

Version:  
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**(DOE)**  
**Oval Edge-Wound  
High Power Resistor**

**Token Electronics Industry Co., Ltd.**

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### ▶ Product Introduction

**High current oval edge wire wound resistor (DOE) is the best choice when conditions demand top-notch performance.**

#### Features :

- Power rating from 525W to 1750W
- Resistance nominal tolerance  $\pm 10\%$ (K)
- Resistance value range  $0.0426\Omega$  to  $6.13\Omega$ ,
- suitable for high current applications

#### Applications :

- Power Industrial Machinery Resistors.
- Dynamic Braking Resistors, Load Banks, Motor Starting Resistor.
- Plugging Resistor, Power Load Measurements, Electric Distribution Resistors.
- Instrumentation, Automation Control Installations.

Token DOE Series are commonly used as a dynamic braking resistor on Transit applications. Built to perform in rugged environments, they feature corrosion resistant stainless steel insulator supports, solid nickel terminals, and special electroless nickel-plated solid copper terminal supports.

The resistance element is made of a stainless steel resistance alloy. Terminals are welded or silver brazed to the oval, spiral edge-wound resistance element. Toothed ceramic insulators isolate the resistance element from the center support. Ceramic end bushings insulate the center support from the mountings.

Order individual replacement units or entire grids with various mounting configurations. Contact us with your specific needs, or you can link to Token official website "[High Power Resistors](http://www.token.com.tw)" to get more information.

#### Options:

- Terminal blocks, thermal switches, conduit knockouts, fusing, fans, and other customer specified requirements are available on request.



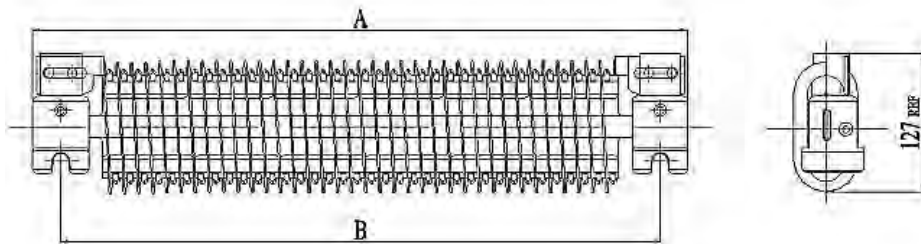
## ► Dimensions

### Oval Edge-Wound Dimensions (DOE 525W - 1750W)

Power Rating	A			B		
	mm	inch		mm	inch	
525W	295.3	11.375	11 <sup>5</sup> / <sub>8</sub>	244.5	9.625	9 <sup>5</sup> / <sub>8</sub>
850W	385.7	15.1875	15 <sup>3</sup> / <sub>16</sub>	334.9	13.1875	13 <sup>3</sup> / <sub>16</sub>
1200W	469.9	18.5	18 <sup>1</sup> / <sub>2</sub>	419.1	16.5	16 <sup>1</sup> / <sub>2</sub>
1450W	555.6	21.875	21 <sup>7</sup> / <sub>8</sub>	504.8	19.875	19 <sup>7</sup> / <sub>8</sub>
1750W	638.2	25.125	25 <sup>1</sup> / <sub>8</sub>	587.4	23.125	23 <sup>1</sup> / <sub>8</sub>



High Current Oval Edge-Wound (DOE)



High Current Oval Edge-Wound (DOE) Dimensions

## Electrical Characteristics

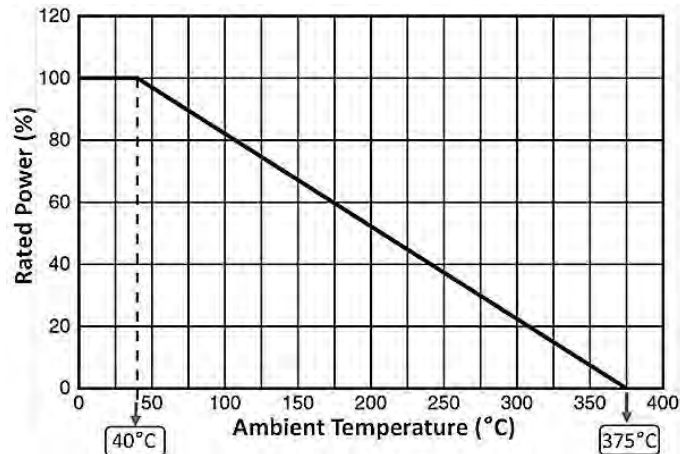
### Electrical Characteristics (DOE)

Test Item	Specification	Test Methods
<b>Ambient Temperatures</b>	Ambient Temperature: -55°C ~350°C. Derated current rating: 95% for 50°C ambient, 90% for 75°C ambient, 85% for 100°C ambient, 10% for 350°C ambient.	Standard ratings are based on maximum ambient temperatures of 40°C.
<b>Continuous current ratings and temperatures Rise</b>	375°C Max.	The rating of continuous current is based on a 375°C temperature rise at ambient temperatures of 40°C.
<b>Resistance tolerance</b>	Resistance Nominal Tolerance $\pm 10\%$ (K) for all units; as low as $\pm 3\%$ if required.	JIS-C-5202 5-1
<b>Thermal Shock</b>	$\Delta \leq \pm(2\%R + 0.1\Omega)$	JIS-C-5202 7.3, Room temp 30 minutes, -55°C 15 minutes.
<b>Terminal strength</b>	$\Delta \leq \pm(2\%R + 0.1\Omega)$	JIS-C-5202 6.1, 45N, 30S
<b>Short-term Overload</b>	$\Delta \leq \pm(2\%R + 0.1\Omega)$	JIS-C-5202 5.5, 10PR, 5S.

- Resistance and resistance tolerance were tested in-house at room temperature (25°C) with micro resistance meter.
- Ambient Temperature: refers to the temperature inside the subject and around the specimen, not to the air-temperature outside the subject.

## Derating Curve

### Oval Edge-Wound Derating Curve (DOE)



High Current Oval Edge-Wound (DOE) Derating Curve

## Nominal Current

### Nominal Current & Resistance Oval Edge-Wound Resistor (DOE)

525W		850W		1200W		1450W		1750W	
Amps	Ohms	Amps	Ohms	Amps	Ohms	Amps	Ohms	Amps	Ohms
-	-	-	-	146	0.055	-	-	146	0.082
-	-	-	-	135	0.0677	-	-	-	-
-	-	-	-	124	0.080	-	-	-	-
-	-	-	-	116	0.0915	-	-	116	0.142
113	0.0426	113	0.071	113	0.092	113	0.121	113	0.142
103	0.0497	103	0.0781	103	0.107	103	0.140	103	0.163
-	-	100	0.080	100	0.122	-	-	100	0.185
94	0.0581	94	0.0913	94	0.125	94	0.158	94	0.191
86	0.0747	86	0.116	86	0.158	86	0.199	86	0.241
85	0.0671	85	0.116	85	0.159	85	0.201	85	0.244
80	0.0864	80	0.134	80	0.182	80	0.230	80	0.278
79	0.0781	79	0.135	79	0.185	79	0.234	79	0.284
74	0.0984	74	0.156	74	0.213	74	0.279	74	0.336
70	0.110	70	0.171	70	0.232	70	0.293	70	0.354
69	0.115	69	0.182	69	0.249	69	0.326	69	0.394
65	0.128	65	0.199	65	0.270	65	0.341	65	0.412
62	0.146	62	0.220	62	0.305	62	0.390	62	0.463
61	0.148	61	0.230	61	0.312	61	0.394	61	0.476
56	0.170	56	0.270	56	0.369	56	0.483	56	0.568
-	-	54	0.269	54	0.378	-	-	54	0.573
51	0.213	51	0.327	51	0.440	51	0.554	51	0.667
47	0.249	47	0.382	47	0.514	47	0.647	47	0.780
43	0.299	43	0.465	43	0.631	43	0.796	43	0.963
39	0.364	39	0.566	39	0.768	39	0.970	39	1.170
35	0.465	35	0.707	35	0.909	35	1.190	35	1.390
32	0.544	32	0.846	32	1.148	32	1.450	32	1.750
30	0.695	30	1.057	30	1.360	30	1.780	30	2.080
26	0.860	26	1.310	26	1.680	26	2.210	26	2.580
25	1.060	25	1.620	25	2.080	25	2.730	25	3.190
22	1.200	22	1.830	22	2.450	22	3.070	22	3.700
18	2.040	18	3.110	18	3.990	18	5.240	18	6.130

- Call or e-mail for information on mounting, grid configurations, unusual service conditions, or special requests.
- The rating of continuous current (Amps) is based on a 375°C temperature rise.
- Power: varies. •Tolerance: ± 10 %.

▶ Order Codes

Order Codes (DOE)

DOE	1750W	1R2		K		F
Part Number	Rated Power (W)	Resistance Value		Resistance Tolerance (%)		Lead Free
DOE	525W~1750W	1R2	1.2Ω	K	±10%	
		R23	0.23Ω			

## ► General Information

### Benefits & Features

Providing design engineers with an economical resistor with high quality performance, Token Electronics offers industry grade power wire wound devices.

Token provide terminal blocks, thermal switches, fusing, fans, junction boxes, screened or solid bottom plates, conduit knockouts, and customer specified requirements. For large applications a welded frame construction is utilized to provide a robust design for power resistor mounting in both indoor and outdoor environments.

Products range from large capacity metal clad, nonflammable fixed and adjustable, wave ribbon wire-wound, slide, starter, box type, to nonflammable flat type. Token extends a complete line for both military and commercial applications.

### Utilization Notes

1. Smoke emitted from non-flammable resistors on initial use in powered circuits is a normal phenomenon and the component can be safely utilized.
2. All resistors manufactured by Token Electronics Industry Corporation comply with the U.S. UL-94 non- flammability test, Class V-0, a continuous combustion period of zero seconds.
3. Never use organic solvents to clean non-flammable resistors.
4. Non-flammable resistors cannot be utilized in oil.
5. Non-flammable resistors cannot be used in high frequency machinery because of the inductance produced by the windings. A suitable type of resistor must be selected. Contact us for details.
6. In applications where resistors are subject to intermittent current surges and spikes, be sure in advance that the components selected are capable of withstanding brief durations of increased load.
7. Do not exceed the recommended usable load. Resistors must use within the rated voltage range to prevent the shortening of service life and/or failure of the wound resistance elements.
8. Minimum load. Resistors must be utilized at 1/10 or more of the rated voltage to prevent poor conductance due to oxidation build-up.
9. Although the hardness exceeds that of a 3H pencil lead, do not nick the resistor coating with screw drivers or other pointed objects.
10. Avoid touching non-flammable resistors in operation; the surface temperature ranges from approximately 350°C ~ 400°C when utilized at the full rated value. Maintaining a surface temperature of 200°C or less will extend resistor service life.
11. Keep temperature from rising by choosing a resistor with a higher rated capacity; do not use a component having the exact load value required. For considerations of safety in extended period applications, the resistor rating should be more than four times higher than the actual wattage involved, but never use a resistor at less than 25% of its rated power.
12. Application and Placement: Wire-wound resistors use different gauges of wire as resistance elements. Sometimes the gauge is extremely thin (finer than a strand of human hair) and very susceptible to breakage in environments containing salts, ash, dust and corrosives. Avoid utilization in such environments. Do not install in dusty areas because the accumulation will cause shorts and poor conductance.

