0.1%	±0.5%
Moisture resistance	T=24h/cycle,no load,7a and 7b not required,measured 24±2h after test	MIL-STD-202 Method 106	±0.2%	±0.5%
Load life	+70°C,2000h,rated power,measured 24±2h after test	MIL-STD-202 Method 108	±0.5%	±1.0%
Resistance to soldering heat	+260,±5°C,10s±1s,measured 24±2h after test	MIL-STD-202 Method 210	±0.2%	±0.5%
High temp. & high humidity	+85°C,85%RH,10% of rated power,1000h,measured 24±2h after test	MIL-STD-202 Method 103	±0.2%	±0.5%
Low temp. storage	-65°C for 96h,measured 24±2h after test	IEC 60068-2-1	±0.1%	±0.5%
Vibration	Frequency varied 10Hz to 2000Hz in 20 minutes,acceleration 5g X-Y-Z direction°C12 cycles	MIL-STD-202 Method 204	±0.05%	±0.2%
Mechanical shock	100g,6ms,half-sine shock wave,3 times/direction,18 times measured 24±2h after test	MIL-STD-202 Method 107	±0.05%	±0.2%
Resistance to solvent	Immerse in solvent for 3 min and then wipe 10 times 3 cycles of 3 solvents,clear and dry at ambient temperature	MIL-STD-202 Method 215	Clear marking No visible damage	
Solderability	+235°C±5°C,2s±0.5s	J-STD-202	95% covered	
TCR	-55°C and +170°C,+20°C Ref.	IEC 60115-1 4.8	Within the nominal value range	
Substrate bending	2mm,for 60s	AEC-Q200-005	±0.01%	±0.1%
Terminal strength	Force 17.7N,hold for 60s	AEC-Q200-006	±0.01%	±0.1%
Low temp. operation	-55°C,no load for 1h,rated voltage load for 45 min,no load for 15 min	IEC 60115-1 4.36	±0.2%	±0.5%

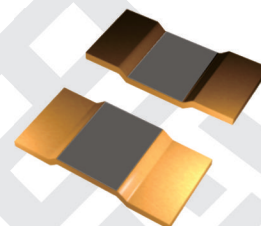
TCR Test Chart-0.5mΩ

TCR Test Chart-1mΩ


TCR $\leq \pm 100 \text{ ppm}/^\circ\text{C}$ (-55~+170°C, +20°C Ref), tightest tolerance $\pm 0.5\%$
No trimming & Non-hot-spot design, Low EMF
AEC-Q200 qualified

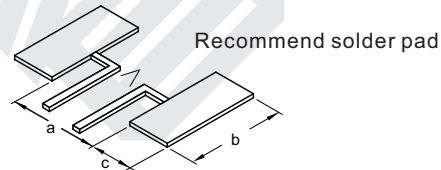
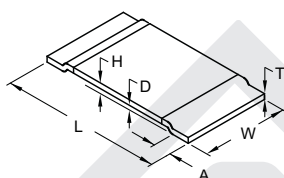
Introduction

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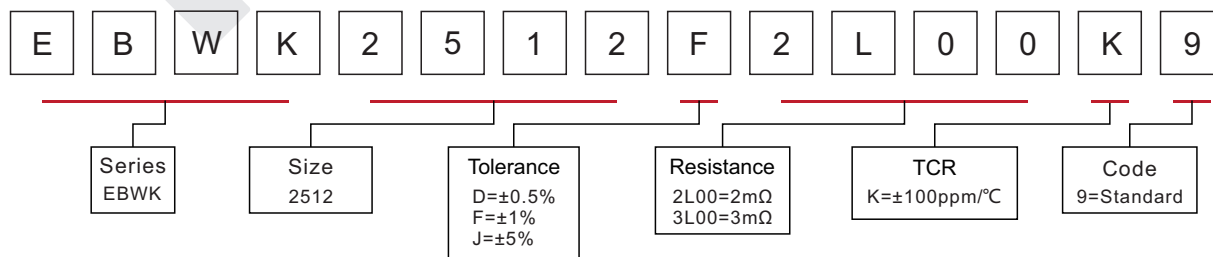
Specifications (mm)

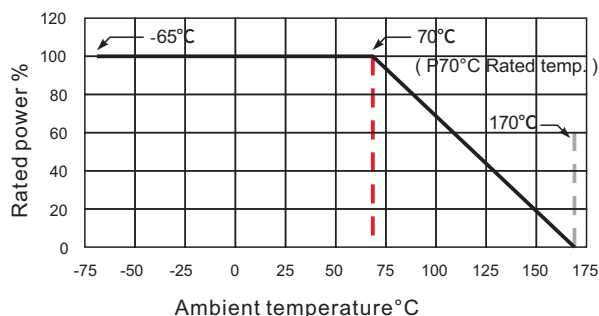
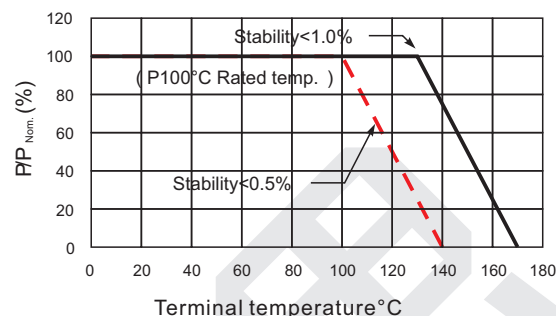


Series	Size	Rated Power	Resistance range	Tolerance	TCR	Operating temp	Material	Packaging		
EBWK2512J2L00K9	2512	5W	2mΩ	±5%	≤±100ppm/°C (-55~+170°C,+20°C Ref)	-65~+170°C	Nickel-Chrome	tape&reel 4000pcs/reel		
EBWK2512F2L00K9				±1%						
EBWK2512D2L00K9				±0.5%						
EBWK2512J3L00K9		4W	3mΩ	±5%						
EBWK2512F3L00K9				±1%						
EBWK2512D3L00K9				±0.5%						
Dimensions										
Size	Resistance	L	W	A	D	T	H	a	b	c
2512	2mΩ	6.3±0.2	3.0±0.2	1.0±0.2	0.35±0.1	0.6±0.1	0.95±0.2	3.9±0.25	3.4±0.25	1.8±0.25
	3mΩ	6.3±0.2	3.0±0.2	1.0±0.2	0.35±0.1	0.4±0.1	0.75±0.2	3.9±0.25	3.4±0.25	1.8±0.25

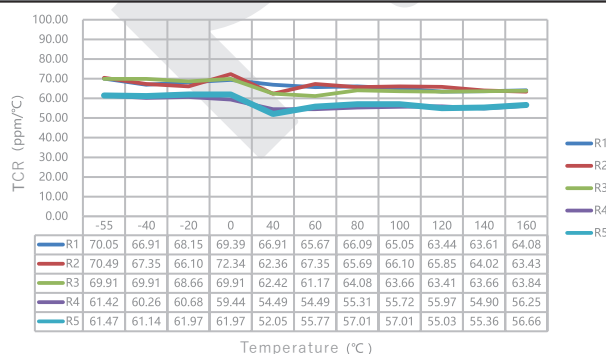
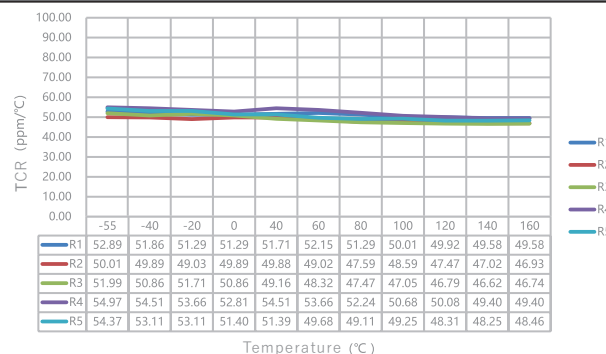
Part Number Information

Example: EBWK2512F2L00K9 (EBWK 2512 $\pm 1\%$ 2mΩ $\pm 100 \text{ ppm}/^\circ\text{C}$ Standard)



Derating curve(Ambient temp.)

Derating curve(Terminal temp.)

Performance

Test Item	Test Method	Standard	Typical	Maximum
Short-time overload	5x rated power for 5s,measured 24±2h after test	MIL-STD-202 Method 201	±0.1%	±0.5%
Thermal shock	-55°C~+125°C,1000 cycles,measured 24±2h after test	JESD22 Method JA-104	±0.1%	±0.5%
Moisture resistance	T=24h/cycle,no load,7a and 7b not required,measured 24±2h after test	MIL-STD-202 Method 106	±0.2%	±0.5%
Load life	+70°C,2000h,rated power,measured 24±2h after test	MIL-STD-202 Method 108	±0.5%	±1.0%
Resistance to soldering heat	+260,±5°C,10s±1s,measured 24±2h after test	MIL-STD-202 Method 210	±0.2%	±0.5%
High temp. & high humidity	+85°C,85%RH,10% of rated power,1000h,measured 24±2h after test	MIL-STD-202 Method 103	±0.2%	±0.5%
Low temp. storage	-65°C for 96h,measured 24±2h after test	IEC 60068-2-1	±0.1%	±0.5%
Vibration	Frequency varied 10Hz to 2000Hz in 20 minutes,acceleration 5g X-Y-Z direction°C12 cycles	MIL-STD-202 Method 204	±0.05%	±0.2%
Mechanical shock	100g,6ms,half-sine shock wave,3 times/direction,18 times measured 24±2h after test	MIL-STD-202 Method 107	±0.05%	±0.2%
Resistance to solvent	Immerse in solvent for 3 min and then wipe 10 times 3 cycles of 3 solvents,clear and dry at ambient temperature	MIL-STD-202 Method 215	Clear marking No visible damage	
Solderability	+235°C±5°C,2s±0.5s	J-STD-202	95% covered	
TCR	-55°C and +170°C,+20°C Ref.	IEC 60115-1 4.8	Within the nominal value range	
Substrate bending	2mm,for 60s	AEC-Q200-005	±0.01%	±0.1%
Terminal strength	Force 17.7N,hold for 60s	AEC-Q200-006	±0.01%	±0.1%
Low temp. operation	-55°C,no load for 1h,rated voltage load for 45 min,no load for 15 min	IEC 60115-1 4.36	±0.2%	±0.5%

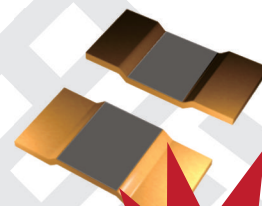
TCR Test Chart-2mΩ

TCR Test Chart-3mΩ


TCR $\leq \pm 25 \text{ ppm}/^\circ\text{C}$ (-55~+170°C, +20°C Ref), tightest tolerance $\pm 0.5\%$
No trimming & Non-hot-spot design, Low EMF
AEC-Q200 qualified

Introduction

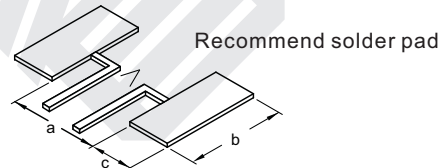
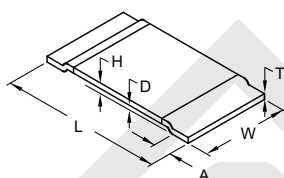
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Only for
DC current
sensing circuits

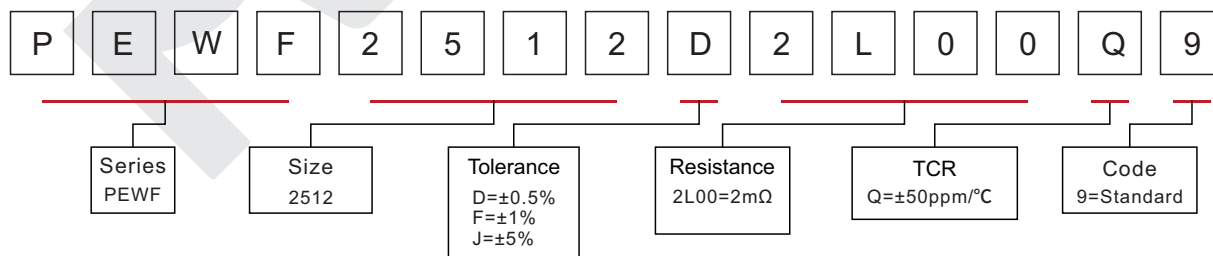
Specifications (mm)

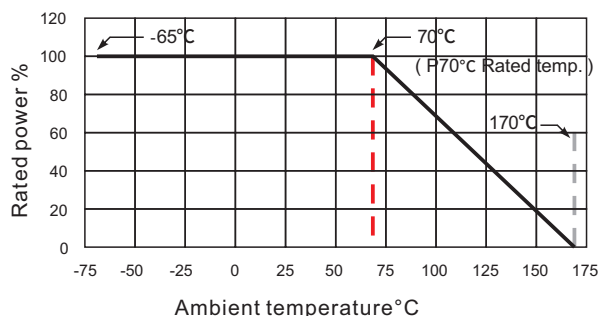
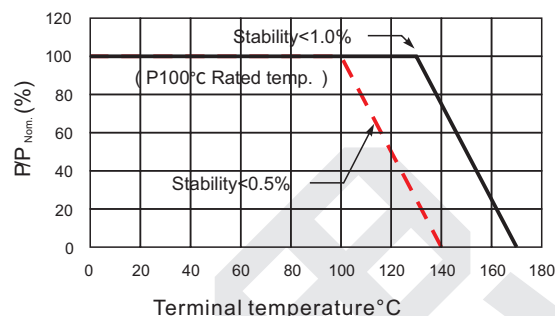


Series	Size	Rated Power	Resistance range	Tolerance	TCR	Operating temp	Material	Packaging	
PEWF2512J2L00Q9	2512	5W	2mΩ	±5%	≤±100ppm/°C (-55~+170°C,+20°C Ref)	-65~+170°C	Nickel-Chrome	tape&reel 4000pcs/reel	
PEWF2512F2L00Q9				±1%					
PEWF2512D2L00Q9				±0.5%					
Dimensions									
Size	L	W	A	D	T	H	a	b	c
2512	6.3±0.2	3.0±0.2	1.0±0.2	0.35±0.1	0.65±0.1	1.0±0.2	3.9±0.25	3.4±0.25	1.8±0.25

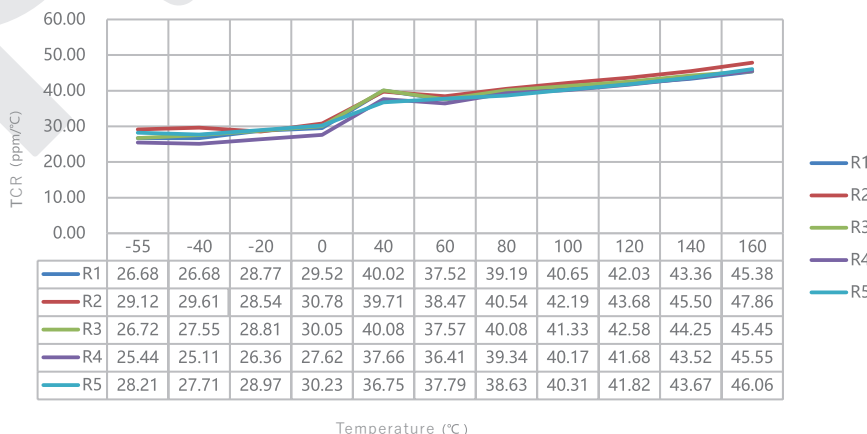
Part Number Information

Example: PEWF2512D2L00Q9 (PEWF 2512 $\pm 0.5\%$ 2mΩ $\pm 50 \text{ ppm}/^\circ\text{C}$ Standard)



Derating curve(Ambient temp.)

Derating curve(Terminal temp.)

Performance

Test Item	Test Method	Standard	Typical	Maximum
Short-time overload	5x rated power for 5s,measured 24±2h after test	MIL-STD-202 Method 201	±0.1%	±0.5%
Thermal shock	-55°C~+125°C,1000 cycles,measured 24±2h after test	JESD22 Method JA-104	±0.1%	±0.5%
Moisture resistance	T=24h/cycle,no load,7a and 7b not required,measured 24±2h after test	MIL-STD-202 Method 106	±0.2%	±0.5%
Load life	+70°C,2000h,rated power,measured 24±2h after test	MIL-STD-202 Method 108	±0.5%	±1.0%
Resistance to soldering heat	+260,±5°C,10s±1s,measured 24±2h after test	MIL-STD-202 Method 210	±0.2%	±0.5%
High temp. & high humidity	+85°C,85%RH,10% of rated power,1000h,measured 24±2h after test	MIL-STD-202 Method 103	±0.2%	±0.5%
Low temp. storage	-65°C for 96h,measured 24±2h after test	IEC 60068-2-1	±0.1%	±0.5%
Vibration	Frequency varied 10Hz to 2000Hz in 20 minutes,acceleration 5g X-Y-Z direction°C12 cycles	MIL-STD-202 Method 204	±0.05%	±0.2%
Mechanical shock	100g,6ms,half-sine shock wave,3 times/direction,18 times measured 24±2h after test	MIL-STD-202 Method 107	±0.05%	±0.2%
Resistance to solvent	Immerse in solvent for 3 min and then wipe 10 times 3 cycles of 3 solvents,clear and dry at ambient temperature	MIL-STD-202 Method 215	Clear marking No visible damage	
Solderability	+235°C±5°C,2s±0.5s	J-STD-202	95% covered	
TCR	-55°C and +170°C,+20°C Ref.	IEC 60115-1 4.8	Within the nominal value range	
Substrate bending	2mm,for 60s	AEC-Q200-005	±0.01%	±0.1%
Terminal strength	Force 17.7N,hold for 60s	AEC-Q200-006	±0.01%	±0.1%
Low temp. operation	-55°C,no load for 1h,rated voltage load for 45 min,no load for 15 min	IEC 60115-1 4.36	±0.2%	±0.5%

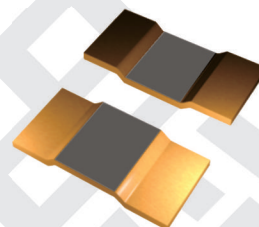
TCR Test Chart-2mΩ


**TCR $\leq \pm 100 \text{ ppm}/^\circ\text{C}$ (+20~+60°C, +20°C Ref), tightest tolerance $\pm 0.5\%$
No trimming & Non-hot-spot design, Low EMF
AEC-Q200 qualified**

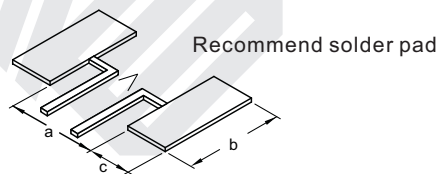
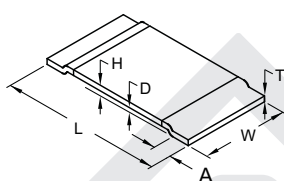
Introduction

This series is made from a precision Manganin alloy and which is then precisely machined and welded using exclusive EB-Welding equipment designed and manufactured independently by C&B Group. The combination of excellent consistency of metal alloy, the precision machining capability and the efficient welding process allow the product to achieve a tight tolerance up to $\pm 0.5\%$ without trimming. The "Trimming Free" technology avoids the loss of rated current and the hot-spot due to notches in the trimming process, which greatly increases the reliability of the product. At the same time, the improved welding quality ensures very low EMF and high stability of the product. From the raw material to equipment and core process, whole process is strictly controlled inside of the house to make sure stable quality and timely delivery.

This series is ideal for high current sensing circuits which ask for high precision at the same time. Visit www.resistor.today to learn more.



Specifications (mm)



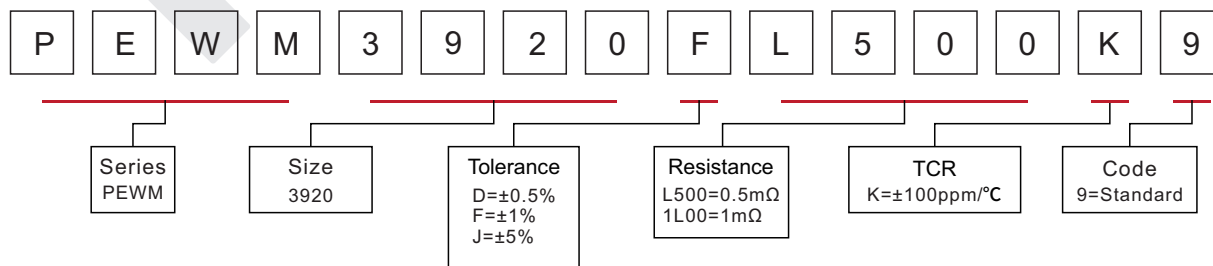
Series	Size	Rated Power	Resistance range	Tolerance	TCR	Operating temp	Material	Packaging
PEWM3920JL500K9	3920	9W	0.5mΩ	±5%	≤±100ppm/°C (+20~+60°C,+20°C Ref)	-65°C~+170°C	Manganese- Copper	tape&reel 2000pcs/reel
PEWM3920FL500K9				±1%				
PEWM3920DL500K9				±0.5%				
PEWM3920J1L00K9		8W	1mΩ	±5%				
PEWM3920F1L00K9				±1%				
PEWM3920D1L00K9				±0.5%				

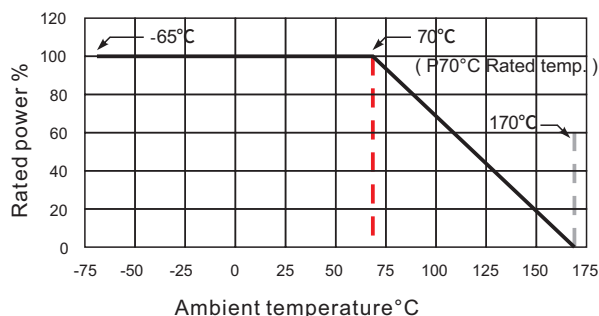
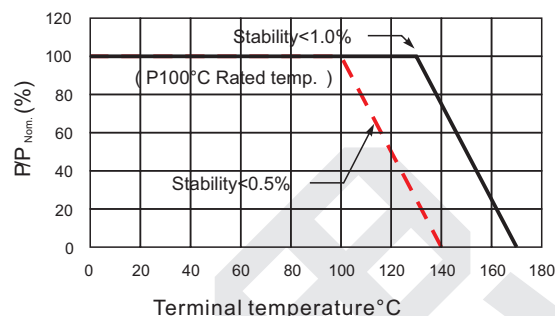
Dimensions

Size	Resistance	L	W	A	D	T	H	a	b	c
3920	0.5mΩ	10.0±0.3	5.2±0.3	2.0±0.2	0.5±0.1	0.8±0.1	1.3±0.2	5.6±0.1	6.2±0.2	2.7±0.2
	1mΩ	10.0±0.3	5.2±0.3	2.0±0.2	0.5±0.1	0.4±0.1	0.9±0.2	5.6±0.1	6.2±0.2	2.7±0.2

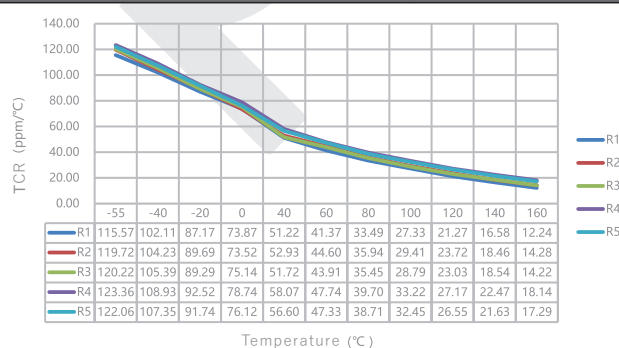
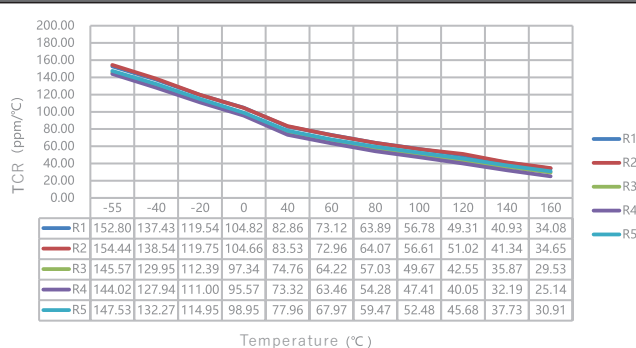
Part Number Information

Example: PEWM3920FL500K9 (PEWM 3920 $\pm 1\%$ 0.5m Ω ± 100 ppm/ $^{\circ}$ C Standard)



Derating curve(Ambient temp.)

Derating curve(Terminal temp.)

Performance

Test Item	Test Method	Standard	Typical	Maximum
Short-time overload	5x rated power for 5s,measured 24±2h after test	MIL-STD-202 Method 201	±0.1%	±0.5%
Thermal shock	-55°C~+125°C,1000 cycles,measured 24±2h after test	JESD22 Method JA-104	±0.1%	±0.5%
Moisture resistance	T=24h/cycle,no load,7a and 7b not required,measured 24±2h after test	MIL-STD-202 Method 106	±0.2%	±0.5%
Load life	+70°C,2000h,rated power,measured 24±2h after test	MIL-STD-202 Method 108	±0.5%	±1.0%
Resistance to soldering heat	+260,±5°C,10s±1s,measured 24±2h after test	MIL-STD-202 Method 210	±0.2%	±0.5%
High temp. & high humidity	+85°C,85%RH,10% of rated power,1000h,measured 24±2h after test	MIL-STD-202 Method 103	±0.2%	±0.5%
Low temp. storage	-65°C for 96h,measured 24±2h after test	IEC 60068-2-1	±0.1%	±0.5%
Vibration	Frequency varied 10Hz to 2000Hz in 20 minutes,acceleration 5g X-Y-Z direction°C12 cycles	MIL-STD-202 Method 204	±0.05%	±0.2%
Mechanical shock	100g,6ms,half-sine shock wave,3 times/direction,18 times measured 24±2h after test	MIL-STD-202 Method 107	±0.05%	±0.2%
Resistance to solvent	Immerse in solvent for 3 min and then wipe 10 times 3 cycles of 3 solvents,clear and dry at ambient temperature	MIL-STD-202 Method 215	Clear marking No visible damage	
Solderability	+235°C±5°C,2s±0.5s	J-STD-202	95% covered	
TCR	-55°C and +170°C,+20°C Ref.	IEC 60115-1 4.8	Within the nominal value range	
Substrate bending	2mm,for 60s	AEC-Q200-005	±0.01%	±0.1%
Terminal strength	Force 17.7N,hold for 60s	AEC-Q200-006	±0.01%	±0.1%
Low temp. operation	-55°C,no load for 1h,rated voltage load for 45 min,no load for 15 min	IEC 60115-1 4.36	±0.2%	±0.5%

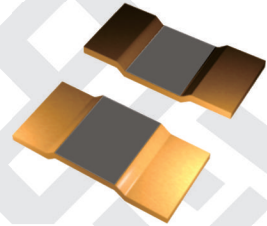
TCR Test Chart-0.5mΩ

TCR Test Chart-1mΩ


**TCR $\leq \pm 50 \text{ ppm}/^\circ\text{C}$ (-55~+170°C, +20°C Ref), tightest tolerance $\pm 0.5\%$
No trimming & Non-hot-spot design, Low EMF
AEC-Q200 qualified**

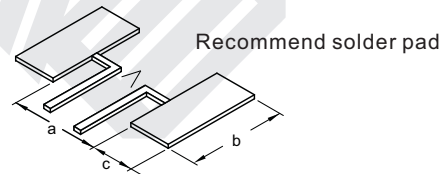
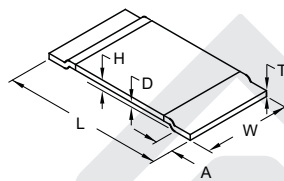
Introduction

This series is made from a precision Nickel-Chrome alloy and which is then precisely machined and welded using exclusive EB-Welding equipment designed and manufactured independently by C&B Group. The combination of excellent consistency of metal alloy, the precision machining capability and the efficient welding process allow the product to achieve a tight tolerance up to $\pm 0.5\%$ without trimming. The "Trimming Free" technology avoids the loss of rated current and the hot-spot due to notches in the trimming process, which greatly increases the reliability of the product. At the same time, the improved welding quality ensures very low EMF and high stability of the product. From the raw material to equipment and core process, whole process is strictly controlled inside of the house to make sure stable quality and timely delivery.

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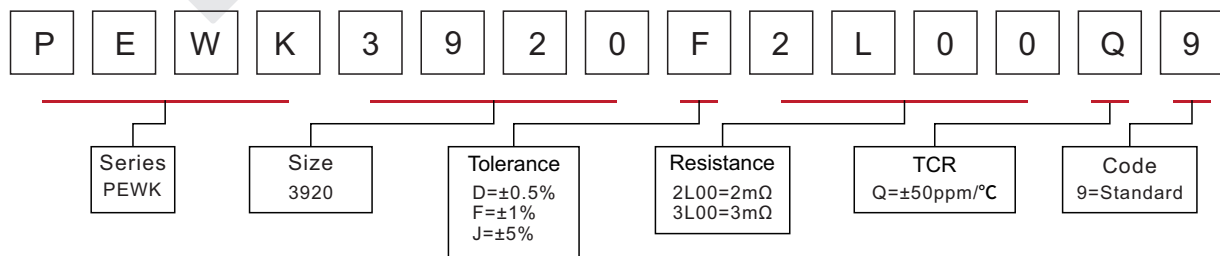
Specifications (mm)

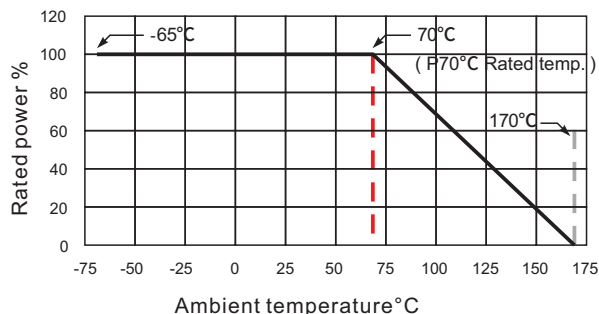
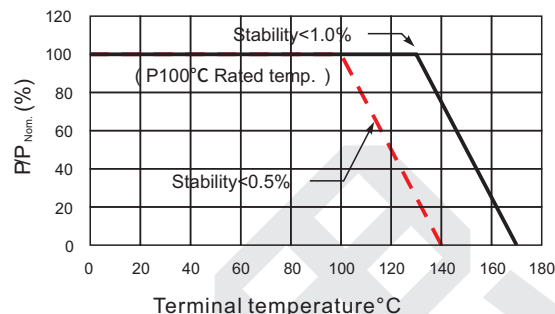


Series	Size	Rated Power	Resistance range	Tolerance	TCR	Operating temp	Material	Packaging		
PEWK3920J2L00Q9	3920	6W	2mΩ	±5%	≤±50ppm/°C (-55~+170°C,20+°C Ref)	-65~+170°C	Nickel-Chrome	tape&reel 2000pcs/reel		
PEWK3920F2L00Q9				±1%						
PEWK3920D2L00Q9				±0.5%						
PEWK3920J3L00Q9		5W	3mΩ	±5%						
PEWK3920F3L00Q9				±1%						
PEWK3920D3L00Q9				±0.5%						
Dimensions										
Size	Resistance	L	W	A	D	T	H	a	b	c
3920	2mΩ	10.0±0.3	5.2±0.3	2.0±0.2	0.5±0.1	0.6±0.1	1.1±0.2	5.6±0.1	6.2±0.2	2.7±0.2
	3mΩ	10.0±0.3	5.2±0.3	2.0±0.2	0.5±0.1	0.4±0.1	0.9±0.2	5.6±0.1	6.2±0.2	2.7±0.2

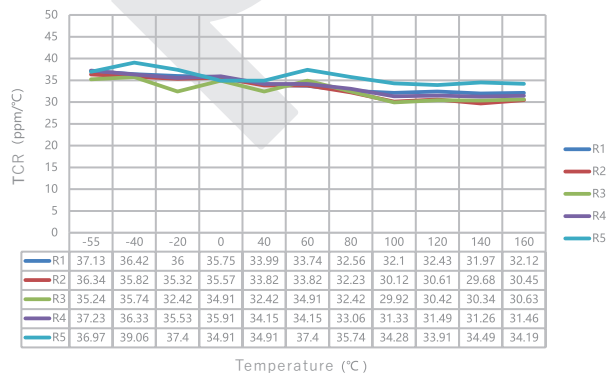
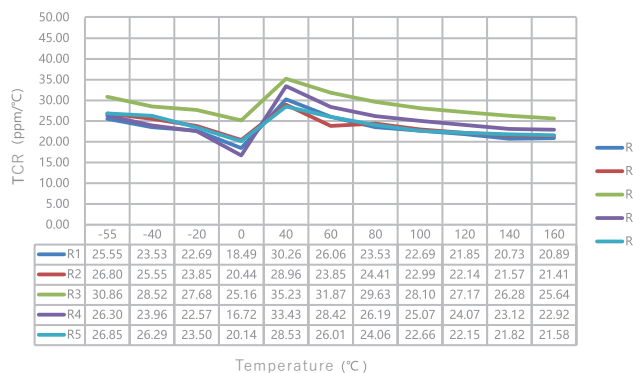
Part Number Information

Example: PEWK3920F2L00Q9 (PEWK 3920 $\pm 1\%$ 2mΩ $\pm 50 \text{ ppm}/^\circ\text{C}$ Standard)



Derating curve(Ambient temp.)

Derating curve(Terminal temp.)

Performance

Test Item	Test Method	Standard	Typical	Maximum
Short-time overload	5x rated power for 5s,measured 24±2h after test	MIL-STD-202 Method 201	±0.1%	±0.5%
Thermal shock	-55°C~+125°C,1000 cycles,measured 24±2h after test	JESD22 Method JA-104	±0.1%	±0.5%
Moisture resistance	T=24h/cycle,no load,7a and 7b not required,measured 24±2h after test	MIL-STD-202 Method 106	±0.2%	±0.5%
Load life	+70°C,2000h,rated power,measured 24±2h after test	MIL-STD-202 Method 108	±0.5%	±1.0%
Resistance to soldering heat	+260,±5°C,10s±1s,measured 24±2h after test	MIL-STD-202 Method 210	±0.2%	±0.5%
High temp. & high humidity	+85°C,85%RH,10% of rated power,1000h,measured 24±2h after test	MIL-STD-202 Method 103	±0.2%	±0.5%
Low temp. storage	-65°C for 96h,measured 24±2h after test	IEC 60068-2-1	±0.1%	±0.5%
Vibration	Frequency varied 10Hz to 2000Hz in 20 minutes,acceleration 5g X-Y-Z direction°C12 cycles	MIL-STD-202 Method 204	±0.05%	±0.2%
Mechanical shock	100g,6ms,half-sine shock wave,3 times/direction,18 times measured 24±2h after test	MIL-STD-202 Method 107	±0.05%	±0.2%
Resistance to solvent	Immerse in solvent for 3 min and then wipe 10 times 3 cycles of 3 solvents,clear and dry at ambient temperature	MIL-STD-202 Method 215	Clear marking No visible damage	
Solderability	+235°C±5°C,2s±0.5s	J-STD-202	95% covered	
TCR	-55°C and +170°C,+20°C Ref.	IEC 60115-1 4.8	Within the nominal value range	
Substrate bending	2mm,for 60s	AEC-Q200-005	±0.01%	±0.1%
Terminal strength	Force 17.7N,hold for 60s	AEC-Q200-006	±0.01%	±0.1%
Low temp. operation	-55°C,no load for 1h,rated voltage load for 45 min,no load for 15 min	IEC 60115-1 4.36	±0.2%	±0.5%

TCR Test Chart-2mΩ

TCR Test Chart3mΩ


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