

# 分流贴片电阻-ASR系列

Alloy Shunt Resistors – ASR 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
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

ASR	-K	-5	-1	F	
Yezhan Type	Element Material	Dimension	Resistance Value(mΩ)	Tolerance	Other
ASR	S: CuMnSn M: Manganin K: Karma F: FeCrAl	3: 2512 5: 3920 7: 5930		J: ±5% G: ±2% F: ±1% D: ±0.5%	

## 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[分流贴片电阻器]。

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。

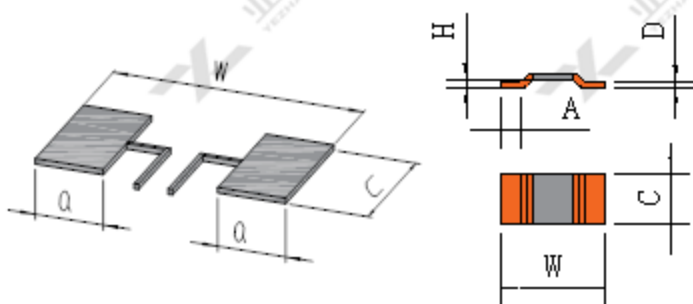
Temperature  $20\pm 2^{\circ}\text{C}$ , Humidity  $65\pm 5\%$ . Being no doubt about the judgment, measurements can be made within the following Temperature  $5\sim 35^{\circ}\text{C}$ , Humidity  $45\sim 85\%$ .

### 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)	H (mm)	Tolerance (mΩ)
ASR-S/M/K/F-3	2512	6.3±0.2	1.2±0.2	3.1±0.3	0.5±0.1	0.2~5
ASR-S/M/K/F-5	3920	10.0±0.2	2.2±0.2	5.1±0.4		0.2~5
ASR-S/M/K/F-7	5930	15.0±0.3	4.2±0.3	7.6±0.4		0.1~3

Solder pad type	w	c	a
ASR-S/M/K/F-3	7	3.4	1.8
ASR-S/M/K/F-5	11	6.2	2.7
ASR-S/M/K/F-7	16	8.75	5.2



Size	Element Material	Resistance (mΩ)	Rthi (°C/W)	D±0.1 (mm)	TCR (ppm/°C)	P70 °C (W)
2512	S	0.2	3	1.4	±175	6
		0.3	5	1.5	±175	6
	M	0.5	6	0.93	±115	6
		1	10	0.45	±100	5
		1.2	-	1.08	±70	6
	K/F	1.5	-	0.86	±70	5
		2	15	0.65	±70	5
		2.5	-	0.5	±70	4
		3	24	0.43	±70	4
		4	27	0.31	±70	3
3920	M	5	40	0.28	±70	3
		0.2	3	1.64	±200	12
		0.3	3.5	1.37	±150	10
		0.4	-	0.97	±100	9
		0.5	7	0.83	±70	9
	K/F	0.7	9	0.55	±70	8
		1	10	0.4	±50	7
		1	7	1.16	±50	8
		1.5	-	0.75	±50	6
		2	14.5	0.56	±50	6
		2.5	-	0.47	±50	5
		3	22	0.37	±50	5
		4	24	0.28	±50	5
		5	-	0.28	±50	4

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Size	Element Material	Resistance (mΩ)	Rthi (°C/W)	D±0.1 (mm)	TCR (ppm/°C)	P70 °C (W)
5930	S	0.1	2	2.0	±200	15
	M	0.2	3	1.5	±100	15
		0.5	3.5	0.6	±75	10
		0.75	6	0.41	±75	10
	K/F	1	7	0.86	±50	9
		1.5	10	0.61	±50	8
		2	13	0.4	±50	7
		2.5	-	0.34	±50	7
		3	17.5	0.29	±50	7

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

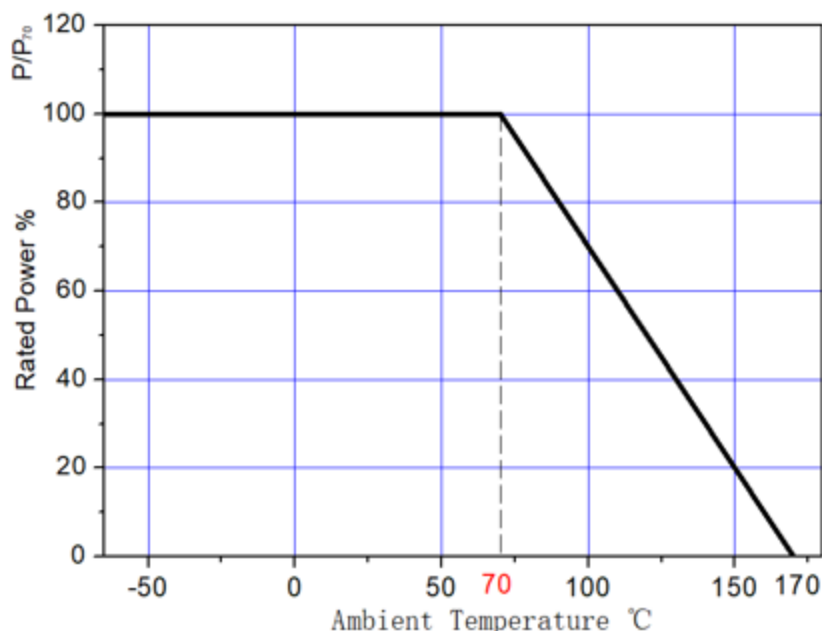
备注Note:

1. 部分产品的温漂可低至20ppm/°C 以内, 参看ASHP系列。

The TCR of some products can be down to  $\leq 20$  ppm/°C, refer to ASHP Series.

## 工作特性 Performance Data

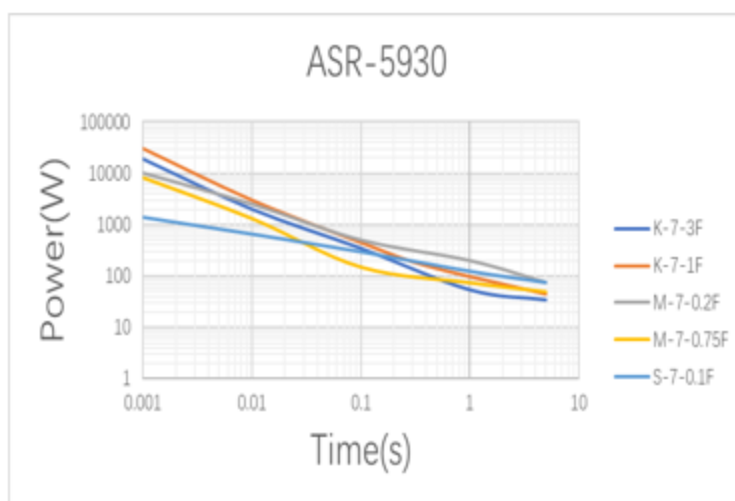
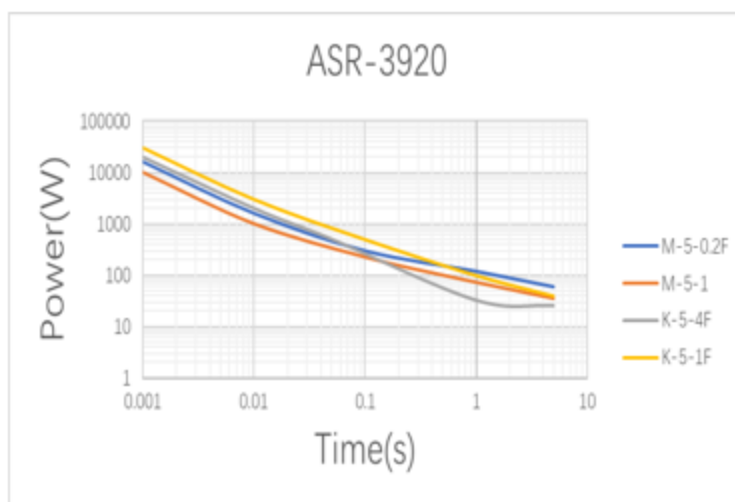
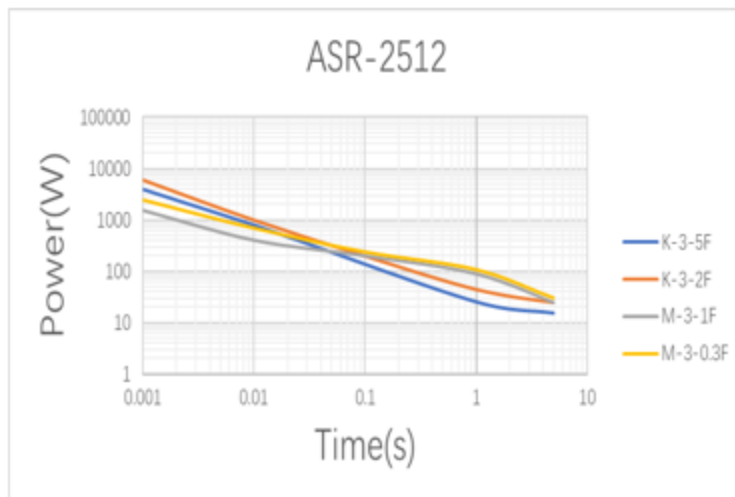
降功率曲线 Power Derating



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## 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
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%

Items	Additional Requirements	Reference	Limits
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.

### 印字标识 Marking

R001 1%

R001: 1mΩ阻值 Value 1%: ±1%精度 Tolerance

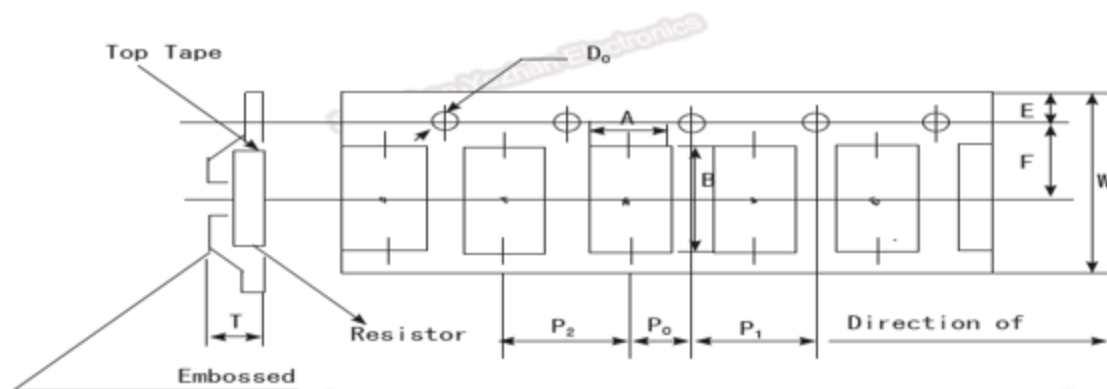
0m45 1%

0m45: 0.45mΩ阻值 Value 1%: ±1%精度 Tolerance

### 包装 Packaging

Embossed plastic Tape Specifications

(Unit: mm)



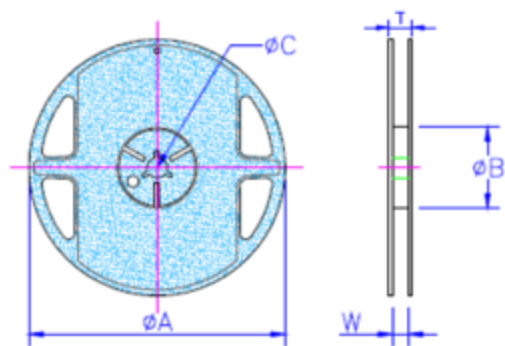
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Size	A±0.1	B±0.1	W±0.3	E±0.1	F±0.1	P <sub>0</sub> ±0.1	P <sub>1</sub> ±0.1	P <sub>2</sub> ±0.1	D <sub>0</sub> ±0.1	T±0.1	*Quantity (pcs)
2512	3.5	6.7	12	1.75	5.5	2	4	4	1.50	依据产品厚度	3000
2512-0.2/0.3	3.7	6.9	16	1.75	7.5	2	4	8	1.50		1000
3920	5.8	10.5	24	1.75	11.5	2	4	12	1.50		2500
5930	8.6	16	24	1.75	11.5	4	4	12	1.50		2000

\*特殊包装数量 Special quantity

P/N	2512-0.2	2512-0.3	2512-0.5	3920-0.2	3920-0.3	5930-0.1	5930-0.2
*Quantity (pcs)	1000	1000	2000	2000	2000	1000	1500



Size	2512	2512	3920	5930
φA	178	178	330	330
φB	60	60	100	100
φC	13	13	13	13
W	12.5	16.5	24.5	24.5
T	21	21	29	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	04-May-2021	首版发行	邹文鉴	胡紫阳
A1.1	10-Sep-2021	1. 2512-2 包装数量从2000 变更为3000 2. 更新封面	邹文鉴	胡紫阳
A1.2	1-Mar-2022	1. 更新2512/3920/5930 热内阻数据	邹文鉴	胡紫阳
A1.3	14-Jul-2022	1. 增加 3920-0.7/5930-1.5 mΩ 产品型号	邹文鉴	胡紫阳
A1.4	22-Nov-2022	1. 增加 2512-1.2/1.5/2.5,3920-0.4/1.5/2.5/5,5930-2.5 mΩ 产品型号	邹文鉴	胡紫阳



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