

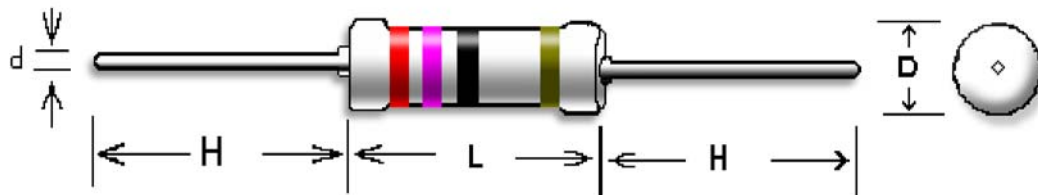
# EFR - Enhanced Film Fixed Resistor

## Specifications Per

- IEC-115-4
- DIN-44603

## Features

- Flameproof Multi-layer Coating Meets UL-94V-0
- Flameproof Feature Meets Overload Test UL-1412
- High power handling in small size
- Anti-surge capability



## 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	6.5±1.0	2.4±0.2	26±3.0	0.55±0.03	220 Grams
EFR207	6.5±1.0	2.4±0.2	26±3.0	0.55±0.03	220 Grams
EFR101	8.8±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	0.7±0.03	500 Grams
EFR300	15.5±1.0	5.5±0.5	30±3.0	0.8±0.03	1200 Grams
EFR400	19.0±1.0	6.0±0.5	30±3.0	0.8±0.03	1600 Grams

## General Specifications:

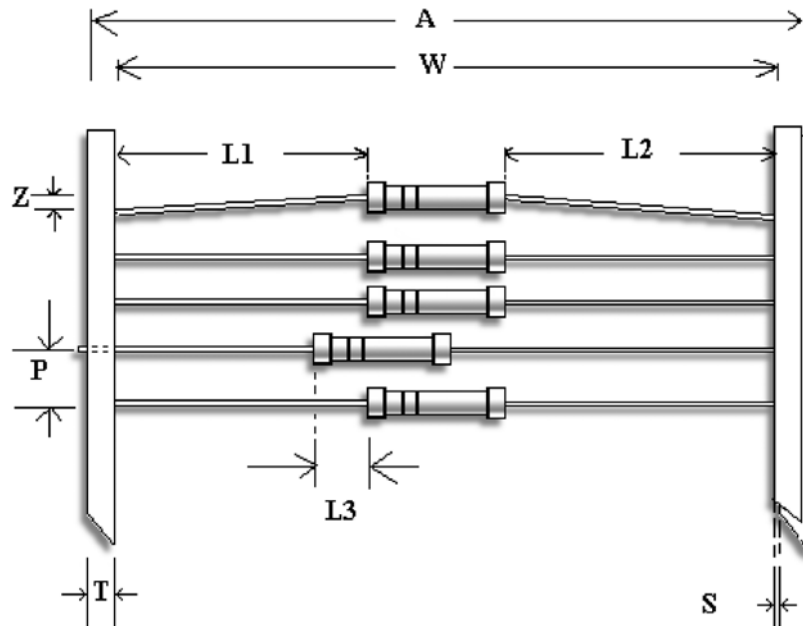
Type	Power Rating At 70°C	Max. Working Voltage	Max. Overload Voltage	Min. Resistance	Max. Resistance	Resistance Tolerance	Standard Resistance Values
EFR52	0.5W	500V	700V	1Ω	1MΩ	±1%, 2%, 5%	E-24/E-96
EFR207	1W	500V	800V	1Ω	1MΩ	±1%, 2%, 5%	E-24/E-96
EFR101	1W	600V	900V	1Ω	1MΩ	±2%, 5%	E-24/E-48
EFR201	2W	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	180K	±2%, 5%	E-24/E-48

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

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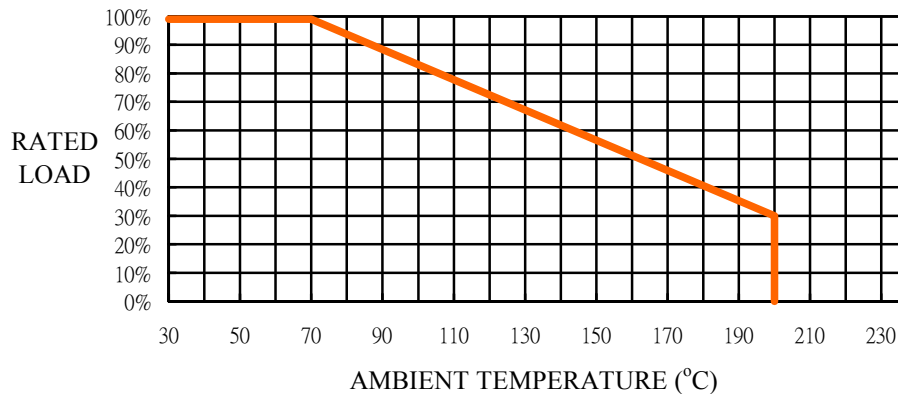
Taping Specifications:



Unit (mm)

Type No.	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

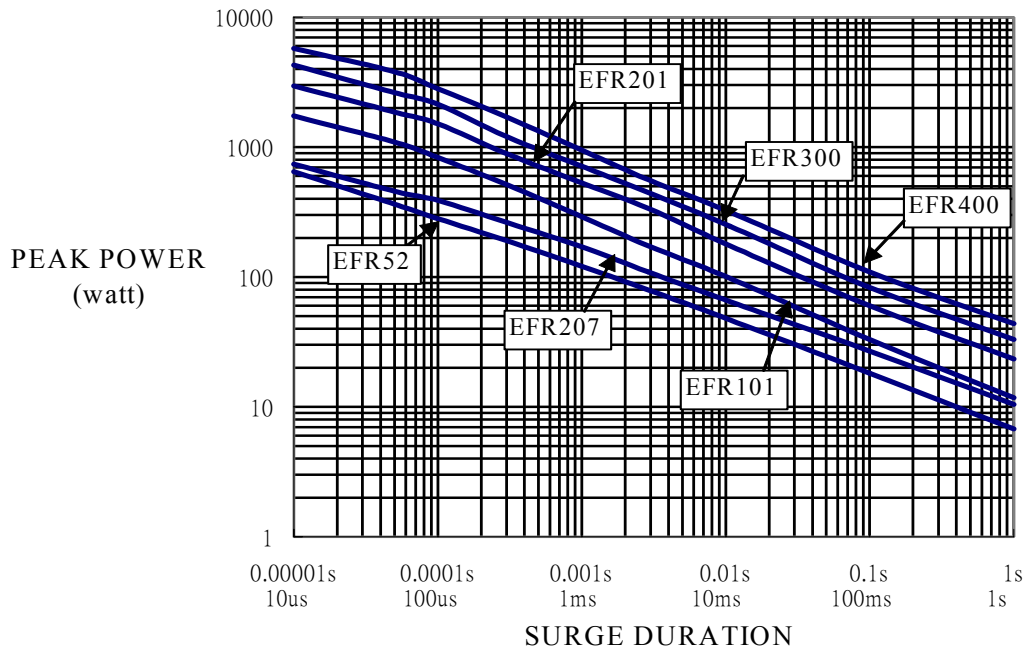
## POWER DERATING CURVE



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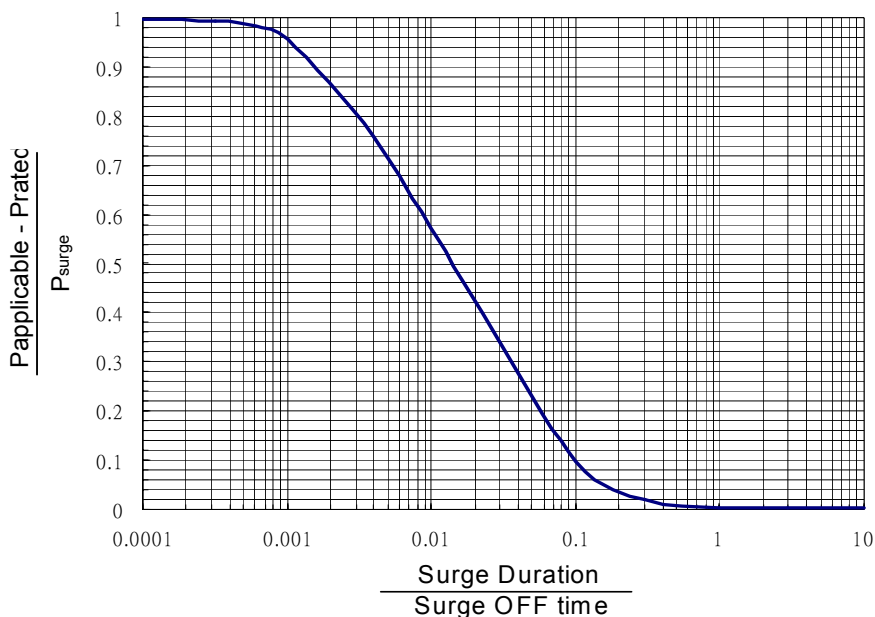
## SINGLE SURGE PERFORMANCE



**Notes:**

1. Above graph is accurate for NON REPETITIVE applications operating in an ambient temperature of 70°C or less. For temperatures above 70°C, the graph power must be derated further by 0.54% per °C until 200°C.
2. For applicable surge power in continuous-surge applications please see SURGE POWER DERATING CURVE below.

## SURGE POWER DERATING CURVE



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# EFR - Enhanced Film Fixed Resistor

## Technical Specifications:

Characteristics	Limits	
Dielectric Withstanding Voltage, VAC or DC	500	
Temperature Coefficient, PPM / °C	1Ω ~ 10KΩ	±50, 100, 200
	10KΩ ~ 200KΩ	±200
	> 200KΩ	±500
Operating Temperature Range, °C	-55~+200	
Insulation Resistance, MΩ	10 <sup>4</sup>	
Voltage Coefficient, PPM / V	25	

## Performance Specifications:

Test Characteristics	Test Conditions	Limits
Short Time Over Load	IEC 60115-1 4.13 5 seconds 2.5x rated voltage (not over max. overload voltage)	±0.25%
Load Life In Humidity	IEC 60115-1 4.24 56 days at 40°C and 93% relative humidity	±1.5%
Load Life 1,000 hours	IEC 60115-1 4.25.1 Rated load 1.5 hours ON, 0.5 hours OFF, at 70°C	EFR52/207: ±1.5% EFR101/201: ±2.0% EFR300/400: ±5.0%
Resistance To Soldering Heat	IEC 60115-1 4.18 10 seconds at 260°C solder bath temperature	±0.25%
Solderability	MIL-STD-202 Method 208 Solder area covered after 230±5°C/5±0.5 seconds w/ flux applied	90% Min.
Vibration	IEC 60115-1 4.22 Six hours in each parallel and axial direction w/ a simple harmonic motion having an amplitude of 0.75mm and 10 to 500 Hz.	±0.25%
Thermal Endurance	IEC 60115-1 4.25.3 1000 hours at 155°C without load	±1%
Thermal Shock	IEC 60115-1 4.19 -55°C 30minutes, +155°C 30minutes, 5 cycles	±0.25%
Resistance to Climatic Sequence	IEC 60115-1 4.23 Dry heat, damp heat cycle, cold, low air pressure	±0.5%
Terminal Strength	IEC 60115-1 4.16 Tensile, bending, and torsion	±0.25%

## Ordering Information

Type	Tolerance	Temperature Coefficient	Resistance Value	Packaging	Special Request (Optional)
EFR207 EFR300	F(1%), G(2%) J(5%)	TK200	100K	TB (Tape/Box)	LV (Low value)

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