

# Resistor选型指南



薄膜贴片电阻、合金毫欧电阻、金属膜贴片电阻、金属SMD电流采样电阻：

AECQ200认证的汽车级高功率采样电阻和分流器，交期好（12周以内）、种类齐全

本资料所涉及产品主要应用于：

工业自动化、工业控制、轨道交通、医疗设备、新能源、电机控制、智能电网、  
医疗设备、汽车电子、安防电子、无人机、智能家居等

**SEKORM 世强**

全球先进元件分销

服务热线：40088 73266

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新元件、新技术、新方案

# About SEKORM

## 关于世强

- 世强，1993年在深圳成立，是中国电子行业最优秀的半导体分销商。
- 全球三十几家著名半导体企业大中国区分销商，产品覆盖工业电子、消费电子、通信电子、智能物联、汽车电子、测试测量等领域。
- 上万家电子制造和研发企业的元件供应商，与各大领域的客户平均合作时间高达10年以上，客户既有蜚声全球的世界500强，也有崭露头角的新兴企业。
- 2016年1月11日正式上线中国首个智能硬件创新服务平台，世强元件电商。
- 为硬件工程师、采购、管理者度身订制，服务10万创新企业，100万创新工程师。
- 为工程师提供从新元件新技术资讯、创新解决方案、研发所需的一切资料、到资深专家技术支持、大神经验分享、再到完善的元器件供应的一条龙服务。



### 工业电子

#### 工业控制领域最大的电子元件供应商

工业4.0、变频、伺服、机器人、可再生能源、充电桩、智能电网、工业电源、智能四表、安防、医疗、轨道交通、无人机、人工智能



### 通信及高可靠设备

#### 国内最大的射频微波元件供应商

基站及基站天线、光通信设备、数据通信、卫星通信、微波通信、雷达及其他高可靠设备



### 汽车电子

#### 最具产品实力和方案优势的汽车电子元件供应商

BCM、BMS、数字仪表盘、车载娱乐、新能源汽车、EPS、无人驾驶、ADAS、倒车雷达、胎压监测系统、RKE/PKE、APA、PEPS、HUD



### 智能物联

#### 提供传感、控制、组网三位一体最完整的解决方案

可穿戴设备、智能家居、智能家电、智能监控、智能计量、智能手机、仓储物流、智能社区



### 消费电子

#### 最主要的智能手机和新型家电关键元件供应商

智能手机、便携数码、个人保健、个人代步工具、玩具及娱乐设备



### 测试测量

#### 中国基础电子测量仪器最大供应商

示波器、频谱仪、信号源、网络分析仪、电源、数采、频率计、功率计、万用表、函数发生器、LCR表、电子负载、射频微波测试附件，测试天线

# About TT Electronics

## 关于TT Electronics

TT Electronics是一家全球性电子生产供应商，能够提供应用于严苛环境下的电子产品和解决方案，为全球范围的客户提供个性化定制和快速响应的服务。TT Electronics向客户提供先进的技术，帮助客户保持行业领先。

- 核心研发基地在美国，在全球40多个国家和地区拥有分支机构
- 高可靠性、高稳定、高品质且极具竞争力的产品
- 业内最全面的技术产品组合之一
- 其主要产品包括：光传感器、红外LED和传感器、红外模组配件、光电开关、微调电位器、精密电位器、扭矩和位置转向传感器、电阻、电感等

**TT Electronics 股份有限公司是一家全球性电子企业。**

**在其电阻器业务部门内，设有多个制造厂和专门工程团队提供定制解决方案。**

BI Technologies、IRC 和 Welwyn 是该集团的市场领先品牌，在电子元件创新方面累积 70 年宝贵经验。除了提供定制工程解决方案外，TT Electronics 还提供全面的电阻技术和广泛的标准产品系列。

### 医疗应用

便携式自动体外除颤器（AED）制造商需在充电调节电路中使用紧凑型高压电阻。事实证明，其他来源的标准产品在持续的高湿度和高电压负载条件下并不可靠。随时间和温度变化的精确性和稳定性至关重要，因其直接影响能量传送量的严格误差范围。TT Electronics 的工程师采用膜厚元件设计经过优化的平面电阻以及高度完整的环氧涂层解决了这个问题，并通过其严格的审批流程为客户提供支持。

该领域的其他创新还包括用于监控电路保护的耐冲击贴片电阻和基于强化线绕技术的 200J 能量储存电阻，以实现日常自检诊断周期。



### 航空航天应用

设计防冰飞机表面加热系统的设计师必须在加热回路发生故障时满足严格的安全要求。要解决的故障模式为“始终打开”状态，这就要求使用单脉冲隔离开关。TT Electronics 的工程师受托协助确定解决方案，但无现成的成果可用。他们后来提出了多套也许可行的解决方案，首选方案是将自开关电阻加热器和热熔断器组合在一起。在规定期限内，他们从概念阶段起步，开发出完全合格的元件。这款产品小巧，有助于实现客户的减重目标。



### 消费应用

消费类产品越来越重视安全性，而且使用熔断线输入电阻来防范火灾成为了关键。只需一个元件，即可减少浪涌电流，防止电源线浪涌，并在故障条件下打开防爆电路。从事该领域的公司企业需进一步改进，让消费者无法察觉此类熔断情况。

TT Electronics 制定出使用线绕电阻器的解决方案，该电阻器具有包含熔断元件的冲撞吸收涂层，可使其免于碎裂。其他创新还包括提供 UL1412 认可的熔断电阻。



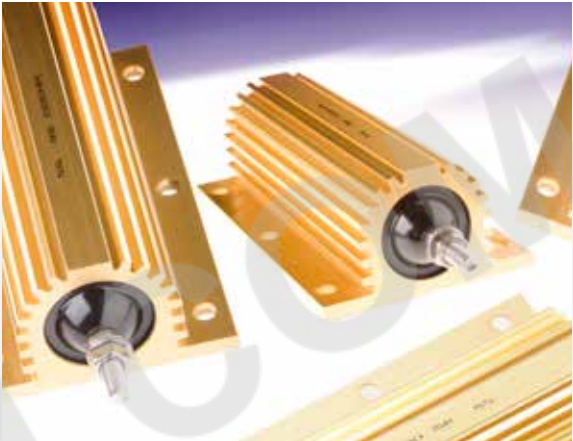
工业应用

高端工业断路器需在恶劣条件下提供可靠的长期性能。特别是电感性负载切换引起的瞬态浪涌是一大挑战。当工业断路器设计师需将设计改造为 SMT 设计时，验证了在不使用贴片电阻填充很大面积的情况下，通孔线绕保护电阻器难以替换。TT Electronics 制定了一项解决方案，将轴向零件引出并包裹在吸塑包装中。生成的“ZI 设计”组件可作为 SMT 零件拾取、放置和再流焊。



使用简介

- 1、选择正确的技术——第 3 页  
为您的设计所需的功能找到最佳的电阻技术
  - 2、选择正确的产品系列——第 3-4 页  
使用 SMT 和通孔选型指南来确定具有所需额定值、精度和数值范围的产品系列
  - 3、选择正确的产品类型——第 5-16 页  
请参阅产品表格，选择正确的尺寸并链接到更多数据
- 或者，如果您已了解产品系列，请使用快速查找索引。



快速查找

Series	Page	Series	Page	Series	Page	Series	Page
1600/1900	9	HVD	7	PFC	15	W30	9
3810	6	HVP	7	PFC-D	13	WA84F	14
4500	6	LCS	5	PFC-HT	15	WBC	13
4530	6	LHVC	7	PLO	6	WCR	16
4800	12	LOB	5	PR	13	WDBR	11
ASC	16	LRCS/LVC	5	PTCR	15	WH	11
BCN	16	LR(F)	5	PTS	15	WHPC	11
BPC	9	LRF3W	5	PWC	8	WHS	9
BPR	10	LRMA	5	PWP	9	WIN	14
CAR	12	LRZ	15	PWRL	6	WL4	15
CC	8	MAR	12	RC	13	WMHP	11
CHP	8	MFC	5	RCP	13	WMO-S	11
CR	15	MFP	10	RHVD	7	WPRT	11
CRT	16	MFR	15	SC3	10	WP-S	9
DIV23	12	MFR4P	16	SOT143	13	WP-SZI	12
DSC	8	MF-S	10	SP20F	14	WPYP	8
EMC	14	MH	7	SPP	14	WRM	14
GC	7	OAR	5	SQM	10	WRM-HP	14
GCR	16	OARS	6	SQP	10	WRM-HV	14
GPCF	16	PCA	12	T	8	WSM	12
HPWC	8 (see PWC)	PCF	13	ULR	6	WSMHP	12
HR	7	PCFH	13	ULW	14		
HTCR	10	PCFP	13	VRW	8		
HVC	7	PCR	13	W20	11		



## 技术与产品选型指南

Technology	Thick Film	Thick Film on Steel	Metal Film	Metal Oxide	WIN Film	Carbon Composition	Wirewound	Metal Alloy	Metal Foil
Low values	Good	Poor	Fair	Poor	Fair	Poor	Excellent	Excellent	Poor
High values	Excellent	Poor	Good	Fair	Good	Poor	Poor	Poor	Poor
Tolerance	Good	Poor	Excellent	Poor	Excellent	Poor	Fair	Fair	Excellent
TCR	Fair	Poor	Excellent	Fair	Excellent	Poor	Good	Fair	Excellent
Power rating	Good	Excellent	Fair	Good	Fair	Fair	Excellent	Fair	Poor
Voltage rating	Excellent	Fair	Fair	Good	Fair	Poor	Poor	Poor	Fair
Load Stability	Fair	Fair	Good	Fair	Excellent	Poor	Fair	Fair	Excellent
Damp Stability	Good	Good	Poor	Fair	Excellent	Poor	Good	Good	Fair
Overload	Good	Excellent	Fair	Good	Fair	Fair	Good	Fair	Poor
Surge	Good	Good	Poor	Good	Fair	Excellent	Good	Good	Fair
High Temp.	Good	Excellent	Fair	Good	Good	Poor	Good	Good	Fair

[illegible]

Cs: Current Sense	Fu: Fusible	Gp: General Purpose	Hp: High Power	Hr: High Reliability
Hv: High Value / Voltage	Pr: Precision	Sq: Surge / Pulse	Ts: Temperature Sensor	Zo: Zero-ohm Jumper

[illegible]

## 电流检测

## LCS Series Low Value Current Sense Thin Film Chip Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l,w, h
0603	0.1	0R2 – 1R	0.5, 1, 5	-	50, 100	1.6, 0.8, 0.55
0805	0.125	0R2 – 1R	0.5, 1, 5	-	50, 100	2.0, 1.25, 0.65
1206	0.25	0R1 – 1R	0.5, 1, 5	-	50, 100	3.05, 1.55, 0.65
2010	0.5	0R1 – 1R	0.5, 1, 5	-	50, 100	4.9, 2.4, 0.65
2512	1.0	0R1 – 1R	0.5, 1, 5	-	50, 100	6.3, 3.1, 0.65

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/LCS.pdf>



## LOB Series Low Resistance Metal Element Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, Dia
LOB-1	1	0.005 - 0.1	1 - 5	-	-	9.9, 3.6
LOB-3	3	0.005 - 0.1	1 - 5	-	-	14.2, 5.3
LOB-5	5	0.005 - 0.1	1 - 5	-	-	23.4, 8.4

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/LOB.PDF>



## LRCS/LVC Series Small Size Low Value Chip Resistor

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim. (mm) l, w, h
0402	0.063	R05 – 1R0	1, 5	-	200 – 400	1, 0.5, 0.32
0603	0.1	R02 – 1R0	1, 5	-	200 – 600	1.6, 0.8, 0.45
0805	0.125, 0.25	R02 – 1R0	1, 5	-	200 - 600	2, 1.25, 0.55

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/LRCS.pdf>



## LR (F) Series Low Value Flat Chip Resistor

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
1206	0.5	0R003 - 1R	1, 2, 5	-	±100	3.2, 1.63, .8
2010	1.0	0R003 - 1R	1, 2, 5	-	±100	5.23, 2.64, .8
2512	1.5/2.0	0R003 - 1R	1, 2, 5	-	±100	6.5, 3.25, .8

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/LR.pdf>



## LRF3W Series Low Range 3 Watt SMT Chip Resistor

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
LRF3W	3	0R003 - 1R	to ±1 %	50	±100	3.25, 6.5, 0.9

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/LRF3W.PDF>



## LRMA Series Low Resistance Metal Alloy Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
M 0805	0.5	R005 – R025	1, 5	-	100	2, 1.25, 0.4
N 0612	1	R001 – R003	1, 5	-	100	1.7, 3.2, 0.6
N 0815	1	R003 – R03	1, 5	-	100	2.1, 3.75, 0.5
M 1206	1	R001 – R05	1, 5	-	50	3.2, 1.6, 0.5
T 2010	1.5	R005 – R1	1, 5	-	75, 100, 275	5, 2.5, 0.6
N 1225	3	R002 – R04	1, 5	-	100	3.2, 6.4, 0.9
M 2512	1 – 2	R0005 – R06	1, 5	-	75, 100, 275	6.4, 3.2, 0.9-2.6
T 2512	1 – 2	R001 – R1	1, 5	-	75, 100, 275	6.4, 3.2, 0.9-2.0
P 2512	3	R0005 – R03	1, 5	-	50	6.4, 3.2, 0.9-2.0
P 3920	5	R0002 – R003	1	-	50 - 200	10, 5.2, 2

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/LRMA.PDF>  
& <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/LRMAP3920.pdf>



## MFC Series Metal Foil on Ceramic Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l,w, h
0603	0.5	R005 – R02	1, 5	-	50	1.6, 0.8, 0.6
2817	5	R003 – R15	1, 5	-	30	7.1, 4.2, 0.7

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/MFC.pdf>



## OAR Series Open Air Sense Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
OAR-1	1	R003 – R1	1, 5	-	to ±20	11.43, 1.65, 8.26
OAR-3	3	R002 – R1	1, 5	-	to ±20	15.24, 1.65, 28.58
OAR-5	5	R003 – R05	1, 5	-	to ±20	20.32, 1.65, 28.58

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/OAR.PDF>



## OARS / OARS-XP Series Surface Mount Sense Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
OARS1	2	OR003 to OR050	1	-	±20	11.18, 3.175, 3.05
OARSXP	5	OR001 to OR025	1, 5	-	±20	12, 6.4, 4.6

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/OARS.PDF>

AEC-Q200



## PLO Series Low Resistance Power Wirewound Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
PLO-3	3	R005 - R18	1, 2, 3, 5, 10	-	30 - 500	22.4, 7.87, 7.87
PLO-5	5	R005 - R18	1, 2, 3, 5, 10	-	30 - 500	22.4, 9.65, 8.89
PLO-7	7	R01 - R18	1, 2, 3, 5, 10	-	30 - 500	35.3, 9.65, 8.89
PLO-10	10	R01 - R18	1, 2, 3, 5, 10	-	30 - 500	47.8, 9.65, 8.89

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PLO.PDF>

## PWRL Series Low Resistance Stand-up Power Wirewound Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
PWRL	3, 5, 7, 10	OR01 - OR18	1, 2, 3, 5, 10	-	50 - 500	25.4, 12 (3W)

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PWRL.PDF>

## ULR Series Metal Strip Current Sense Resistors Surface Mount

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
ULR1S	1	R0002 - R01	1, 5	-	50	3.2, 1.6, 0.6
ULR1	1.0	R0005 - R022	1, 5	-	50, 75, 100, 150	6.4, 3.2, 1.4
ULR15S	1.5	R0002 - R01	1, 5	-	50	5.1, 2.5, 0.6
ULR2	2.0	R0005 - R01	1, 5	-	50	6.4, 3.2, 1.4
ULR25	2.5	R0035 - R006	1, 5	-	50	6.4, 3.2, 1.4
ULR3	3.0	R00015 - R003	1, 5	-	50, 75, 100	6.4, 3.2, 1.4

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/ULR.PDF>

AEC-Q200



## 高数值 / 电压

## 3810 Series Ultra-High Value Precision Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
3810	-	100M - 1T	10, 20	500	-500 to -3500	25, 6
3811	-	100M - 1T	1, 2, 5, 10	1000	-500 to -3500	42.9, 6
3812	-	1T - 100T	2, 5, 10	1000	-500 to -3500	48, 6

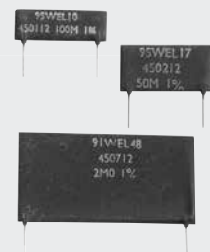
Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/3810.PDF>



## 4500 Series High Voltage Planar Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
4501	1	20K - 500M	1, 2, 5	10000	100, 150	25.7, 2, 9
4502	1.7	36K - 750M	1, 2, 5	10000	100, 150	25.7, 2, 13
4503	2	36K - 750M	1, 2, 5	15000	100, 150	38.7, 2, 9
4504	3	62K - 1G	1, 2, 5	15000	100, 150	38.7, 2, 13
4505	2.8	51K - 1G	1, 2, 5	20000	100, 150	51.2, 2, 9
4506	3.6	82K - 1G	1, 2, 5	20000	100, 150	51.2, 2, 13
4507	4.5	180K - 1.5G	1, 2, 5	20000	100, 150	51.2, 2, 25.7

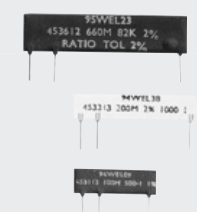
Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/4500.PDF>



## 4530 Series High Voltage Planar Dividers

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
4531	1.0	20K - 130M	1, 2, 5	6500	100	25.7, 2, 9
4532	1.7	36K - 250M	1, 2, 5	6500	100	25.7, 2, 13
4533	2.0	36K - 250M	1, 2, 5	10000	100	38.7, 2, 9
4534	3.0	62K - 450M	1, 2, 5	10000	100	38.7, 2, 13
4535	2.8	51K - 370M	1, 2, 5	15000	100	51.2, 2, 9
4536	3.6	82K - 660M	1, 2, 5	15000	100	51.2, 2, 13
4537	4.5	180K - 1.4G	1, 2, 5	15000	100	51.2, 2, 25.7

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/4530.PDF>





GC Series					High Value Thick Film Resistors	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
GC55	0.25	47K - 900M	1, 2, 5	1700	100	6.2, 2.5
GC65	0.5	47K - 900M	1, 2, 5	3500	100	9, 3.6
GC70	1.0	47K - 33M	1, 2, 5	10000	100	14.5, 5.3

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/GC.PDF>



HR Series					High Value Surface Mount Resistors	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0503	-	10M - 20G	10	50	0 to -2500	1.25, .63, .5
0805	-	100M - 50G	10	100	0 to -2000	2, 1.25, .6
1005	-	100M - 50G	10	150	0 to -1500	2.5, 1.25, .7
1206	-	100M - 50G	10	200	0 to -1000	3.2, 1.6, .7

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/HR.PDF>



HVC Series					High Voltage Chip Resistors	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
1206	0.3	10K - 1G0	10, 5, 2, 1, 0.5	1000	50, 100	3.2±0.4, 1.6±0.2, 0.7
2010	0.5	10K - 1G0	10, 5, 2, 1, 0.5	2000	50, 100	5.1±0.3, 2.5±0.2, 0.8
2512	1	10K - 1G0	10, 5, 2, 1, 0.5	3000	50, 100	6.5±0.3, 3.2±0.2, 0.8

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/HVC.PDF>



HVD Series					High Voltage Divider Resistors	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
HVD08	0.75	10K - 1G0	0.25, 0.5, 1	7,500	25, 50	25.4, 2.5, 9.4
HVD12	1.5	50K - 2G0	0.25, 0.5, 1	10,000	25, 50	38.1, 2.5, 13.6
HVD15	2.5	100K - 2G0	0.25, 0.5, 1	15,000	25, 50	50.8, 2.5, 16.1
HVD20	3.5	100K - 5G0	0.25, 0.5, 1	20,000	25, 50	76.2, 2.5, 16.1
HVD30	4.5	100K - 5G0	0.25, 0.5, 1	30,000	25, 50	101.6, 2.5, 16.1

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/HVD.pdf>



HVP Series					High Voltage Planar resistors	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim. (mm) l, w, h
HVP04	0.4	1K - 250M	0.25, 0.5, 1, 5	2000	25, 50, 100	10.2, 7.4, 2
HVP06	0.6	1K5 - 1G0	0.25, 0.5, 1, 5	5000	25, 50, 100	12.7, 7.4, 2
HVP08	0.8	2K - 1G0	0.25, 0.5, 1, 5	7500	25, 50, 100	19.1, 7.4, 2
HVP10	1	3K - 2G0	0.25, 0.5, 1, 5	10,000	25, 50, 100	25.4, 7.4, 2
HVP15	1.5	4K - 5G0	0.25, 0.5, 1, 5	15,000	25, 50, 100	38.1, 7.4, 2
HVP20	2	5K - 10G	0.25, 0.5, 1, 5	20,000	25, 50, 100	50.8, 7.4, 2

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/HVP.pdf>



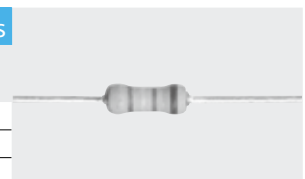
LHVC Series					Lower Range High Voltage Chip	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim. (mm) l, w, h
0603	0.1	100K - 10M	1, 5	200	200	1.6, 0.8, 0.45
0805	0.125	100K - 10M	1, 5	400	200	2, 1.3, 0.55
1206	0.25	100K - 10M	1, 5	500	200	3.1, 1.6, 0.55
2010	0.5	50K - 10M	1, 5	1600	200	5, 2.5, 0.55
2512	1	50K - 10M	1, 5	2000	200	6.4, 3.2, 0.55

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/LHVC.pdf>



MH Series					High Voltage Metal Film Resistors	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
MH25	0.25	100K - 10M	1, 2, 5	1600	100	6.2, 2.3
MH37	0.5	100K - 1M	1, 2, 5	3500	100	9, 3.7

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/MH.PDF>



RHVD Series					Robust High Voltage Divider Resistors	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim. (mm) l, h, w
RHVD08	0.5	10K - 1G0	0.25, 0.5, 1	7,500	25, 50	25.4, 9.2, 5
RHVD10	0.75	50K - 1G0	0.25, 0.5, 1	10,000	25, 50	38.1, 9.2, 5
RHVD10A	1	100K - 1G0	0.25, 0.5, 1	10,000	25, 50	38.1, 13.4, 5
RHVD15	1.5	100K - 1G0	0.25, 0.5, 1	15,000	25, 50	50.8, 9.2, 5
RHVD15A	2	100K - 1G0	0.25, 0.5, 1	15,000	25, 50	50.8, 15.9, 5

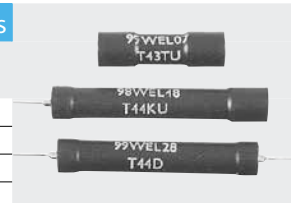
Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/RHVD.pdf>



## T Series High Voltage Precision Thick Film Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
T43	1.5	10K - 10G	1, 2, 5	4000	25, 50, 100	25.4, 8.4
T44	3.5	10K - 50G	1, 2, 5	14000	25, 50, 100	50.8, 8.4
T48	10	33K - 50G	1, 2, 5	50000	25, 50, 100	150, 8.4

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/T40.pdf>



## VRW Series High Voltage Thick Film Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) L, D
VRW25	0.25	100K to 30M	1, 2, 5	1600	200	6.2, 2.5
VRW37	0.5	100K to 10M	1, 2, 5	3500	200	9.0, 3.7
VRW68	1	100K - 68M	1, 2, 5	10000	200	15.5, 5

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/VRW.PDF>



## WPYP Series Capacitor Mount Balance/ Bleed Resistor

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim. (mm) Pitch
WPYP8	10	1R0 - 82K	1, 2, 5	685	100	22
WPYP10	13	1R0 - 120K	1, 2, 5	940	100	31.8

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WPYP.pdf>

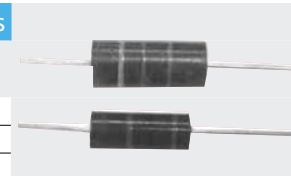


## 电涌 / 脉冲

## CC Series Carbon Composition Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim. (mm) l, dia
CC1	1	100R - 50K	10, 20	-	1000	15, 6
CC2	2	100R - 10K	10, 20	-	1000	18, 8

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/CC.pdf>



## CHP Series Metal Glaze™ Surface Mount Power Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
CHP1/8	0.25	0R1 - 1M	1, 2, 5	200	50, 100	3.25, 1.45
CHP1/2	0.5	0R1 - 350K	1, 2, 5	300	50, 100	5.08, 2.01
CHP1	1	0R1 - 2M2	1, 2, 5	350	50, 100	6.38, 2.10
CHP2	1.33	0R1 - 2M2	1, 2, 5	500	50, 100	9.32, 2.67

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/CHP.PDF>



## DSC Series Double Sided Chip

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0603	0.125	1R - 1M0	0.5, 1, 5	75	100 - 200	1.5, 0.8, 0.6
0805	0.25	1R0 - 1M0	0.5, 1, 5	150	100 - 200	2.0, 1.25, 0.7
1206	0.33	1R0 - 4M7	0.5, 1, 5	200	100 - 200	3.2, 1.6, 0.7
2010	0.75	1R0 - 4M7	0.5, 1, 5	400	100 - 200	5.1, 2.5, 0.8
2512	1.5	1R0 - 4M7	0.5, 1, 5	500	100 - 200	6.5, 3.2, 0.8

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/DSC.PDF>



## PWC Series Pulse Withstanding Chip Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0603	0.125	1R - 10M	0.5, 1, 5	75	100 - 200	1.5, 0.8, 0.6
0805	0.25	1R0 - 10M	0.5, 1, 5	150	100 - 200	2.0, 1.25, 0.7
1206	0.33	1R0 - 10M	0.5, 1, 5	200	100 - 200	3.2, 1.6, 0.7
2010	0.75	1R0 - 10M	0.5, 1, 5	400	100 - 200	5.1, 2.5, 0.8
2512	1.5	1R0 - 10M	0.5, 1, 5	500	100 - 200	6.5, 3.2, 0.8

Higher Pulse Withstanding (HPWC) version available

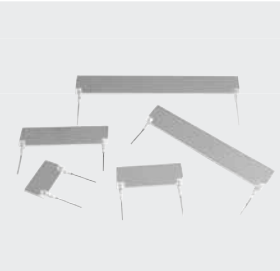
Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PWC.PDF>

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/HPWC.PDF>



## PWP Series Pulse Withstanding Planar Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
PWP04	0.4	100R – 200K	1, 5	-	±100	10.16, 2, 6.35
PWP06	0.6	100R – 200K	1, 5	-	±100	12.7, 2, 6.35
PWP08	0.8	100R – 200K	1, 5	-	±100	17.78, 2, 6.35
PWP10	1	100R – 200K	1, 5	-	±100	24.4, 2, 6.35
PWP15	1.5	100R – 200K	1, 5	-	±100	38.1, 2, 6.35
PWP20	2	100R – 200K	1, 5	-	±100	50.8, 2, 6.35

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PWP.PDF>

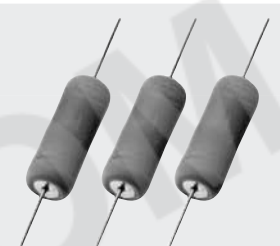
## W30 Series Flameproof Wirewound Resistor

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
W31	3	R01 – 10K	<R1: 5 ≥R1: 1, 2, 5	500	100 - 1000	13, 5.6

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/W30.PDF>

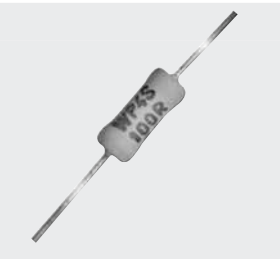
## WHS Series Wirewound High Surge Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim(mm) l,dia
WHS2	2	1R0 – 330R	1, 2, 5	-	±200	9, 3.6
WHS3	3	1R0 – 330R	1, 2, 5	-	±200	14.5, 5.2
WHS5	5	1R0 – 330R	1, 2, 5	-	±200	16.5, 7
WHS7	7	1R0 – 330R	1, 2, 5	-	±200	25, 8.8
WHS10	10	2R2 – 330R	1, 2, 5	-	±200	51, 10.5

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WHS.PDF>

## WP-S Series Compact Flameproof Power Wirewound Resistors

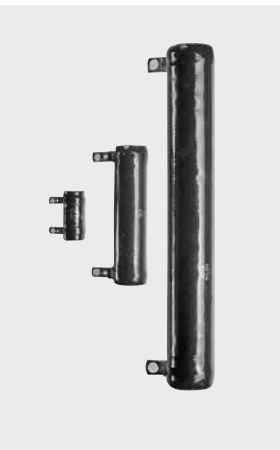
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
WP1S	1	R068 to 430R	<20r: 5 ≥20R: 1,2,5	50	<1R: 350 ≥1R: 200	6.2, 2.8
WP2S	2	R05 to 900R	<20r: 5 ≥20R: 1,2,5	50	<1R: 350 ≥1R: 200	9.0, 3.6
WP25S	2.5	R05 to 900R	<20r: 5 ≥20R: 1,2,5	75	<1R: 350 ≥1R: 200	12.5, 4.5
WP3S	3	R01 to 2K2	<20r: 5 ≥20R: 1,2,5	100	<1R: 350 ≥1R: 200	14.5, 5.2
WP4S	4	R01 to 10K	<R10:5 ≥R10: 1,2,5	100	<1R: 350 ≥1R: 200	13, 5.6
WP5S	5	R015 to 6K8	<20r:5 ≥20R: 1,2,5	150	<1R: 350 ≥1R: 200	16.5, 7.0

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WP-S.PDF>

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## 1600/1900 Series Tubular Vitreous Enamelled Wirewound Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
1601	11	1 - 15K	1, 2, 5, 10	250	75 - 200	33, 17.5
1905	16	1 - 30K	1, 2, 5, 10	450	75 - 200	56.1, 14.5
1600	16.5	1 - 56K	1, 2, 5, 10	600	75 - 200	61.5, 14.5
1602	17	1 - 43K	1, 2, 5, 10	500	75 - 200	51, 17.5
1906	22	1 - 50K	1, 2, 5, 10	700	75 - 200	64.3, 17.5
1603	25	1 - 83K	1, 2, 5, 10	850	75 - 200	74.5, 17.5
1604	35	1 - 100K	1, 2, 5, 10	1300	75 - 200	102, 17.5
1605	47	1 - 100K	1, 2, 5, 10	1100	75 - 150	89.5, 24
1908	54	1 - 100K	1, 2, 5, 10	1200	75 - 150	102, 24
1607	76	1 - 100K	1, 2, 5, 10	1300	75 - 150	102, 32
1606	91	1 - 160K	1, 2, 5, 10	2100	75 - 150	166, 24
1608	115	1 - 180K	1, 2, 5, 10	2100	75 - 150	152, 32
1609	165	1 - 250K	1, 2, 5, 10	3000	75 - 150	216, 32

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/1600-1900.PDF>

## BPC Series Planar Power Resistors

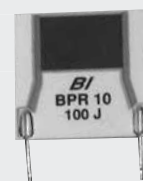
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, h, t
BPC3	3	OR1 - 200K	1, 2, 5, 10	500	100	10.2, 27.7, 2.5
BPC5	5	OR1 - 200K	1, 2, 5, 10	500	100	12.7, 27.7, 2.5
BPC7	7.5	OR1 - 200K	1, 2, 5, 10	500	100	19.1, 27.7, 2.5
BPC10	10	OR1 - 200K	1, 2, 5, 10	500	100	25.4, 27.7, 2.5

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/BPC.PDF>

## BPR Series

## Vibration-proof Planar Power Resistors

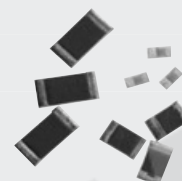
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, h, t
BPR3	3	0R1 - 200K	1, 2, 5	500	100	12.7, 17, 6.1
BPR5	5	0R1 - 200K	1, 2, 5	500	100	12.7, 27.2, 6.1
BPR7	7	0R1 - 200K	1, 2, 5	500	100	25.4, 20.8, 6.1
BPR10	10	0R1 - 200K	1, 2, 5	500	100	25.4, 27.2, 6.1
BPR30	30	0R1 - 200K	1, 2, 5	500	100	53.3, 37.3, 6.1
BPR50	50	1R0 - 1K0	1, 2, 5	500	100	53.3, 52.8, 6.1

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/BPR.PDF>

## HTCR Series

## High Temperature Chip Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, h, t
0805	0.125	1R0 - 10M	1, 5	150	100 - 200	2, 1.3, 0.5
1206	0.25	1R0 - 10M	1, 5	200	100 - 200	3.2, 1.6, 0.5
2010	0.625	1R0 - 10M	1, 5	400	100 - 200	5, 2.5, 0.65
2512	1	1R0 - 10M	1, 5	500	100 - 200	6.3, 3.2, 0.65

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/HTCR.PDF>

## MFP Series

## Flameproof Power Metal Film Resistors

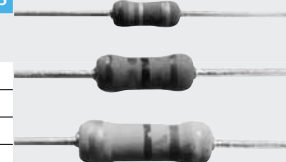
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
MFP1	1	0R1 - 1M	1, 2, 5	350	100, 200, 300	6.2, 2.5
MFP2	2	1R0 - 1M	1, 2, 5	350	100	10, 4

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/MFP.PDF>

## MF-S Series

## Power Metal Film Resistors

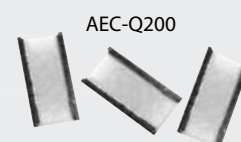
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
MF1/2S	0.5	0R1 - 1M	1, 2, 5, 10	350	150 - 350	6.2, 2.5
MF1S	1.0	0R1 - 1M	1, 2, 5, 10	350	150 - 350	9, 3.6
MF2S	2.0	0R1 - 1M0	1, 2, 5, 10	350	150 - 350	12.5, 4.2
MF3S	3.0	0R1 - 1M0	1, 2, 5, 10	350	150 - 350	14.5, 5.3

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/MF-S.PDF>

## SC3 Series

## High Power Chip Resistor

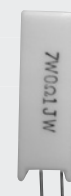
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
SC3	3	1R0 - 10K	1, 2, 5	50	100	3.25, 6.5,

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/SC3.PDF>

## SQM Series

## Ceramic Case Pluggable Resistor

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim. (mm) h, w, d
SQM2	2	0R1 - 33K	5	150	350, 400	20, 11.5, 7.5
SQM3	3	0R1 - 56K	5	300	350, 400	25, 12.5, 8.5
SQM5	5	0R1 - 100K	5	350	350, 400	25, 12.5, 9
SQM7	7	0R1 - 200K	5	500	350, 400	38, 12.5, 9
SQM10	10	0R1 - 200K	5	750	350, 400	50, 12.5, 9

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/SQM.pdf>

## SQP Series

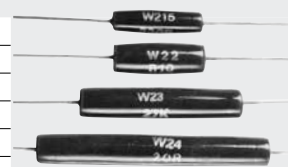
## Ceramic Case Resistors - Wirewound / Metal Oxide

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
SQP2	2	0R1-120K	5	-	350	18, 7, 7
SQP3	3	0R1-150K	5	-		22, 8, 9
SQP5	5	0R1 - 150K	5	-		22, 10, 9
SQP7	7	0R1 - 200K	5	-		35, 10, 9
SQP10	10	0R1 - 200K	5	-		49, 10, 9
SQP15	15	1R0- 200K	5	-		49, 12.5, 11.5
SQP20	20	2R0-200K	5	-		60, 14.5, 13.5

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/SQP.PDF>

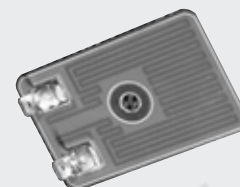
## W20 Series Vitreous Enamelled Wirewound Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
W21	3.0	0R1 - 10K	1, 2, 5	100	+75 to 200	12.7, 5.6
W215	5.0	0R1 - 15K	1, 2, 5	160	+75 to 200	22, 7
W22	7.0	0R1 - 22K	1, 2, 5	200	+75 to 200	22, 8
W23	10.5	0R15 - 60K	1, 2, 5	500	+75 to 200	38, 8
W24	14.0	0R2 - 100K	1, 2, 5	750	+75 to 200	53.5, 8

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/W20.PDF>SnPb Option  
CECC 40201-002

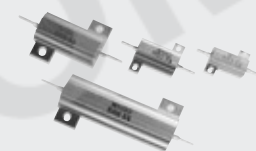
## WDBR Series Ultra Low Profile Dynamic Braking Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w
WDBR1/2	300	22R - 100R	10	-	+500 - +600	31.9, 28.1
WDBR1	700	12R - 150R	10	-	+500 - +600	49.3, 35.9
WDBR2	780	12R - 150R	10	-	+500 - +600	61, 40.6
WDBR3	900	12R - 150R	10	-	+500 - +600	102, 70
WDBR5	1000	12R - 150R	10	-	+500 - +600	122, 70
WDBR7	1490	47R - 150R	10	-	+500 - +600	152, 102

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WDBR.PDF>

## WH Series Aluminium Housed Wirewound Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
WH5	10	0R01 - 10K	1, 2, 5, 10	150	50, 100	30, 17, 9
WH10	15	0R01 - 20K	1, 2, 5, 10	250	50, 100	36.5, 21, 11
WH25	25	0R01 - 44K	1, 2, 5, 10	500	50, 100	51, 28, 15
WH50	50	0R015 - 120K	1, 2, 5, 10	1250	50, 100	72.5, 30, 16
WH100	100	0R01 - 70K	1, 2, 5, 10	1900	25, 100	88, 47.5, 24.1
WH200	200	0R01 - 50K	1, 2, 5, 10	1900	25, 100	146, 72.5, 41.8
WH300	300	0R01 - 68K	1, 2, 5, 10	2500	25, 100	184, 72.5, 41.8

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WH.PDF>SnPb Option  
CECC 40203-006

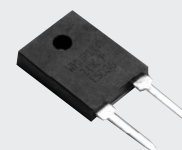
## WHPC Series High Power Chip

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim. (mm) l, w, h
1206	0.5	1R - 10M	1, 5	200	100 - 200	3.1, 1.6, 0.55
0612	0.5	1R - 1M	1, 5	200	100 - 400	1.6, 3.2, 0.55
2010	1	1R - 10M	1, 5	200	100 - 200	5, 2.5, 0.55
1020	1	1R - 1M	1, 5	200	100 - 400	2.5, 5, 0.55
1218	1	1R - 1M	1, 5	200	100 - 400	3.1, 4.6, 0.55
1225	1.5	1R - 1M	1, 5	200	100 - 400	3.1, 6.3, 0.55

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WHPC.pdf>

## WMHP Series Heatsink Mount High Power Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
WMHP20	20	R05 - 10K	1, 5	350	50	14.8, 10.1, 4.4
WMHP35	35	R05 - 10K	1, 5	350	50	14.8, 10.1, 4.4
WMHP50	50	R05 - 10K	1, 5	350	50	14.8, 10.1, 4.4
WMHP100	100	R05 - 10K	1, 5	700	50	20.7, 15.8, 5.0

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WMHP.pdf>  
Heatsink available: <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WMHP-HS.pdf>

## WMO-S Series Flameproof Metal Oxide Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
WMO1/2S	0.5	10R - 100K	5	250	350	7.5, 3
WMO1S	1.0	10R - 120K	5	350	350	10, 4.5
WMO2S	2.0	10R - 150K	5	350	350	12, 5
WMO3S	3.0	10R - 150K	5	350	350	16, 5.5
WMO5S	5.0	10R - 180K	5	500	350	26, 8.5
WMO7S	7	20R - 150K	5	750	350	32, 8.5

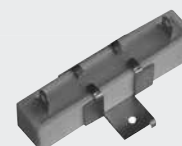
Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WMO-S.PDF>

## WPRT Series Wirewound Power Radial Terminal Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
WPRT10	10	1R0 - 820R	5	-	±350	48, 10, 9
WPRT15	15	1R0 - 1K0	5	-	±350	48, 12.5, 11.5
WPRT20	20	2R0 - 1K2	5	-	±350	63, 12.5, 13.5
WPRT30	30	3R0 - 1K5	5	-	±350	75, 19, 19
WPRT40	40	6R0 - 1K5	5	-	±350	90, 19, 19
WPRT50	50	6R0 - 1K5	5	-	±350	90, 19, 19

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WPRT.PDF>

AEC-Q200





## WP-SZI Series Cement Coated Surface Mount Wirewound Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
WP2SZI	2	0.05 - 900R	<0R1:5,10	50	<1R: 350 1R: 200	14,8, 3,6, 6,5
WP3SZI	3	0.01 - 2K2	≥0R1:1,2,5,10	100	<1R: 350 1R: 200	21, 5,2, 8,2
WP5SZI	5	0.015 - 6K8	1, 2, 5, 10	150	<1R: 350 1R: 200	21, 7,0, 8,2

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/ZI-FORM.PDF>



## WSM Series Moulded Surface Mount Wirewound Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
WSM1	1	0R01 - 1K	1, 2, 5, 10	100	20 - 100	7,9, 7, 3,94
WSM2	2	0R01 - 2K	1, 2, 5, 10	100	20 - 100	12, 10,5, 5,5
WSM3	3	0R01 - 3K	1, 2, 5, 10	100	20 - 200	18, 16, 6,5

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WSM.PDF>



## WSMHP Series Surface Mount TO-263 Power Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
WSMHP20	20	0R5 - 100K	1, 5	500	50	10,1, 10,1, 4,6
WSMHP25	25	0R5 - 100K	1, 5	500	50	10,1, 10,1, 4,6
WSMHP35	35	0R5 - 100K	1, 5	500	50	10,1, 10,1, 4,6

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WSMHP.pdf>

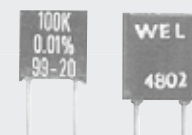


## 精度

## 4800 Series Ultra Precision Bulk Metal Foil Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
4802/12/32	0.5	1R0 to 100K	0.005, 0.01	200	5	8,9, 10,2, 3,8, 7,5, 8, 2,5 9,7 5,4 9,7
4804	1	0R5 to 200k	0.02, 0.05	350	5	15,2, 13,2, 3,8
4805	1.5	33R0 to 300K	0.01, 0.25, 0.5, 1	500	5	22,6, 13,2, 3,8

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/4800.PDF>



## CAR Series Ultra Precision Metal Film Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
CAR5	0.25	10R0 - 3M	0.01, 0.02,	250	5, 10,	7,2, 2,5
CAR6	0.33	10R0 - 5M	0.05, 0.1,	350	15, 25,	10, 3,7
CAR7	0.5	10R0 - 10M	1.0	500	50	15,5, 5,5

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/CAR.PDF>



## DIV23 Series Surface Mount Divider Network

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
DIV23	0.25	10R - 200K	0.05	100	Track ±5	2,9, 1,3, 1

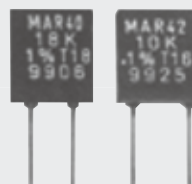
Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/DIV23.pdf>



## MAR 40/42 Series Ultra Precision Metal Film Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
MAR 40	0.3	20R0 - 400K	0.005, 0.01	250	2, 5	7,75, 3,3, 8,64
MAR 42			0.02, 0.05			8,25, 3,3, 8,64
			0.01, 0.25, 0.5,			

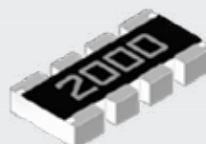
Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/MAR.pdf>



## PCA Series Precision Chip Array

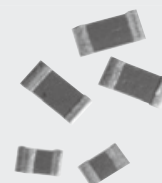
Type	Package Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Array Description			Dim.(mm) l, w, h
						# Res	Circuit	Size	
PCA164	0.25	24R9 - 100K	0.1, 0.25, 0.5, 1	50	10, 15, 25, 50	4	Isolated	1206	3,2, 1,6, 0,55

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PCA.pdf>



PCF Series					Precision Surface Mount Resistor	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0201	0.031	50R - 33K	0.5, 1	15	25, 50	0.6, 0.3, 0.26
0402	0.063	10R-205K	0.01 - 1	25	2 - 50	1, 0.5, 0.4
0603	0.063	2R - 1M	0.01 - 1	50	2 - 50	1.6, 0.8, 0.55
0805	0.1	1R - 2M	0.01 - 1	100	2 - 50	2, 1.3, 0.65
1206	0.125	1R - 2M5	0.01 - 1	150	2 - 50	3.2, 1.6, 0.65
1210	0.2	1R - 2M5	0.01 - 1	150	2 - 50	3.2, 2.6, 0.5
2010	0.25	1R - 3M	0.01 - 1	150	2 - 50	4.9, 2.4, 0.65
2512	0.5	1R - 3M	0.01 - 1	150	2 - 50	6.3, 3.1, 0.65
High Power (PCFH), Extended High Power (PCFX) and Passivated (PCFP) versions available						
Datasheet - <a href="http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PCF.pdf">http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PCF.pdf</a>						

AEC-Q200



PCR Series					Precision Thick Film Surface Mount Resistors	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0805	0.1	10R - 1M	0.1 - 1	100	50	2, 1.25, .6
1005	0.125	10R - 1M	0.1 - 1	150	50	2.5, 1.25, .7
1206	0.25	10R - 1M	0.1 - 1	200	50	3.2, 1.6, .7
Datasheet - <a href="http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PCR.PDF">http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PCR.PDF</a>						

PFC-D Series					Precision 1206 Resistive Dividers	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, t
PFC-D	0.25	10R - 200K	0.05, 0.1, 0.5, 1	100	25, 50, 100	3.2, 1.6, 0.6
Datasheet - <a href="http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PFC-D.pdf">http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PFC-D.pdf</a>						

PR Series					Precision Metal Film Resistors	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
PR4	0.25	100R - 1M	0.1, 0.25,	250	15, 25, 50	6.2, 2.5
PR5	0.5	100R - 1M	0.5, 1	350	15, 25, 50	9, 3.6
Datasheet - <a href="http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PR.PDF">http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PR.PDF</a>						

RC Series				Precision Metal Film Resistors		
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
RC55	0.25	1R - 4M	0.05, 0.1, 0.25, 0.5	350	5, 10, 15, 25, 50, 100	7.2, 2.5
RC65	0.5	1R - 4M		350		10, 3.7
RC70	1.0	1R - 10M		500		15.5, 5.5
Datasheet - <a href="http://www.ttelectronics.com/sites/default/files/resistors-datasheets/RC.PDF">http://www.ttelectronics.com/sites/default/files/resistors-datasheets/RC.PDF</a>						

SnPb Option  
CECC 40101-004/804

RCP Series					Precision Metal Film Resistors	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
RC55P	0.5	1R - 4M	0.05, 0.1, 0.25, 0.5	350	5, 10, 15, 25, 50, 100	7.2, 2.5
RC65P	1.0	1R - 4M		500		10, 3.7
RC70P	1.5	1R - 10M		500		15.5, 5.5
Datasheet - <a href="http://www.ttelectronics.com/sites/default/files/resistors-datasheets/RCP.PDF">http://www.ttelectronics.com/sites/default/files/resistors-datasheets/RCP.PDF</a>						

SOT143 Series					4 Pin SMT Package	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
SOT	0.25	10R - 100K	0.05	100	Track ±5	2.9, 1.3, 1
Datasheet - <a href="http://www.ttelectronics.com/sites/default/files/resistors-datasheets/SOT143.pdf">http://www.ttelectronics.com/sites/default/files/resistors-datasheets/SOT143.pdf</a>						



WBC Series					TaNSiL® Wire Bondable Silicon Chip Resistors	
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0202	0.25	10R - 400K	to 0.05	100	±25	0.51, 0.51
0303	0.25	21R - 800K	to 0.05	100	Track 2	0.76, 0.76
Datasheet - <a href="http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WBC.PDF">http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WBC.PDF</a>						

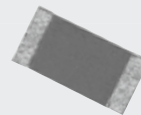


## WIN Series Water Insoluble Nitride Thin Film Precision Chip Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
T0603	0.1	4R7 – 100K	0.05	75	15	1.58, 0.8, 0.45
T0805	0.25	4R7 – 267K	0.05	100	15	2.02, 1.28, 0.45
T1206	0.33	4R7 – 1M0	0.05	200	15	3.15, 1.57, 0.5

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WIN.pdf>

Anti-sulfur



## WRM Series Melf Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
0102	0.2	10R – 1M	1, 0.1, 0.25, 0.5, 1, 2, 5	200	15, 25, 50, 100	2.3, 1.35
0204	0.25	R22 – 5M1		200	5, 15, 25, 50, 100	3.7, 1.55
0207	0.4	R16 – 10M		250	25, 50, 100	6.1, 2.4

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WRM.PDF>



## WRM-HP Series High Power MELF Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
0204	0.4	0R1 – 1M0	0.1, 0.25, 0.5, 1, 5	200	15, 25, 50, 100	3.7, 1.55
0207	1	0R1 – 1M0	0.1, 0.25, 0.5, 1, 5	350	15, 25, 50, 100	6.1, 2.4

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WRM-HP.pdf>



## WRM-HV Series High Voltage MELF Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
0204	0.4	340K – 3M4	0.1, 0.25, 0.5, 1	500	25, 50	3.7, 1.55
0207	1	340K – 3M4	0.1, 0.25, 0.5, 1	1000	25, 50	6.1, 2.4

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WRM-HV.pdf>

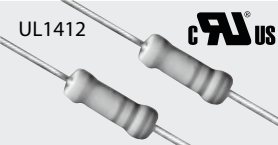


## 可熔

## EMC Series Pulse Withstanding Fusible Flameproof Metal Film Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
EMC2	2	4R7 – 68R	10, 20	-	100	10, 4

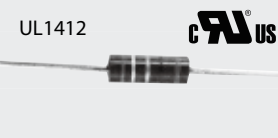
Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/ EMC.PDF>



## SP20F Series Failsafe Molded Wirewound Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
SP20F	1	0R1 – 1K0	5, 10	-	±150	9.91, 3.56

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/SP20-SP20F.pdf>



## SPP Series Fibre Core Conformal Coated Wirewound Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
SPP-1	1	0R1 – 1K2	5, 10	-	±300	10.2, 3.8
SPP-2	2	0R1 – 2K4	5, 10	-	±300	14.5, 4.3
SPP-3	3	0R1 – 2K4	5, 10	-	±300	14.5, 4.3

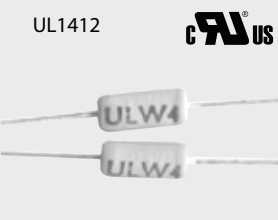
Datasheet - <http://www.ttelectronicsresistors.com/datasheets/SPP.pdf>



## ULW Series UL1412 Wirewound Mains Input Resistor

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim. (mm) l, dia
ULW2	2	1R - 100R	5	-	200	9, 3.6
ULW3	3	1R - 100R	5	-	200	14.5, 5.2
ULW4	4	1R - 100R	5	-	200	13, 5.6
ULW5	5	1R - 100R	5	-	200	16.5, 7.2

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/ULW.pdf>



## WA84F Series Fusible Wirewound Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
WA84F	1.6	0R2 - 30R	5	100	100 - 350	14.5, 5.2

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WA84F.PDF>



## 可靠性高

CR Series						Surface Mount Resistors
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0503	0.063	1R - 10M	0.1 - 5	50	100	1.25, .63, .5
0805	0.125	1R - 100M	0.1 - 5	100	100	2, 1.25, .6
1005	0.125	1R - 100M	0.1 - 5	150	100	2.5, 1.25, .7
1206	0.25	1R - 100M	0.1 - 5	200	100	3.2, 1.6, .7
2010	0.5	1 - 1M	0.1 - 5	400	100	5.1, 2.5, .7
2512	1.0	1 - 1M	0.1 - 5	500	100	6.5, 3.2, .7

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/CR.PDF>

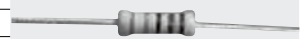
SnPb Option  
CECC 40401-003/004/008



MFR Series						Metal Film Resistors
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
MFR3	0.4	1R0 - 1M	1	200	50	3.5, 1.8
MFR4	0.5	1R0 - 1M	0.5, 1	350	50	6.2, 2.5
MFR5	0.75	1R0 - 1M	0.5,	350	100 - 150	9, 3.6

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/MFR.PDF>

SnPb Option  
CECC 40101-019/803



PFC Series						TaNFilm® Precision Chip Resistors
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0402	0.05	50R - 30K	0.1 - 5	75	25 - 100	1, 0.5, 0.3
0603	0.1	5R - 100K	0.02 - 5	75	10 - 100	1.6, 0.8, 0.5
0805	0.25	5R - 267K	0.02 - 5	100	10 - 100	2.1, 1.3, 0.5
1206	0.33	5R - 1M	0.02 - 5	200	10 - 100	3.2, 1.6, 0.6
1505	0.35	5R - 1M	0.02 - 5	100	25 - 100	3.9, 1.3, 0.6
2010	0.8	5R - 1M	0.02 - 5	175	25 - 100	5.2, 2.6, 0.6
2512	1	5R - 1M	0.02 - 5	200	25 - 100	6.5, 3.1, 0.6

High Temperature (PFC-HT) version available

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PFC.pdf>  
 Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PFC-HT.pdf>

SnPb Option  
Anti - Sulphur Option  
MIL-PRF-55342



## 温感

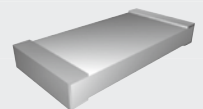
PTCR Series						PTC Thermistor Chip
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim (mm) l, w, h
0805	0.1	10R - 400R	2, 5, 10	100	2200 - 3500	2, 1.25, 0.6
1206	0.2	10R - 800R	2, 5, 10	200	2200 - 3500	3.2, 1.6, 0.7

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PTCR.PDF>



PTS Series						Platinum Film Temperature Sensors
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, t
0603	-	1K0	0.12, 0.24	-	+3850	1.6, 0.8, 0.5
0805	-	100R & 1K0	0.12, 0.24	-	+3850	2.1, 1.3, 0.5
1206	-	100R & 1K0	0.12, 0.24	-	+3850	3.2, 1.6, 0.6

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PTS.PDF>



## 零欧姆跳线

LRZ Series						High Current Jumper Chip
Type	Current (amps)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, t
0603	6	0.003 max	-	-	-	1.6, 0.8, 0.5
0805	15	0.003 max	-	-	-	2.0, 1.25, 0.61
1206	20	0.003 max	-	-	-	3.2, 1.25, 0.61
2010	30	0.003 max	-	-	-	5.23, 2.64, 0.74
2512	35	0.003 max	-	-	-	6.5, 3.25, 0.74

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/LRZ.pdf>

AEC-Q200



WL4 Series						Jumper Resistors
Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
WL4	-	0.012 max	-	-	-	6.2, 2.3
WLT	Wire link taped, 0.6 / 0.7 / 0.8mm dia x 52mm					

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WL4.PDF>



## 一般用途

## ASC Series Anti Sulphur Chip Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0402	0.063	1R0 - 10M	1	50	100 - 200	1, 0.5, 0.35
0603	0.1	1R0 - 10M	1	50	100 - 200	1.6, 0.8, 0.45
0805	0.125	1R0 - 10M	1	150	100 - 200	2, 1.25, 0.5
1206	0.25	1R0 - 10M	1	200	100 - 200	3.1, 1.55, 0.55
1210	0.33	1R0 - 10M	1	200	100 - 200	3.2, 2.6, 0.55
2010	0.625	1R0 - 10M	1	200	100 - 200	5, 2.5, 0.55
2512	1	1R0 - 10M	1	250	100 - 200	6.35, 3.2, 0.55

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/ASC.PDF>

Anti - Sulphur



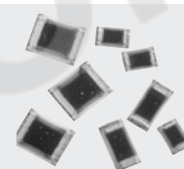
## BCN Series Thick Film Chip Resistor Arrays

Type	Package Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	Array Description			Dim. (mm) l, w, h
					# Res.	Circuit	Size	
BCN10	0.25	10R - 1M0	5	25	4	Isolated	0804	2, 1, 0.36
BCN164A/AB(I)	0.25	10R - 1M0	1, 2, 5	50	4	Isolated	1206	3.2, 1.6, 0.5-0.6
BCN168RB/SB	0.25	100R - 1M0	5	25	8	Bussed	1206	3.2, 1.6, 0.5
BCN21	0.5	68R - 220K	5	25	8	Bussed	1608	4, 2.1, 0.55
BCN4D(BI)	0.5	10R - 1M0	1, 5	75	4	Isolated	2112	5.34, 3.1, 0.55
BCN318RB(I)/SB(I)	0.5	22R - 1M0	1, 2, 5	50	8	Bussed	2512	6.4, 3.1, 0.55-0.6

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/BCN.pdf>Anti - Sulphur Option  
AEC-Q200 (BCN164AB)

## CRT Series Trimmable Surface Mount Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0805	0.1	10R - 1M	±20	100	250	2, 1.25, .5
1206	0.125	10R - 1M	±20	200	250	3.2, 1.6, .55

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/CRT.PDF>

## GCR Series Glueable Chip Resistors

Type	Current (amps)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0805	0.125	1R0 - 10M	1, 5	150	100 - 200	2, 1.3, 0.5
1206	0.25	1R0 - 10M	1, 5	200	100 - 200	3.2, 1.6, 0.5
2010	0.625	1R0 - 10M	1, 5	400	100 - 200	5, 2.5, 0.65
2512	1	1R0 - 10M	1, 5	500	100 - 200	6.3, 3.2, 0.65

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/GCR.PDF>

## GPCF Series General Purpose Precision Surface Mount Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0402	0.063	10R - 100K	0.1, 1	50	25, 50	1.0, 0.5, 0.45
0603	0.1	10R - 100K	0.1, 1	75	25, 50	1.6, 0.8, 0.55
0805	0.125	10R - 100K	0.1, 1	150	25, 50	2.1, 1.25, 0.65
1206	0.25	10R - 100K	0.1, 1	150	25, 50	3.1, 1.55, 0.7

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/GPCF.pdf>

## MFR4P Series Metal Film Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, dia
MFR4P	0.6	R22 - 1M	1, 2, 5,	250	50	6.2, 2.5

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/MFR4P.PDF>

## WCR Series General Purpose Surface Mounted Resistors

Type	Power (watts)	Res. Range (ohms)	Tolerance %	Max Volts	TCR (ppm/°C)	Dim.(mm) l, w, h
0201	0.05	10R - 1M	1	25	250	0.6, 0.3, 0.23
0402	0.1	1R - 1M	1	50	100	1, .5, .35
0603	0.063	1R - 10M	1	75	100	1.6, .8, .5
0805	0.125	1R - 10M	1	150	100	2, 1.25, .5
1206	0.25	1R - 10M	1	200	100	3.2, 1.6, .55
1210	0.25	1R - 10M	1	200	100	3.2, 2.6, 0.55
2010	0.5	1R - 10M	1	200	200	5, 2.5, .56
2512	1.0	1R - 10M	1	200	200	6.3, 3.2, .56

Datasheet - <http://www.ttelectronics.com/sites/default/files/resistors-datasheets/WCR.PDF>

AEC-Q200 option

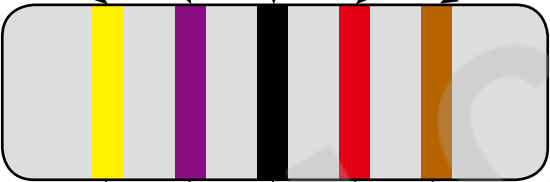




彩条标记电阻的色标

		Value 1	Value 2	Value 3	Multiplier	Tolerance	
Silver					x 0.01	10 %	K
Gold					x 0.1	5 %	J
Black		0	0	0	x 1		
Brown		1	1	1	x 10	1 %	F
Red		2	2	2	x 100	2 %	G
Orange		3	3	3	x 1K		
Yellow		4	4	4	x 10K		
Green		5	5	5	x 100K	0.5 %	D
Blue		6	6	6	x 1M	0.25 %	C
Violet		7	7	7	x 10M	0.1 %	B
Grey		8	8	8	x 100M	0.05 %	A
White		9	9	9	x 1G		
Blank						20 %	M

Example 1  
5-Band Marking  
E24/E96 values



4 7 0 x100 1 % = 47K 1 %  
E.g. MFR4 E96

Example 2  
4-Band Marking  
E24/E96 values  
without tolerance



4 7 0 x100 = 47K  
E.g. WRM0204 E96

Example 3  
4-Band Marking  
E24 values

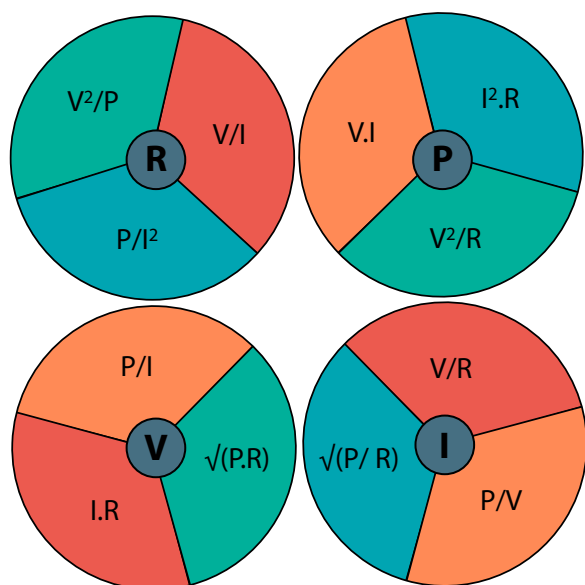


8 2 x1K 5 % = 82K 5 %  
E.g. WM03S E24

更多技术信息

<b>Application Notes</b> for current sense, circuit protection, pulse and overload ratings, energy metering, lighting, medical, automotive, high voltage design and more	<a href="http://www.ttelectronics.com/resistors">http://www.ttelectronics.com/resistors</a>
<b>Parametric Search</b> for selection of products by parameters, package, technology and application	<a href="http://www.ttelectronics.com/resistors/parts-search">http://www.ttelectronics.com/resistors/parts-search</a> ,
<b>Calculation Tools</b> for pulse loading, temperature derating, critical resistance, capacitor bleed and more	Tools tab at <a href="http://www.ttelectronics.com/resistors">http://www.ttelectronics.com/resistors</a>
<b>Product Compliance</b> for RoHS and REACH SVHC status, termination finish, obsolescence data, SnPb availability and more	See compliance and lifecycle tabs of relevant product information page.
<b>Tin Whisker Report</b> test report on tin whisker qualification of Pb-free finishes	<a href="http://www.ttelectronics.com/themes/ttelectronics/datasheets/resistors/Tin-Whisker-Test-Report.pdf">http://www.ttelectronics.com/themes/ttelectronics/datasheets/resistors/Tin-Whisker-Test-Report.pdf</a>

## 一般公式



**R** is resistance value (ohms) **P** is power dissipated (watts)

**V** is voltage dropped (volts) **I** is current flowing (amps)

E.g.  $R = V / I$

## 首选值

E192	E96	E24	E12	E6		
1	3.16	1	1	1	1	97
1.01	3.2	1.02	1.1	1.5	2	98
1.02	3.24	1.05	1.2	1.5	2.2	99
1.04	3.28	1.07	1.3	1.8	3.3	100
1.05	3.32	1.1	1.5	2.2	4.7	101
1.06	3.36	1.13	1.6	2.7	6.8	102
1.07	3.4	1.15	1.8	3.3	10 etc...	7
1.09	3.44	1.18	2	3.9		8
1.1	3.48	1.21	2.2	4.7		9
1.11	3.52	1.24	2.4	5.6		10
1.13	3.57	1.27	2.7	6.8		11
1.14	3.61	1.3	3	8.2		12
1.15	3.65	1.33	3.3	10 etc...		13
1.17	3.7	1.37	3.6			14
1.18	3.74	1.4	3.9			15
1.2	3.79	1.43	4.3			16
1.21	3.83	1.47	4.7			17
1.23	3.88	1.5	5.1			18
1.24	3.92	1.54	5.6			19
1.26	3.97	1.58	6.2			20
1.27	4.02	1.62	6.8			21
1.29	4.07	1.65	7.5			22
1.3	4.12	1.69	8.2			23
1.32	4.17	1.74	9.1			24
1.33	4.22	1.78	10 etc...			25
1.35	4.27	1.82				26
1.37	4.32	1.87				27
1.38	4.37	1.91				28
1.4	4.42	1.96				29
1.42	4.48	2				30
1.43	4.53	2.05				31
1.45	4.59	2.1				32
1.47	4.64	2.15				33
1.49	4.7	2.21				34
1.5	4.75	2.26				35
1.52	4.81	2.32				36
1.54	4.87	2.37				37
1.56	4.93	2.43				38
1.58	4.99	2.49				39
1.6	5.05	2.55				40
1.62	5.11	2.61				41
1.64	5.17	2.67				42
1.65	5.23	2.74				43
1.67	5.3	2.8				44
1.69	5.36	2.87				45
1.72	5.42	2.94				46
1.74	5.49	3.01				47
1.76	5.56	3.09				48
1.78	5.62	3.16				49
1.8	5.69	3.24				50
1.82	5.76	3.32				51
1.84	5.83	3.4				52
1.87	5.9	3.48				53
1.89	5.97	3.57				54
1.91	6.04	3.65				55
1.93	6.12	3.74				56
1.96	6.19	3.83				57
1.98	6.26	3.92				58
2	6.34	4.02				59
2.03	6.42	4.12				60
2.05	6.49	4.22				61
2.08	6.57	4.32				62
2.1	6.65	4.42				63
2.13	6.73	4.53				64
2.15	6.81	4.64				65
2.18	6.9	4.75				66
2.21	6.98	4.87				67
2.23	7.06	4.99				68
2.26	7.15	5.11				69
2.29	7.23	5.23				70
2.32	7.32	5.36				71
2.34	7.41	5.49				72
2.37	7.5	5.62				73
2.4	7.59	5.76				74
2.43	7.68	5.9				75
2.46	7.77	6.04				76
2.49	7.87	6.19				77
2.52	7.96	6.34				78
2.55	8.06	6.49				79
2.58	8.16	6.65				80
2.61	8.25	6.81				81
2.64	8.35	6.98				82
2.67	8.45	7.15				83
2.71	8.56	7.32				84
2.74	8.66	7.5				85
2.77	8.76	7.68				86
2.8	8.87	7.87				87
2.84	8.98	8.06				88
2.87	9.09	8.25				89
2.91	9.2	8.45				90
2.94	9.31	8.66				91
2.98	9.42	8.87				92
3.01	9.53	9.09				93
3.05	9.65	9.31				94
3.09	9.76	9.53				95
3.12	9.88	9.76				96
10 etc...	10 etc...					192

## 术语与定义

Ambient Temperature	The temperature which would be adopted by the body of the resistor under application conditions except with negligible power dissipation in the resistor.
Critical Resistance	The resistance value at which application of the LEV causes dissipation of the full rated power.
Isolation Voltage (Voltage Proof)	The maximum continuous voltage which may be applied between the resistor and a conductor in contact with its insulated body.
LEV (Max Volts)	The maximum continuous voltage which may be applied across a resistor whose ohmic value is greater than the critical resistance.
Overload	Power dissipation which exceeds the power rating for durations exceeding 0.1s.
Power Rating	The maximum continuous power that may be dissipated by a resistor whose ohmic value is less than the critical resistance and at a defined maximum ambient temperature.
Pulse (Surge)	Power dissipation which exceeds the power rating for durations less than 0.1s.
Series	A set of components with the same basic design features and performance and usually a range of sizes and ratings.
TCR	Temperature Coefficient of Resistance; the maximum magnitude of reversible ohmic value change per degree centigrade due to deviation in body temperature from a reference normally of 20°C.
Tolerance	The maximum allowable magnitude of deviation from nominal ohmic value measured at delivery and at room temperature.
Type	An individual member of a series with specified size and rating.
VCR	Voltage Coefficient of Resistance; the maximum reversible reduction in ohmic value per volt due to an increase in applied voltage.



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