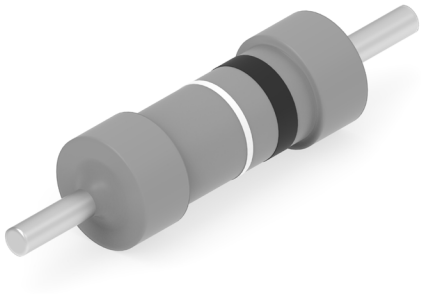
POWER RESISTOR

TYPE RR SERIES

INTRODUCTION



The RR Series Power Resistors are engineered to provide reliable power dissipation, excellent thermal stability, and superior overload performance in demanding electronic applications. Designed for use in power supplies, industrial automation, telecommunications equipment, consumer electronics, motor drives, and control systems, the RR Series combines a compact footprint with robust power-handling capability. Constructed using advanced metal oxide film technology and a flameproof coating, the RR Series delivers dependable operation under high-temperature and high-voltage conditions. Available in multiple power ratings and resistance values, these resistors are ideal for designers seeking enhanced reliability, safety, and long service life in space-constrained applications. Available in multiple packaging and lead-form options, the RR Series supports both manual and automated assembly processes. In addition, all products are RoHS and Halogen-Free compliant, meeting global environmental and regulatory requirements.

FEATURES

- Compact size, high power density
- RoHS & Halogen-Free compliant
- Flameproof metal oxide construction
- Multiple packaging and lead-form options

APPLICATIONS

- Switching Power Supplies (SMPS)
- AC/DC & DC/DC Converters
- LED Drivers & Lighting Systems
- Power Management Circuits

ELECTRICAL CHARACTERISTICS

TYPE	RR01	RR02	RR03	RR05
Resistance Range	0.22Ω~1MΩ	0.22Ω~1MΩ	0.22Ω~1MΩ	0.22Ω~1MΩ
Tolerance	G=±2% J=±5%			
Rated Wattage	1W	2W	3W	5W
Maximum Working Voltage	350V	500V	750V	800V
Operating Temperature Range	-55°C ~ 155°C			
Temperature Coefficient	±300 ppm/°C			
Voltage Rating	V = √(W x R)			
Solderability	95% coverage at 235°C ± 5°C for 2s.			

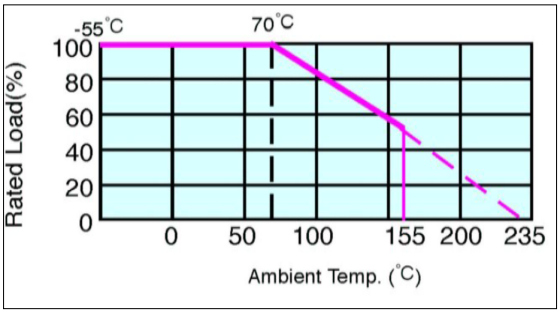
CATEGORY INDEX

ENVIRONMENTAL CHARACTERISTICS

Type	Standards	Test Methods
Load Life	ΔR/R≤±5%	70°C oven, 1.5 hours ON and 0.5 hour OFF for 1000 (+48/-0) hours.
Moisture-proof Load Life	ΔR/R≤±5%	40 ± 2°C and the humidity of 90~95% 1.5 hours ON and 0.5 hour OFF for 1000 (+48/-0) hours.

DERATING CURVE

Rated power is the maximum load wattage specified at an ambient temperature of 70°C and shall meet the electrical and mechanical performance requirements. When the ambient temperature exceeds the above-mentioned temperature, the rated power decreases according to the following derating curve.



VOLTAGE RATING

Resistors shall have a rated direct-current (DC) continuous working voltage or an approximate sine-wave root-mean-square (RMS) alternating-current (AC) continuous working voltage at commercial- line frequency and waveform corresponding to the power rating, as determined from the following formula:

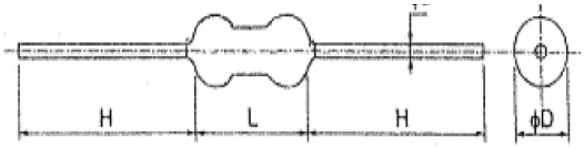
$$RCWV = \sqrt{P \times R}$$

Note:

1. Maximum working voltage or $\sqrt{(P \times R)}$, whichever is lower.
2. Maximum overload voltage or $2.5\sqrt{(P \times R)}$, whichever is lower.

Where : RCWV = Rated DC or RMS AC continuous working voltage at commercial-line frequency and waveform (volt) and
P = Power Rating (watt)
R = Nominal Resistance (ohm)

CONSTRUCTION AND DIMENSIONS (Unit:mm)



TYPE	L ±1 (mm)	D ±1 (mm)	H ±3 (mm)	D ±0.1 (mm)
RR01	6.8	2.6 ±0.5	28	0.6
RR02	9	3.5	28	0.8
RR03	15	5	28	0.8
RR05	17	6.5	38 : T/B >32 : T76	0.8

MULTIPLIER CODE

Code	A	B	C	D	E	F	G	H	X	Y	Z
Multiplier	10^0	10^1	10^2	10^3	10^4	10^5	10^6	10^7	10^{-1}	10^{-2}	10^{-3}

Coding

XX — Resistance Code

Formula

X — Multiplier Code

Example :

$10.2K\Omega = 102 \times 10^{2}\ \Omega = 02C$ (02 = 102, C = 10^2)

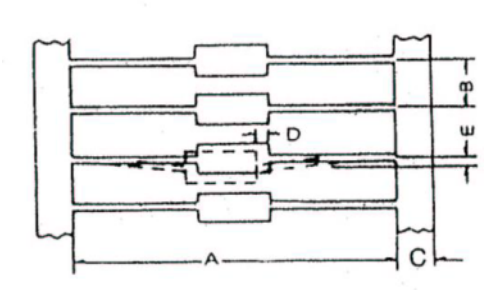
$33.2\Omega = 332 \times 10^{-1}\ \Omega = 51X$ (51 = 332, X = 10^{-1})

Value	Code	Value	Code	Value	Code	Value	Code	Value	Code
100	01	162	21	261	41	422	61	681	81
102	02	165	22	267	42	432	62	698	82
105	03	169	23	274	43	442	63	715	83
107	04	174	24	280	44	453	64	732	84
110	05	178	25	287	45	464	65	750	85
113	06	182	26	294	46	475	66	768	86
115	07	187	27	301	47	487	67	787	87
118	08	191	28	309	48	499	68	806	88
121	09	196	29	316	49	511	69	825	89
124	10	200	30	324	50	523	70	845	90
127	11	205	31	332	51	536	71	866	91
130	12	210	32	340	52	549	72	887	92
133	13	215	33	348	53	562	73	909	93
137	14	221	34	357	54	576	74	931	94
140	15	226	35	365	55	590	75	953	95
143	16	232	36	374	56	604	76	976	96
147	17	237	37	383	57	619	77		
150	18	243	38	392	58	634	78		
154	19	249	39	402	59	649	79		
158	20	255	40	412	60	665	80		

MARKING

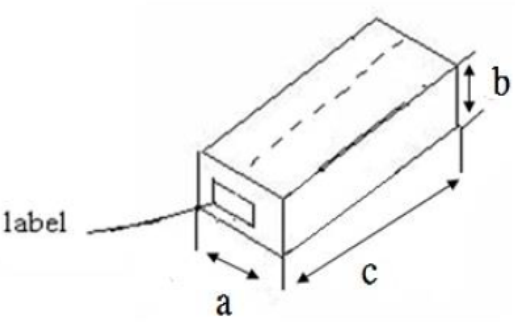
Marking is made on resistors surface, by color coding.

PACKING SPECIFICATION (Unit:mm)



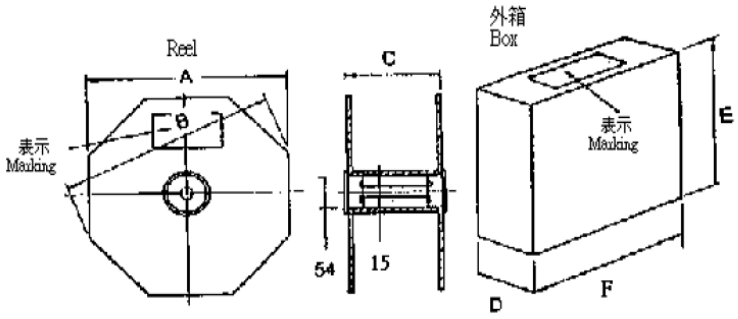
Type	Package	A (mm)	B (mm)	C ± 1 (mm)	D Max (mm)	E Max (mm)
RR01	T/B, T/R	52 ± 1	5 ± 0.5	6	0.6	1.2
RR02	T/B, T/R	52 ± 1	5 ± 0.5	6	0.6	1.2
	T63	63 ± 1	5 ± 0.5	6	0.6	1.2
RR03	T/B, T/R	63 ± 1	10 ± 1	6	0.6	1.2
RR05	T/B	83 ± 1.5	10 ± 1	6	0.6	1.2
	T76	76 ± 1.5	10 ± 1	6	0.6	1.2

TAPE IN BOX (Unit:mm)



Type	Package	QTY per Box	A (mm)	B (mm)	C (mm)
RR01	T/B	5,000	75	100	255
RR02	T/B	1,000	75	55	255
	T63	2,500	90	115	265
RR03	T/B	1,000	100	110	265
RR05	T/B	500	98	95	270
	T76	500	102	114	264

TAPE & REEL (Unit:mm)



Type	Package	QTY per Reel	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
RR01	T/R	5,000	285	310	75	80	295	295
RR02	T/R	2,500	285	310	75	80	295	295
RR03	T/R	1,000	285	310	82	80	295	295

ENVIRONMENT RELATED SUBSTANCE

This product complies with the applicable requirements of the EU RoHS Directive, EU PAHs requirements, EU PFOS requirements, and halogen-free material expectations. Ozone-depleting substances are not used in the manufacturing process for this product. This product is not manufactured using chlorofluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs), hydrobromofluorocarbons (HBFCs), or other ozone-depleting substances at any stage of manufacture.

STORAGE CONDITION (MSL1)

The performance of these products, including solderability, is guaranteed for one year from the date of arrival at the customer location, provided the products remain in the original delivered packaging and are stored at 5°C ± 35°C and 40% ~ 75%. Even within this period, the products should not be stored under conditions that may adversely affect electrical performance, solderability, or packaging integrity.

1. In salty air or in atmospheres containing corrosive gases such as Cl2, H2S, NH3, SO2, or NO2.
2. In direct sunlight

ORDERING INFORMATION

Typical product code
RR 1W 10R J T/B

Product Type

RR	Power Resistor

Rated Wattage

RR01	1W
RR02	2W
RR03	3W
RR05	5W

Resistance Codes

10R	10Ω
10K	10KΩ
1M	1MΩ

Packinng type

T/R	Tape & Reel
T/B	Tape & Box
	Bulk

Tolerance

G	2%
J	5%

Legal Disclaimer Notice

While TE Connectivity has made every reasonable effort to ensure the accuracy of the information contained herein, TE does not warrant or guarantee that such information is error-free, complete, reliable, or current. TE reserves the right to make changes to the information contained herein at any time without prior notice.

All dimensions, specifications and other information contained herein are provided for reference purposes only and are subject to change without notice. Product performance, reliability and service life may be affected by a variety of factors, including, but not limited to, processing conditions, soldering, cleaning, rework, mechanical stress, temperature, humidity, storage conditions, equipment configuration, handling, environmental exposure and specific end-use applications. Electrical, thermal and other performance characteristics are based on standardised test methods and stated conditions and may vary in actual applications. Where applicable, derating shall be applied and stated maximum limits must not be exceeded. Unless otherwise expressly specified, any statements regarding compliance with environmental, regulatory or other requirements apply only to the materials and manufacturing conditions in effect at the time of production.

Except as expressly set forth in TE Connectivity's applicable terms and conditions of sale, TE makes no representations or warranties, express or implied, including, without limitation, any implied warranties of merchantability, fitness for a particular purpose, or non-infringement. To the maximum extent permitted by applicable law, TE Connectivity shall not be liable for any indirect, incidental, special or consequential damages arising out of or in connection with the use or reliance on the information or products described herein.

Products are not designed for use in life-support, life-sustaining, or safety-critical applications unless specifically qualified and expressly approved in writing by TE Connectivity. It is the responsibility of the user to determine the suitability of TE Connectivity products for the intended application and to validate product selection, performance, qualification, compliance and processing under actual operating conditions.

For the latest dimensions, specifications and other information, please contact TE Connectivity.