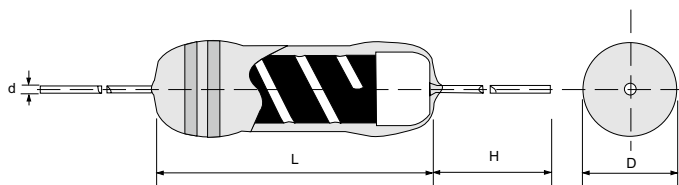


Quality • Reliability
Cost-Down via Innovation

EFR



Specifications Per

• IEC 60115-4

Features

- Flameproof multi-layer coating equivalent to UL 94 V-0
- Flameproof feature equivalent to overload test UL 1412
- High power handling in small size
- Anti-surge capability
- Products meet RoHS requirements and do not contain substances of very high concern identified by European Chemicals Agency

■ DIMENSIONS

Type	Body Length (L, mm)	Body Diameter (D, mm)	Lead Wire Length (H, mm)	Lead Wire Diameter (d, mm)	Net Weight Per 1000Pcs
EFR52	6.50 ± 1.0	2.4 ± 0.2	26 ± 3.0	0.55 ± 0.03	220 Grams
EFR207	6.50 ± 1.0	2.4 ± 0.2	26 ± 3.0	0.60 ± 0.03	220 Grams
EFR101	9.00 ± 1.0	3.2 ± 0.2	28 ± 3.0	0.60 ± 0.03	340 Grams
EFR201	11.0 ± 1.0	4.0 ± 0.5	28 ± 3.0	0.70 ± 0.03	500 Grams
EFR300	15.5 ± 1.0	5.5 ± 0.5	30 ± 3.0	0.80 ± 0.03	1200 Grams
EFR400	19.0 ± 1.0	6.0 ± 0.5	30 ± 3.0	0.80 ± 0.03	1600 Grams
EFR500	19.0 ± 1.0	8.0 ± 0.5	30 ± 3.0	0.80 ± 0.03	3100 Grams

■ GENERAL SPECIFICATIONS

Type	Power Rating (at 70°C)	Maximum Working Voltage	Maximum Overload Voltage	Minimum Resistance	Maximum Resistance	Resistance Tolerance	Available Resistance Values
EFR52	1/2W	500V	700V	1Ω	1MΩ	±1%, ±2%, ±5%	E-24/E-96
EFR207	1W	500V	800V	1Ω	1MΩ	±1%, ±2%, ±5%	E-24/E-96
EFR101	1W	600V	900V	1Ω	1MΩ	±2%, ±5%	E-24/E-48
EFR201	2W	750V	1000V	1Ω	1MΩ	±2%, ±5%	E-24/E-48
EFR300	3W	800V	1200V	1Ω	560KΩ	±2%, ±5%	E-24/E-48
EFR400	4W	800V	1200V	1Ω	180KΩ	±2%, ±5%	E-24/E-48
EFR500	5W	800V	1200V	1Ω	180KΩ	±2%, ±5%	E-24/E-48

Special sizes, values, and specifications not listed available on special order.

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■ PART NUMBER

Example: EFR101J100KTKZTB2K0

EFR101	J	100K	TKZ	TB2K0
Type	Tolerance*	Resistance	TCR	Packaging
	F (1%) G (2%) J (5%)	100KΩ 4-character code containing - 3 significant digits 1 letter multiplier OHM MULTIPLIER R = 1 K = 10 ³ M = 10 ⁶ G = 10 ⁹	3-character code TKZ = Default Product Temperature Coefficient. Information of typical product temperature coefficient can be found in the Technical Summary section of the datasheet.**	5-character code TB = Tape Box (pieces per box) <u>EFR52/EFR207</u> 5K0 = 5,000 <u>EFR101</u> 2K0 = 2,000 <u>EFR201</u> 1K0 = 1,000 <u>EFR300/400</u> 500 = 500 <u>EFR500</u> 400 = 400

EFR

* Listed values may not be applicable across the product series/all resistance values. Please check with us before placing order.

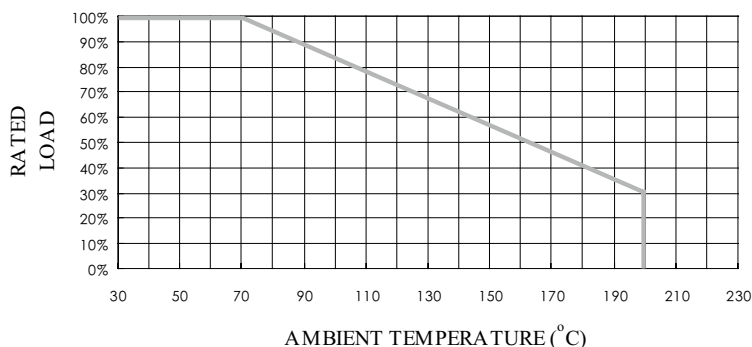
** For the availabilities of non-default temperature coefficient, please check with us. Reference for TCR letter codes can be found in section (4) of Part Number Construction in the Appendices.

■ TECHNICAL SUMMARY

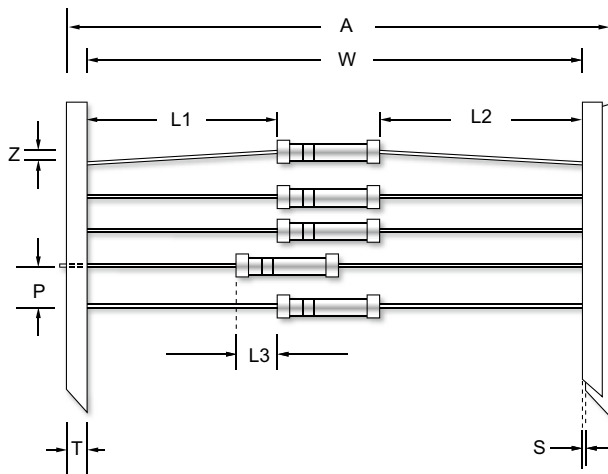
Characteristics	Limits
Dielectric Withstanding Voltage, VAC or DC	500
Temperature Coefficient, PPM / °C*	±50, ±100, ±200, ±300, ±500
Operating Temperature Range, °C	-55~+200
Insulation Resistance, MΩ	10 ⁴

* Not applicable to all resistance values. Please check with us regarding the PPM of specific resistance value(s).

■ POWER DERATING CURVE



■ TAPING/PACKING SPECIFICATIONS



Unit (mm)

Type	A Max.	L1-L2 (Max.)	L3 (Max.)	P ±0.5	S (Max.)	T ±0.5	W ±1.5	Z (Max.)
EFR52	65	±1.0	0.5	5.0	0.8	6.0	52.5	1.2
EFR207	65	±1.0	0.5	5.0	0.8	6.0	52.5	1.2
EFR101	65	±1.0	0.5	5.0	0.8	6.0	52.5	1.2
EFR201	76	±1.5	1.0	10.0	0.8	6.0	63.5	1.2
EFR300	76	±1.5	1.0	10.0	0.8	6.0	63.5	1.2
EFR400	76	±1.5	1.0	10.0	0.8	6.0	63.5	1.2
EFR500 L option	76	±1.5	1.0	10.0	0.8	6.0	63.5	1.2
	95	±1.5	1.0	10.0	0.8	6.0	77	1.2

■ PERFORMANCE SPECIFICATIONS

Characteristics	Test Conditions	Limits
Short Time Over Load	IEC 60115-1 4.13 5 seconds 2.5x rated voltage (not over max. overload voltage)	±2%
Load Life In Humidity	IEC 60115-1 4.24 56 days rated load (not over max. working voltage) at (40±2)°C and (93±3)% relative humidity	±1.5%
Load Life	IEC 60115-1 4.25.1 Rated load (not over max. working voltage) 1,000 hours with 1.5 hours ON, 0.5 hours OFF, at (70±2)°C	EFR52/207: ±1.5% EFR101/201: ±2.0% EFR300/400/500: ±5.0%
Resistance To Soldering Heat	IEC 60115-1 4.18.2 Leads immersed till 3mm from the body in (260±5)°C solder for 10±1 seconds	±1%
Solderability	IEC 60115-1 4.17.2 Solder area covered after (235±3)°C / (2±0.2) seconds with flux applied	95% min.coverage
Vibration	IEC 60115-1 4.22 Six hours in each parallel and axial direction with a simple harmonic motion having an amplitude of 0.75mm and 10 to 500 Hz.	±1%
Thermal Endurance	IEC 60115-1 4.25.3 1000 hours at 200°C without load	±2%
Thermal Shock	IEC 60115-1 4.19 -55°C 30minutes, +155°C 30minutes, 5 cycles	±2%
Terminal Strength	IEC 60115-1 4.16.2 2.5kg direct load for 10 seconds in the longitudinal direction of the terminal leads	±1%