1. 特征/ Features:

超低阻值、高精度/ Low Resistance and High Accuracy Resistor for Current Detection
可大电极设计/ Large Electrode (All series)
更好的散热能力/ Good Performance for Heat Dissipation
环保符合/ Pb-free to Meet RoHS Requirements

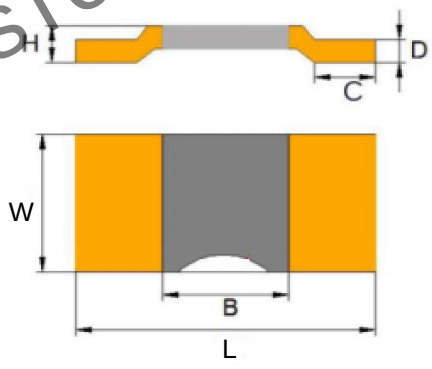
2. 应用/ Applications:

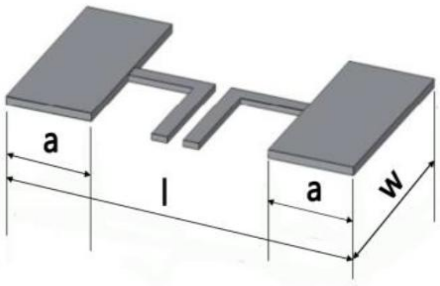
电源管理/ Power Management Applications
开关电源/ Switching Power Supply
直流转换/ DC-DC Converter, 电池保护板/ Battery Pack, 充电器/ Charger, 适配器/ Adaptor
便携式仪器设备/Portable Instruments (PDA and Cell Phone)
电压调节模块/ Voltage Regulation Module (VRM)

3. 编码规则/ Type Designation:

A R S	M	39	F	5	R001
品名 P/N	材 料 Material	尺寸代码 Size Code	电阻值误差 R tolerance	额定功率 Power Rating	电阻值 Resistanc
纯合金高功率分流取样电阻 CSR - Shunt	M:MnCu K:KAMA F:FeCrAl	25:2512 39:3921 59:5930	F:±1% G:±2% J:±5%	2:2W 5:5W V:10W W:12W Z:15W	R005:5mΩ R50m:0.5mΩ R1m5:1.5mΩ

4. 尺寸/ Dimensions:





Type	R(mΩ)	L	W	C	B	l	w	a
2512	0.2-5	6.40±0.3	3.2±0.3	1.5±0.5	3±0.5	7	3.4	1.8
3921	0.2-5	10.0±0.5	5.2±0.5	2.0±0.5	5±0.5	11	6.2	2.7
5930	0.1-4	15.2±0.5	7.6±0.5	4.2±0.5	5±0.5	16	8.75	5.2

Remark:The foil Min. Thickness of PCB shall be 3oz

5. 降额曲线/ Derating Curve ：
如工作环境温度超过 70° C，功率降额参照图 1.
For resistors operated at ambient temperature over 70℃, power rating shall be derated in accordance with figure 1.

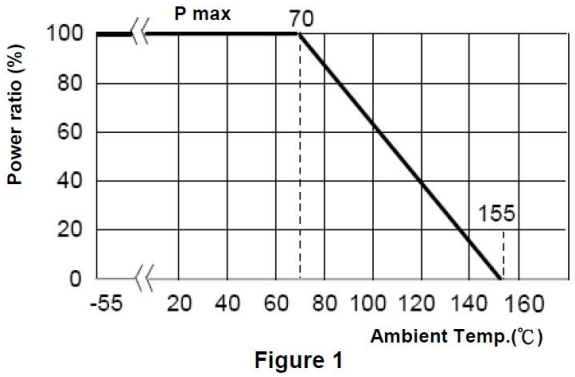


Figure 1

6. 电气特性/ Electrical Characteristics

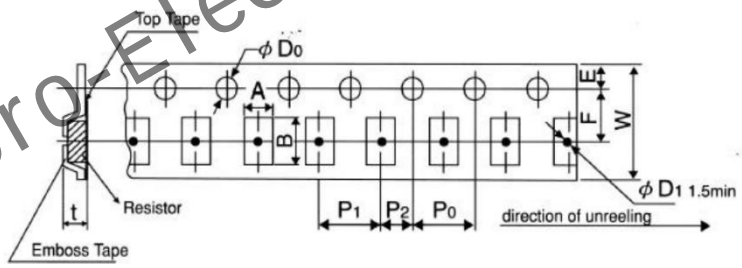
Rating 70(w)	R(mΩ)	H/mm	D/mm	P70° /W	TCR(ppm/℃)
2512	0.20	/	1.7±0.3	6	175
	0.25	/	1.6±0.3	6	175
	0.30	1.5±0.3	1.0±0.1	6	175
	0.50	1.3±0.3	0.8±0.1	6	115
	1	0.9±0.3	0.36±0.1	5	100
	2	1.2±0.3	0.65±0.1	5	50
	3	0.9±0.3	0.40±0.1	4	50
	4	0.7±0.3	0.30±0.1	3	50
	5	0.8±0.3	0.25±0.1	3	50
3920	0.2	2.1±0.2	1.66±0.1	12	125
	0.3	1.9±0.2	1.38±0.1	10	150
	0.5	1.2±0.2	0.74±0.1	9	50
	0.7	1.0±0.2	0.56±0.1	8	50
	1	1.66±0.2	1.16±0.1	8	50
	1.5	0.9±0.2	0.40±0.1	7	50
	2	1.1±0.2	0.58±0.1	6	50
	2.5	1.1±0.2	0.54±0.1	6	50
	3	0.8±0.2	0.44±0.1	5	50
	4	0.9±0.2	0.38±0.1	5	50
	5	0.9±0.2	0.30±0.1	5	100
5930	0.1	2.5±0.2	2.0±0.1	15	100
	0.2	2.0±0.2	1.5±0.1	15	75
	0.3	1.46±0.2	0.92±0.1	10	75
	0.5	1.7±0.2	1.15±0.1	10	75
	0.6	1.1±0.2	0.56±0.1	10	75
	0.75	0.9±0.2	0.4±0.1	10	50
	1	1.4±0.2	0.9±0.1	9	50
	1.5	1.1±0.2	0.64±0.1	7	50
	2	1.0±0.2	0.48±0.1	7	50
	2.5	0.9±0.2	0.4±0.1	7	50
	3	0.8±0.2	0.3±0.1	7	50
	4	0.5±0.2	0.24±0.1	7	50

7. 信赖性测试/ Reliability Tests:

Items	Test Conditions	Specifications
Short Time Overload	MIL-STD-202 5 × Rated power for 5s. Measurement at 24±2 hours after test conclusion.	≦±0.5%
Biased Humidity	MIL-STD-202 1000hrs 85°C/85% RH. Measurement at 24±2 hours after test conclusion. Note: Specified conditions:10% of operating power	≦±0.5%
Thermal Shock	MIL-STD-202 -55°C/+125°C, 300 Cycles. Maximum transfer time 20s, Dwell time 15min.	≦±1%
High Temperature Exposure (Storage)	MIL-STD-202 1000hrs. @T=125°C. Unpowered.Measurement at 24±2 hours after test conclusion.	≦±0.5%
Operational Life	MIL-STD-202 Condition D Steady State TA=125°C at rated power. Measurement at 24±2 hours after test conclusion.	≦±0.5%
Resistance to Solder Heat	MIL-STD-202 260°C±5°C, 10s±1s. Measurement at 24±2 hours after test conclusion.	≦±0.5%
Solderability	J-STD-002C 245°C±5°C, 5s+0.5s/-0.	95% Coverage Minimum.

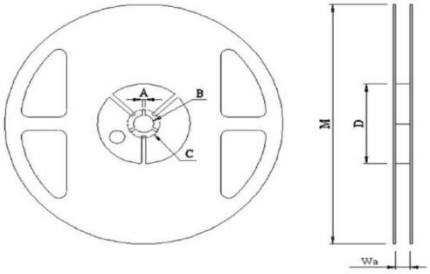
8. 编带 Taping & Reel

8.1 Taping Dimensions



Type	Pack	Q'ty/R	A ±0.2	B ±0.2	D0 +0.5/-0	E ±0.1	F ±0.05	P0 ±0.1	P1 ±0.1	P2 ±0.1	W ±0.2	D1 ±0.05	T ±0.15
2512	Emboss	1k	4.3	7.6	1.5	1.55	7.5	7.7	7.7	3.85	16.0	NA	1.7
3920	Emboss	2.5k	6.2	11.2	1.5	1.55	11.2	12.0	12.0	6.0	24.0	NA	2.0
5930	Emboss	2k	8.1	15.3	1.5	1.75	11.2	12.0	12.0	6.0	24.0	NA	2.0

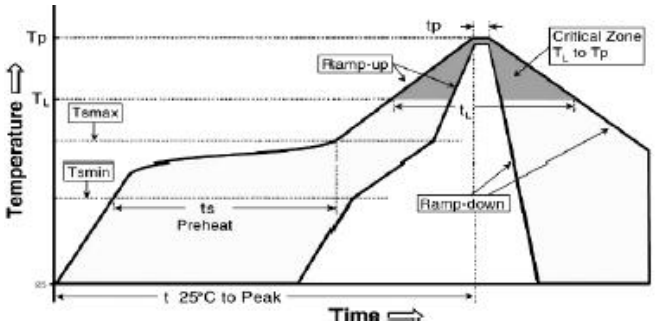
8.2 Reel Specifications



Type	M ±3.0	D ±1.5	B ±1.0	W +3/-0	T +3/-0
2512	330	100	13.5	16.5	21
3921	330	100	13.5	25	29
5930	330	100	13.5	25	29

9. 储存条件/ Storage Conditions: Temperature: 5℃~35℃, Humidity: 40%~75%.

10. 回流焊参数/ Recommend IR-Reflow profile: (solder: Sn96.5 / Ag 3 / Cu0.5)



Profile Feature	Lead (Pb)-Free Assembly
Average ramp-up rate (Tsmax to Tp)	3℃ / second max.
Preheat - Temperature Min (Ts_{min}) - Temperature Max (Ts_{max}) - Time (Ts_{min} to Ts_{max}) (ts)	 150℃ 200℃ 60 -120 seconds
Time maintained above : - Temperature (T_L) - Time (T_L)	 217℃ 60-150 seconds
Peak Temperature (Tp)	260℃
Time within $^{+0}_{-5}$ ℃ of actual Peak Temperature (tp)[2]	10 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8mimutes max.