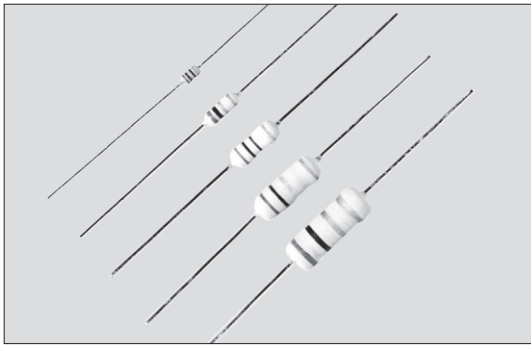


CW

 绝缘涂层小型绕组电阻
Coat-Insulated Miniature Wirewound Resistors

外观颜色: 蓝灰 (CW、CW□X、CW□P)

黑色 (CW1S、CW1SS)

表示: 颜色码 (CW、CW□X、CW1SS*)

文字表示 (CW□P、CW□S)

Coating color: Blue (CW、CW□X、CW□P)

Black (CW□S、CW1SS)

Marking: Color code (CW、CW□X、CW1SS*)

Alphanumeric (CW□P、CW1S)

※1 CW1SS有2条银色色环

■ 特点 Features

- 符合欧盟RoHS。
- CW1SS是UL1412认证。(File No. E320246)
- 由于对应表面封装成形, 所以可自动安装。
- 有阻燃性涂层 (相当UL94 V-0)。
- Products meet EU-RoHS requirements.
- CW1SS has UL1412 approval. (File No. E320246)
- Automatic mounting machine is applicable by surface mounted device style lead forming.
- CFlame retardant coating (Equivalent to UL94 V-0)

■ 品名构成 Type Designation

实例 Example

CW	3	P	C	T521	A	10R0	F
品种 Product Code	额定功率 Power Rating	形式 Style	端子表面材质 Terminal Surface Material	二次加工 Taping & Forming	包装 Packaging	公称电阻值*1 Nominal Resistance	阻值允许偏差 Resistance Tolerance
	1/4: 0.25W 1/2: 0.5W 1: 1W 2: 2W 3: 3W 5: 5W	空栏: 功率型 (R≥0.1Ω) Nil: Power type (R≥0.1Ω) X: 功率型 (R<0.1Ω) 2: Power type (R<0.1Ω) P: 精密型 S: 小型 SS: Small type, UL 认证 SS: Small type, UL approved	C: SnCu	参照下述 See table below	A: AMMO包装 A: AMMO R: 卷 R: REEL TEB: TEB Plastic embossed (N forming) 空栏: 箱子 Nil: BOX	C, D, F: 4 digits G, J, K: 3 digits	C: ±0.25% D: ±0.5% F: ±1% G: ±2% J: ±5% K: ±10%

※ 引线长度按照成型和编带的不同而改变。

※ Lead length changes depending on taping and forming type.

欲知关于此产品含有的环境负荷物质详情 (除EU-RoHS以外), 请与我们联系。

编带细节请参考卷末附录C。

Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.
For further information on taping, please refer to APPENDIX C on the back pages.

■ 二次加工对应表 Taping & Forming Matrix

型 号 Type	轴向编带 Axial Taping				成型编带 Stand-off Axial Taping	径向编带 Radial Taping		L成形 L Forming						N成形 N Forming		
	T26	T52	T521	T631	L52	VTP	GT	L10A	L12.5A	L15A	L20A	L25A	L30A	L35A	N17	N20
CW1/4	○	○														
CW1/2		○			○	○		○								
CW1		○			○	○※3			○	○						
CW2		○	○			○	○			○	○				○	
CW3			○	○			○				○	○				○
CW5													○	○		
CW1X		○			○				○	○						
CW2X			○			○	○			○	○					
CW3X			○	○							○	○				
CW1S		○			○	○		○								
CW1SS		○														
CW1P		○			○	○※3			○	○						
CW2P		○	○			○	○			○	○	○				
CW3P			○	○			○				○	○				

※3 适用于 0.47Ω或以上。 Applicable to 0.47Ω or over.

■ 额定值 Ratings

型 号 Type	额定功率 Power Rating	电阻值范围 Resistance Range (Ω)							电阻温度系数 T.C.R. (×10 ⁻⁶ /K)	额定周围温度 Rated Ambient Temp.	使用温度范围 Operating Temp. Range	编带和包装数/AMMO包装 Taping&Q'ty/AMMO pack (pcs)				
		C: ±0.25% (E24/E96)	D: ±0.5% (E24/E96)	F: ±1% (E24/E96)	G: ±2% (E24)	J: ±5% (E24)	K: ±10% (E24)	T26A				T52A	T521A	T631A		
CW1/4	0.25W	—	—	—	—	0.47~15	0.47~15	±250	+70℃	-40℃~+155℃	2,000	3,000	—	—		
CW1/2	0.5W	—	—	—	—	0.1~100	0.1~100				—	2,000	—	—		
CW1	1W	—	—	—	0.1~390	0.1~390	—				—	1,000	—	—		
CW2	2W	—	—	—	0.1~390	0.1~390	—				—	1,000	1,000	—		
CW3	3W	—	—	—	0.1~390	0.1~390	—				—	—	1,500	500		
CW5	5W	—	—	—	0.1~390	0.1~390	—				—	—	—	—		
CW1X	1W	—	—	—	—	0.01~0.091	0.01~0.091	±500			+25℃	-40℃~+155℃	—	1,000	—	—
CW2X	2W	—	—	—	—	0.01~0.091	0.01~0.091						—	—	1,000	—
CW3X	3W	—	—	—	—	0.01~0.091	0.01~0.091						—	—	1,500	500
CW1S	1W	—	—	—	—	0.1~100	0.1~100	±250					—	2,000	—	—
CW1SS	1W	—	—	—	—	10	—	±100					—	2,000	—	—
CW1P	1W	1~100	0.47~220	0.1~430	—	—	—	±90: R≥10Ω※4 ±50: R<10Ω	+25℃	-40℃~+155℃			—	1,000	—	—
CW2P	2W	1~390	0.47~390	0.1~390	—	—	—						—	1,000	1,000	—
CW3P	3W	1~390	0.47~390	0.1~390	—	—	—						—	—	1,500	500

※4也有CW□P (R≥10Ω): T.C.R.=±20×10⁻⁶/K的产品, 请与我们联系。 ※4 CW□P (R≥10Ω): T.C.R.=±20×10⁻⁶/K available on request.

额定电压是√额定功率×公称电阻值所算出的值。 Rated voltage = √Power Rating×Resistance value.

本样本手册中记载的产品规格如有变更, 恕不一一奉告。订购以及使用之前, 请仔细确认规格表的內容。

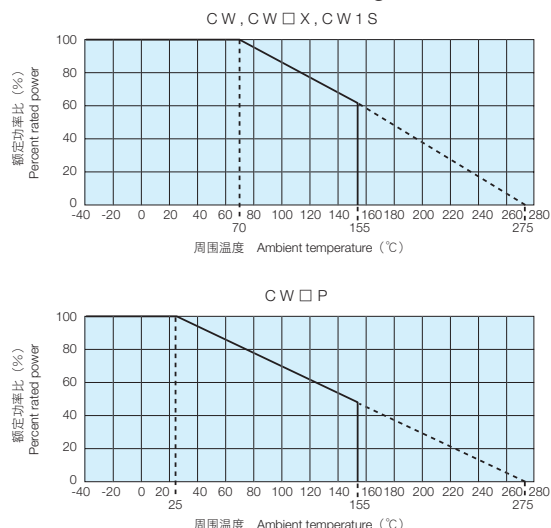
用于车载设备、医疗设备、航空设备以及其它涉及人身安全、或可能引起重大损失的设备上时, 请务必事先与我公司联系。这些产品在这类用途中出现故障或失灵可能导致人身事故或严重损坏。

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

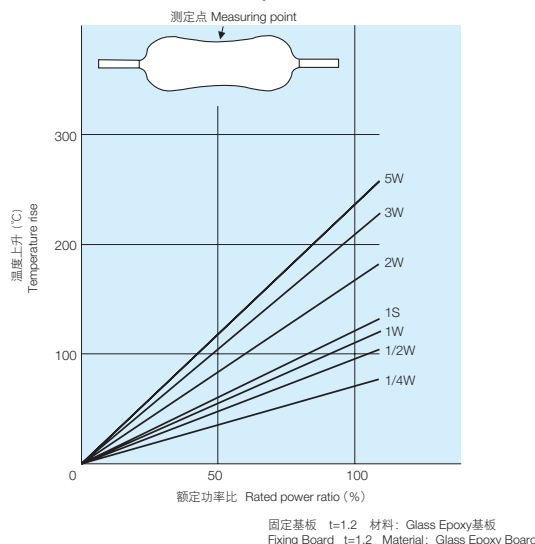
Contact our sales representatives before you use our products for applications including automobiles, medical equipment and aerospace equipment.

Malfunction or failure of the products in such applications may cause loss of human life or serious damage.

■ 负荷减轻特性曲线 Derating Curve



■ 温度上升 (参考) Temperature Rise (Ref.)



■ 性能 Performance

试验项目 Test Items	标准值 Performance Requirements $\Delta R \pm (\% + 0.05 \Omega) : CW, CW1S, CW□P$ $\Delta R \pm (\% + 0.005 \Omega) : CW□X$		试验方法 Test Methods
	保证值 Limit	代表值 Typical	
电阻值 Resistance	在规定的允许偏差内 Within specified tolerance	—	25°C
电阻温度系数 T.C.R.	在规定的允许偏差内 Within specified tolerance	—	CW, CW□X, CW1S : 室温/100°C以上, Room temperature + 100°C CW□P : +25°C/-40°C and +25°C/+155°C
过载 (短时间) Overload (Short time)	1: CW, CW□X 2: CW1S, CW1SS 0.5: CW□P 0.2: CW□P (R<10Ω) ※5	0.8: CW, CW□X 1.8: CW1S, CW1SS 0.4: CW□P 0.18: CW□P (R<10Ω)	施加5秒额定功率10倍的电压 (CW, CW□X, CW1S) 施加5秒额定功率6.25倍的电压 (CW□P) 施加5秒额定功率5倍的电压 (CW□P: R<10Ω) ※4 Power rating×10, 5s (CW, CW□X, CW1S) Power rating×6.25, 5s (CW□P) Power rating×5, 5s (CW□P: R<10Ω) ※4
耐焊接热 Resistance to soldering heat	1: CW, CW1S, CW1SS, CW□X 0.5: CW□P 0.2: CW□P (R<10Ω) ※5	0.8: CW, CW1S, CW1SS, CW□X 0.4: CW□P 0.18: CW□P (R<10Ω)	350°C±10°C, 3.5s or 260°C±5°C, 10s
耐湿负荷 Moisture resistance	5: CW, CW1S, CW□X 2: CW□P 0.5: CW□P (R<10Ω) ※5	4: CW, CW1S, CW□X 1.6: CW□P 0.45: CW□P (R<10Ω)	Power rating × 1/10, 40°C, 90%~95%RH, 1000h 1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle
在70°C时的耐久性 Endurance at 70°C	5: CW, CW1S, CW1SS, CW□X 2: CW□P 0.5: CW□P (R<10Ω) ※5	4: CW, CW1S, CW□X 1.6: CW□P, CW1SS 0.45: CW□P (R<10Ω)	70°C, 1000h (CW, CW□X, CW1S) 25°C, 1000h (CW□P) 1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle
耐溶剂性 Resistance to solvent	应当外观没有异常, 表示容易辨认 No abnormality in appearance. Marking shall be easily legible	—	将样品在IPA中浸泡3分钟后取出, 立即用干布 (天鹅绒或者纱布) 轻轻擦拭。 On immersing the sample in IPA for 3 minutes, the resistor surface should be lightly wiped with a dry cloth (velvet or gauze).
雷击 Thunder surge	3: CW1SS	—	组合波形+1.5kV 20秒间隔 3次施加 Combination wave +1.5kV 20sec 3cycles

※5 请参照MIL-PRF-26G的标准。 ※5 Refer to MIL-PRF-26G standard.

■ 使用注意事项 Precautions for Use

- 由于外装涂层具有阻燃性特征, 因此对外部冲击比较弱, 请注意操作。请进行最小限度的清洗。刚刚清洗好以后的涂层非常薄弱, 在产品完全干燥之前, 请勿对涂层施加外力。产品干燥后, 涂层将恢复原有强度, 请注意在洗净后的20分钟内, 勿对电阻器的涂层施加外力。特别注意, 请勿将PCB板堆放起来。
- 在使用交流电路时, 由于绕线构造会产生电感因素和寄生电容, 因此, 有可能会发生振动等异常现象。在使用时请仔细考虑其他部件常数的离散情况。
- Be careful to handle these resistors because outer coatings are comparatively weak to outer shock due to flameproof special coats. Please wash them to a minimum. No external force is given to the coating films until they are well dried because the coating films become weaker right after washing. The original strength will be returned after they are dried, so please pay attention not to apply any external force onto the coating film of resistors for 20 minutes after drying. Especially no PC boards shall be piled up.
- In case of using them for an AC circuit, abnormal phenomena like oscillation etc. occasionally happen as they have an inductance or a parasitic capacitance because of their wiring structures. Use them by taking the dispersion of constants of other components into the consideration.

※2

电阻值范围 (Ω) Resistance Value	3位表示 3 digits	电阻值范围 (Ω) Resistance Value	4位表示 4 digits
10m~91m	10L~91L	0.1~0.976	R100~R976
0.1~0.91	R10~R91	1~9.76	1R00~9R76
1~9.1	1R0~9R1		