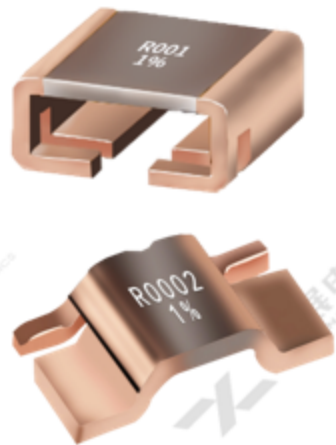


四端子分流电阻-SBB系列

4-Terminal Shunt Resistor – SBB Series

特征 Features

精度±5%、±2%、±1%和±0.5%	Tolerance ±5%, ±2%, ±1% and ±0.5%
使用温度-65°C~170°C	Operating Temperature range -65°C~170°C
电子束焊接结构	Electron beam welding
耐冲击	Ideal for pulse application
电感小于3纳亨	Low Inductance < 3nH
温度系数±50, ±75ppm/°C	TCR±50, ±75ppm/°C
符合RoHS 要求	RoHS Compliant
特殊规格可以订做	Customizable
符合AEC-Q200	AEC-Q200 qualified



应用范围 Applications

变频驱动、伺服驱动系统	Frequency conversion drive, servo drive system
大电流电池管理系统	High current battery management system
汽车电子控制单元、汽车油泵驱动	Automobile electronic control unit, automobile oil pump drive
DC/DC, DC/AC电源模块	DC/DC, DC/AC power modules
自动化控制系统	Automatic control system
工业仪器设备	Industrial instrument and equipment

订购信息 Ordering information

SBB	-K	-1	F	-y	
Yezhan Type	Element Material	Resistance Value(mΩ)	Tolerance		Other
SBB	M: Manganin K: Karma		J: ±5% G: ±2% F: ±1% D: ±0.5%	y: Out (外折) n: In (内折)	

说明 Notice

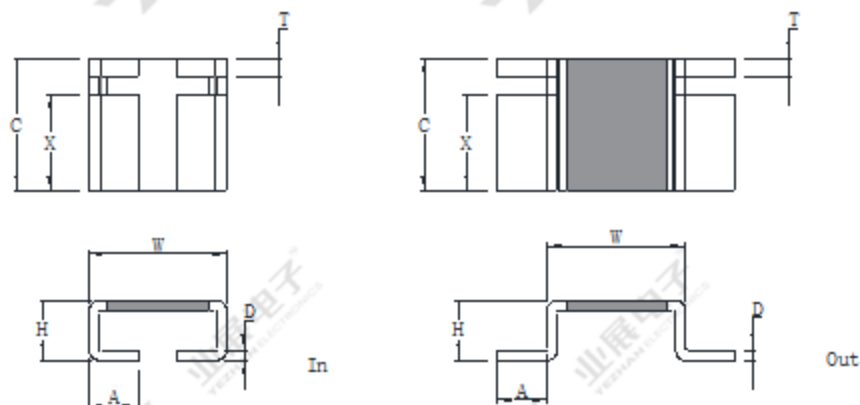
适用范围 Scope

本承认书适用于深圳市业展电子有限公司 制造之[四端子分流电阻]。
This specification is available for Alloy Shunt Resistors manufactured by Shenzhen Yezhan Electronics Co., Ltd.

标准试验状态 Standard measuring conditions

温度 $20\pm 2^{\circ}\text{C}$ 、湿度 $65\pm 5\%$ 。但在温度 $5\sim 35^{\circ}\text{C}$ 、湿度 $45\sim 85\%$ 之情况下，仍可给予判定。
Temperature $20\pm 2^{\circ}\text{C}$, Humidity $65\pm 5\%$. Being no doubt about the judgment, measurements can be made within the following Temperature $5\sim 35^{\circ}\text{C}$, Humidity $45\sim 85\%$.

产品尺寸和PCB板布局 Product Dimensions and pcb-layout (Reflow-soldering)



(Unit: mm)

Type	Size	W (mm)	A (mm)	C (mm)	X (mm)	T (mm)	H (mm)	Tolerance (mΩ)
SBB-M/K	In	6.9±0.3	2.5±0.2	6.6±0.3	4.8±0.4	0.9±0.1	3±0.5	0.2-5
SBB-M/K	Out							

Solder pad type	a	c	e	f	g
In	2.9	2	0.9	0.8	5.6
Out	4	5.5	0.9	0.8	5.6



Size	Element Material	Resistance (mΩ)	Rthi (°C/W)	D±0.1 (mm)	TCR (ppm/°C)	P70 °C (W)
Out	M	0.2	3	1.05	±75	5
		0.3	4	1.06	±75	10
		0.5	6	0.67	±75	8
		0.7	8	0.48	±75	7
		1	13	0.33	±75	6
	K	1.5	13	0.67	±50	5
		2	16	0.47	±50	5
		3	19	0.34	±50	5
		4	-	0.4	±50	4
		5	-	0.4	±50	3

Size	Element Material	Resistance (mΩ)	Rthi (°C/W)	D±0.1 (mm)	TCR (ppm/°C)	P70 °C (W)
In	M	0.3	4	0.40	±75	10
		0.5	5	0.67	±75	8
		1	10	0.33	±75	6
	K	2	14	0.50	±50	5
		3	19	0.34	±50	5
		4	-	0.4	±50	4
		5	-	0.4	±50	3

TCR (ppm/°C) : Test conditions at 20°C~120°C.

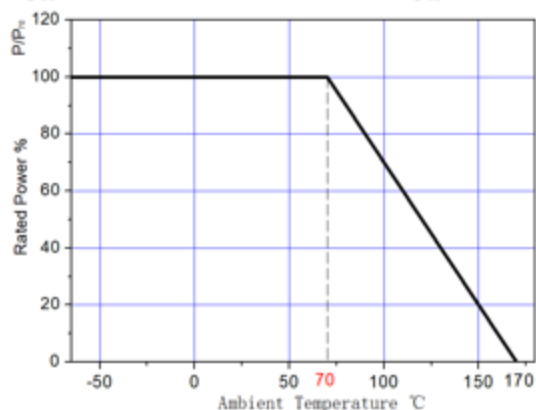
*备注Note:

1. 部分产品的温漂可低至20ppm/°C 以内, 参看SBBP系列。

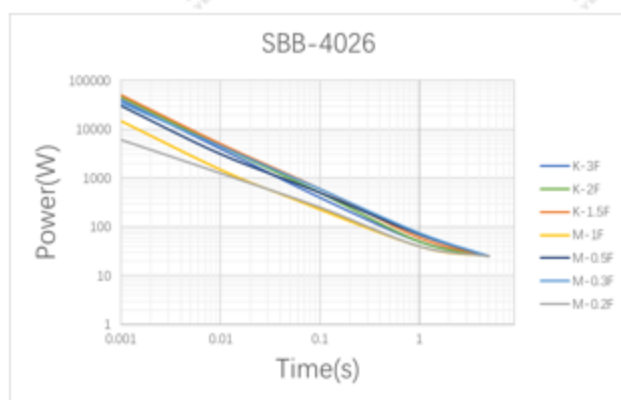
The TCR of some products can be down to 20 ppm/°C, refer to **SBBP** Series .

工作特性 Performance Data

降功率曲线 Power Derating



脉冲曲线 Pulse curve



耐久性测试 Endurance Test

Items	Additional Requirements	Reference	Limits
Temperature Cycling	1000 Cycles(-55°C to +125°C)	JESD22 Method JA-104	±0.5%
High Temperature Exposure	100hrs.@T=170°C.Unpowered.	MIL-STD-202 Method 108	±0.5%
Biased Humidity	1000hrs 85°C/85%RH. Note:Specified conditions:10% of operating power.	MIL-STD-202 Method 103	±0.5%
Operational Life	Condition D Steady State TA=125°C at rated power.	MIL-STD-202 Method 108	±0.5%
Solderability	245°C±5°C,5s±0.5s	J-STD-002C	95% Coverage Minimum

Items	Additional Requirements	Reference	Limits
Vibration	5 g's for 20 min, 12 cycles each of 3 orientations. Note: Use 8"X5" PCB .031" thick 7 secure points on one long side and 2 secure points at corners of opposite sides. Parts mounted within 2" from any secure point. Test from 10-2000 Hz.	MIL-STD-202 Method 204	±0.5%
Resistance to Soldering Heat	260°C±5°C, 10s±1s	MIL-STD-202 Method 210	±0.5%
Short Time Overload	5×Rated power for 5 s	MIL-STD-202 Method 301	±0.5%
Mechanical Shock	1) Pulse waveform: Half-Sine pulse. 2) Accelerate peak: 100g. 3) Pulse duration: 6ms. 4) Orientation & Shock time: ±X, ±Y, ±Z; 3 times each orientation, total 18 times	MIL-STD-202H Method 213	±0.5%
ESD	1) Direct Contact (DC): ±6kV; 2) Air Discharge (AD): ±12kV, ±16kV, ±25kV;	AEC-Q200-002 REV-B,	±0.5%
Board Flex	1) PCB board size(H×W×T): 100mm ×40mm ×1.6mm. 2) Press tool: r = 340mm, Width = 20mm. 3) Deformation displacement: 2mm. 4) Duration: 60 (+5) s.	AEC-Q200-005 REV A,	±0.5%
Terminal Strength	1) Press tool: A pointed thruster with a radius of 0.5 mm. 2) Shear force: 17.7N. 3) Duration: 60 (+1) seconds.	AEC-Q200-006 REV A	±0.5%
Flame Retardance	1) Test current: 100%, 115%, 130%, 150% (rated current). 2) Test duration: 1h. The following constitutes a failure: 1) A flame over 3.0 seconds duration; 2) An explosion; 3) A temperature above 350°C sustained for over 10 seconds.	AEC-Q200-001 REV B	> 10s for 350°C
Resistance to Solvents	1) Solvent a: 1 part (by volume) of isopropyl alcohol reagent grade and 3 parts (by volume) of a mixture of 80% (by volume) of kerosene and 20% (by volume) ethylbenzene. 2) Solvent c: 9 parts (by volume) of D-limonene and 1 part of surfactant. 3) Solvent d: 42 parts (by volume) of water 1 part (by volume) of propylene glycol monomethyl ether 1 part (by volume) of monoethanolamine.	MIL-STD-202H Method 215	There was no missing, faded, smeared, blurred, or shifted (dislodged) with the marks. There was no crack, separation, crazing, swelling, softening, degradation on the samples.

四端子分流电阻-SBB系列

4-Terminal Shunt Resistor – SBB Series

印字标识 Marking

R001 1%

R001: 1mΩ阻值 Value 1%: ±1%精度 Tolerance

0m50 1%

0m50: 0.5mΩ阻值 Value 1%: ±1%精度 Tolerance

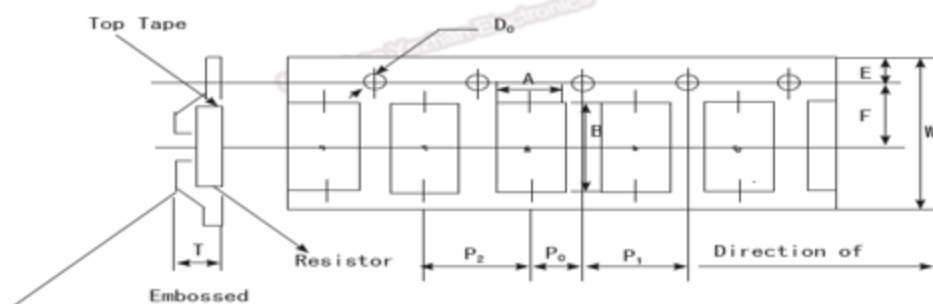
R001F

R001: 1mΩ阻值 Value F: ±1%精度 Tolerance

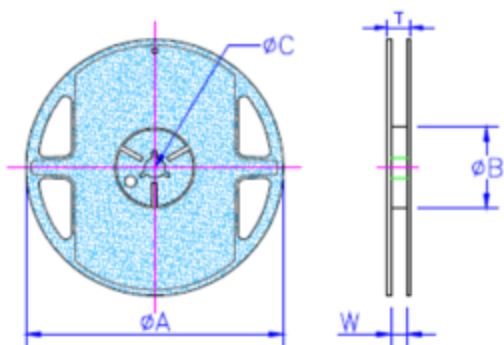
包装 Packaging

Embossed plastic Tape Specifications

(Unit: mm)



Size	A±0.1	B±0.1	W±0.3	E±0.3	F±0.1	P ₀ ±0.1	P ₁ ±0.1	P ₂ ±0.1	D ₀ ±0.1	T±0.1	Quantity (pcs)
In	7.5	8	16	1.75	7.35	6	12	12	1.5	3.8	1000
Out	7.5	12.1	24	1.75	12.2	6	12	12	1.5	3.5	1000



Size	In	Out
φA	330	330
φB	100	100
φC	13	13
W	16.5	24.5
T	21	29

版本信息 Version History

版本 Version	日期 Date	修订描述 Description of amendment	拟定 Draft	审核 Checked
A1.0	01-Mar-2022	首版发行	邹文鉴	胡紫阳