



ES Components

An Authorized - Franchised Distributor

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**Dramatic reduction
is system service
downtime.**

Solutions for Energy Storage Systems High Voltage Discharge

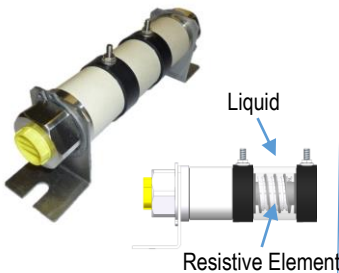


Vishay – ESC
Engineered Solutions

- ✓ Minimize system downtime
- ✓ Quick discharge of dangerously high voltages
- ✓ Small form factor direct element liquid cooled resistors
- ✓ Air cooled resistors
- ✓ High power (KW) and High Energy (KJ) discharge

Examples of Load-Dumping Resistors

Direct Liquid Cooled



- 0.25 to 100 ohms configurations
- 50,000 watts for short time intervals
- Element in direct contact with coolant option
- No heatsinks
- Small mechanical form factor
- Non inductive option
- 300 mm wide x 50mm high (mechanical size varies according to value and power)

Liquid Cooled



- 0.5 to 56K ohm
- 5,000 wats for short intervals (10s)
- Non inductive option
- Up to six resistors on one tube
- 300 mm wide x 50mm high (mechanical size varies according to value and power)

High Energy Disc(s)



- 5 – 150 Ohms
- One disc up to 80KJ
- Single or multiple discs
- Natural cooling
- 21mm wide x 137mm high (single disk)

Air Cooled



- Many different ohmic values
- 1KW to 2MW power
- Stainless steel
- Natural or forced, air cooling
- Mechanical size varies according to value and power

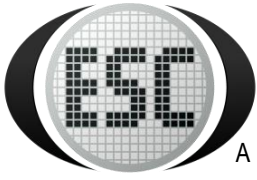
*Enables shorter
system servicing
times. Less
downtime for our
customers*

**Contact ES Components
today for more info.**



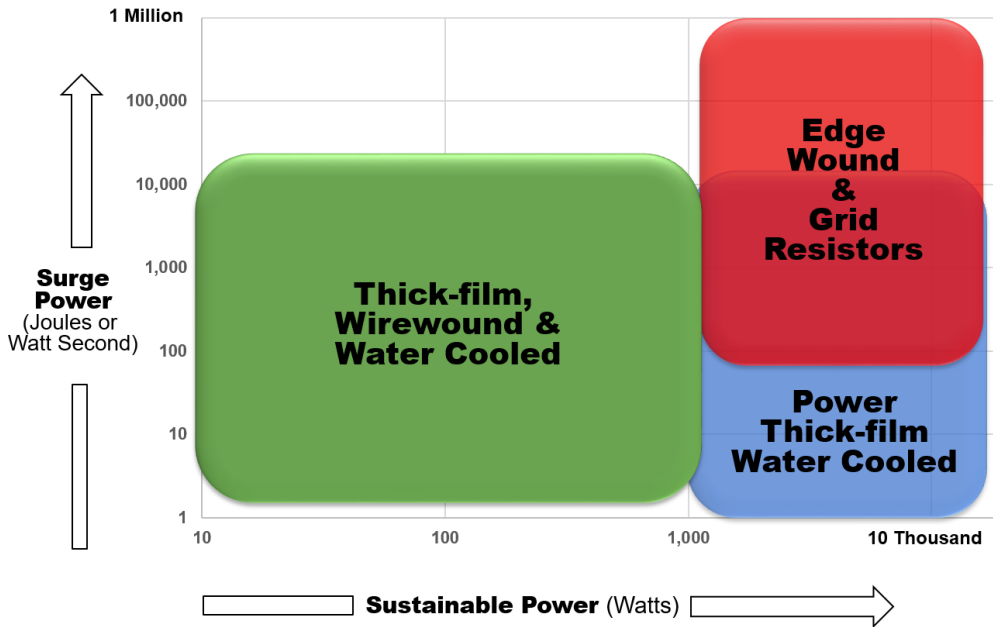
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A Franchised - Authorized Distributor

Surge and Sustainable Power Handling Capability



Applications

- Grid Storage
- Wind Farms
- Solar Farms
- Industrial
- Railroad
- Military
- Electric/Hybrid Cars and Buses



Additional Vishay Power Products:

Thick Film Modules



- 0.5 to 1M ohm
- Up to 500 watts
- Non inductive
- Thick film on ceramic construction
- 67mm wide x 40mm wide

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