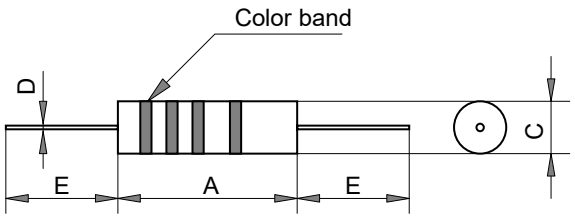
AXIAL LEADED CARBON COMPOSITION RESISTORS
CCR1-4, CCR1-2, CCR1-1, CCR2-1

Features and Applications

Carbon composition resistor provides high surge and high energy pulse capabilities with high dielectric strength of full molding construction and has low inductance.
CCR series offers a power rating of 1/4W, 1/2W, 1W and 2W at 25 °C with resistance range of 1.8 Ω to 2.2 MΩ.
Pulse handling capability is due to the entire carbon rod of larger thermal mass compared with film resistor and wire wound resistors.
Applications include strobe / high power lightning, medical defibrillator, welding, automotive, inrush current protection, high voltage power supply, discharge resistor and surge protection.

Dimensions



Resistor Color Code

Color	1st band	2nd band	3rd band	Decimal multiplier	Tolerance
Black	0	0	0	1	
Brown	1	1	1	10	+/-1%
Red	2	2	2	100	+/-2%
Orange	3	3	3	1,000	
Yellow	4	4	4	10,000	
Green	5	5	5	100,000	
Blue	6	6	6	1,000,000	
Violet	7	7	7	10,000,000	
Gray	8	8	8	100,000,000	
White	9	9	9	1,000,000,000	
Gold	-	-	-	0.1	+/-5%
Silver	-	-	-	0.01	+/-10%
None	-	-	-		+/-20%

Type	Wattage	Resistance Range	Resistance Tolerance	Dimensions (mm)			
				A	C	D+/-0.1	E
CCR1-4	1/4W	2.2Ω– 12MΩ	J, K, M	6.3+/-1.0	2.3+/-0.3	0.6+/-0.02	27+/-2
CCR1-2	1/2W	2.2Ω– 22MΩ	J, K, M	9.5+0.5/-1.5	3.5+/-0.3	0.7+/-0.02	27+/-2
CCR1-1	1W	2.2Ω– 22KΩ	J, K, M	15+1.5/-0.5	6.0+/-0.3	0.8+/-0.02	28+/-2
CCR2-1	2W	1.8Ω– 10KΩ	J, K, M	18+0.5/-1.5	8.0+/-0.3	1.0+/-0.02	27+/-2

Resistance tolerance: M(+/-20), K(+/-10%), J(+/-5%)

Type	Max. Working Voltage	Max. Overload Voltage	Rated Ambient Temperature	Operating Temperature range
CCR1-4	250V	400V	+70° C	-55°C - +125°C
CCR1-2	350V	700V	+70° C	-55°C - +125°C
CCR1-1	500V	1000V	+70° C	-55°C - +125°C
CCR2-1	500V	1000V	+70° C	-55°C - +125°C

Rated voltage specified by less than E=√(PR) or maximum working voltage.

Ordering Information

Type	Resistance	Tolerance	Packaging	Remarks
CCR2-1	2R2	K	B	
CCR1-4	E24	J (+/-5%)	B (bulk)	
CCR1-2		K (+/-10%)		
CCR1-1		M (+/-20%)		
CCR2-1				

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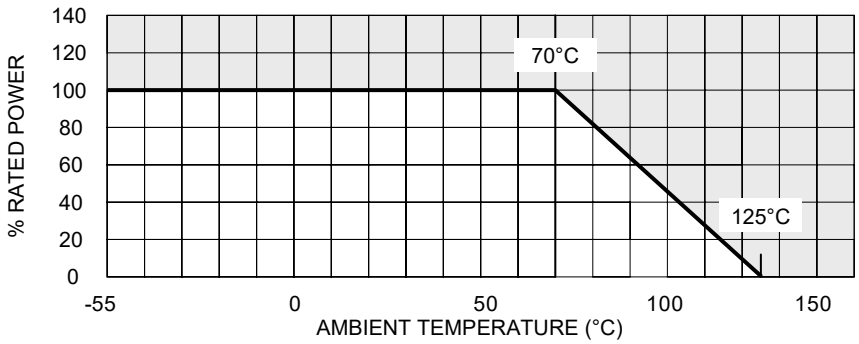
Performance

		Performance Requirements			Test Method
Temperature Coefficient		Resistance	Maximum Resistance Change		Test Temperature +20°C /-40°C /+20°C /+100°C /+20°C
			-40/+20°C	+20/+100°C	
		<1KΩ	±6.5%	±5.0%	
		1.1KΩ ~10KΩ	±10%	±6.0%	
		11KΩ ~100KΩ	±13%	±7.5%	
		11KΩ ~1MΩ	±15%	±10%	
		1.1MΩ ~10MΩ	±20%	±15%	
		>11MΩ	±25%	±20%	
Short-time Overload		Δ R≤±2.5%			Rate Voltage*2.5 or maximum overload voltage (the lower)5sec.
With Standing Voltage		No flashover or breakdown			2times maximum working voltage 1 minute
Terminal Strength	Pulled	ΔR≤±2% No visible damage			Load 10N 10s
	Winded				Load 10N 4*90°
	Twisted				3*360° in opposite direction
Resistance to vibration		No visible damage			10~50Hz 3 direction 2 hours each
Solder-heat Resistance		ΔR≤±5% Marks legible, no visible damage			350°C 4mm from the body,3 seconds
Solderability		At least 95% if the dipping surface must be covered by new solder, no flaws gathered.			235°C 2mm from the body,2 seconds
Temperature Cycle		ΔR≤±2% No visible damage			-40°C(30min.)/85°C(30min.)5 cycles
Humidity		ΔR≤±10% No visible damage			40°C 95% RH 240 hours
Load Life		ΔR≤±10% No visible damage, marks legible			Rated voltage or maximum working voltage, 1.5 hours on, 0.5 hours off, 40°C 1000 hours

Derating



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