



## HPS/UHPS

### High Power Precision Shunt Resistor

The HPS and UHPS models are designed for accurate current measurement in critical applications. They are commonly used in EV battery cell activation systems, performance evaluation equipment, charging/discharging test systems, and high-precision power supplies, ensuring reliable and stable operation.

#### SPECIFICATIONS

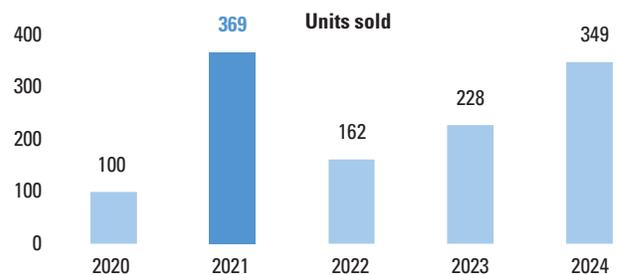
Applicable temperature range	-SSC~+100C
Rated power	250[W]
Resistance values	1,2,5,10,20,50,100 [mΩ]
Tolerance	A(±0.05%) / B(±0.1%) / D(±0.5%) / F (±1%)
Max. working current	387A at 1mΩ
Dielectric withstanding voltage AC 500V	AC 500V for 1Min. (Max. leakage current 2m A)
TCR	Max.±5 [ppm/C]
Short term Stability	Current load for 1 hour at terminal temp & copper flange temp <+60C AR< ±0.02% / <±0.03% / <±0.05% / <±0.1%
Long Term Stability	<±0.2[%] after 1,000 hours (Terminal temp<+60C and copper flange. temp<+60C)
Applicable temperature range	-SS°C~+100°C
Max. working current	707A at 0.2mΩ
Temperature Coefficient Resistance	Max. ±10ppm/°C
Dielectric withstanding voltage	AC 500V (Max. leakage current 2mA)
Short term stability	Current load for 1 hour at terminal temperature < 70°C, AR < 0.1%



#### APPLICATION

- EV Battery Cell Activation Equipment (Current Control)
- EV Battery Performance Testing Systems (Performance Evaluation)
- Battery Charging/Discharging Testing Equipment (Load Management)
- High-Precision Power Supply and Test Equipment (Accurate Measurement)

#### PERFORMANCE AND GROWTH



EV Battery Cell Activation Equipment



EV Battery Performance Testing Systems



Battery Charging



Discharging Testing Equipment

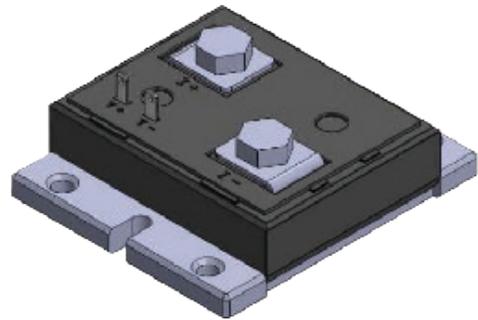


High-Precision Power Supply and Test Equipment

# HPS/UHPS // High Power Precision Shunt Resistor

## High Power Precision Shunt Resistor

- Up to 250W on heat sink  
(Forced cooling, Terminal temp. & copper flange temp.  $\leq +60^{\circ}\text{C}$ )
- Max. current limit 387 A (At.  $1\text{m}\Omega$ )
- Excellent long term stability & short term stability
- Low temperature coefficient of resistance(TCR)
- High current sensing & reference resistors in laboratories.
- Charge – discharge test equipment for high capacity batteries
- Current sources & laboratory power supplies



### GENERAL SPECIFICATIONS

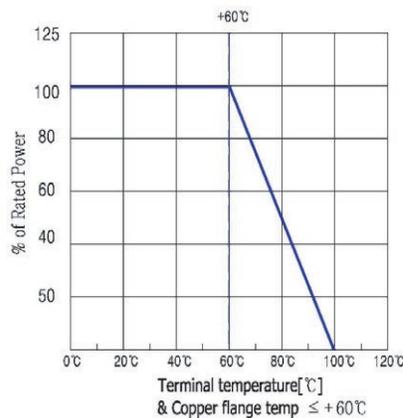
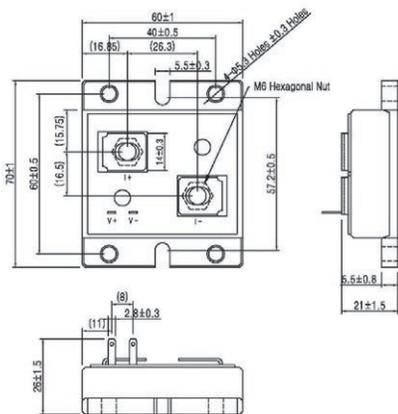
MODEL	*RATED POWER [W]	**RESISTANCE VALUE [ $\text{m}\Omega$ ]	TOLERANCE [%]	SHORT TERM STABILITY[%]
HPS	250	1, 2, 5, 10, 20, 50, 100	$\pm 0.05(\text{A}), \pm 0.1(\text{B})$ $\pm 0.5(\text{D}), \pm 1.0(\text{F})$	$\leq \pm 0.02 / \leq \pm 0.03$ $\leq \pm 0.05 / \leq \pm 0.1$

\*: Terminal temp.&copper flange temp.  $\leq +60^{\circ}\text{C}$  \*\*: The resistance values of 20/50/100m $\Omega$  are under development

### CHARACTERISTICS

Applicable temperature range	-55 $^{\circ}\text{C}$ ~ +100 $^{\circ}\text{C}$
Rated power	250[W]
Resistance values	1,2,5,10,20,50,100 [ $\text{m}\Omega$ ]
Tolerance	A( $\pm 0.05\%$ ) / B( $\pm 0.1\%$ ) / D( $\pm 0.5\%$ ) / F ( $\pm 1\%$ )
Max. working current	387A at $1\text{m}\Omega$
Dielectric withstanding voltage	AC 500V for 1Min. (Max. leakage current 2m A)
Tolerance	Max. $\pm 5$ [ppm/ $^{\circ}\text{C}$ ]
Max. working current	Current load for 1 hour at terminal temp & copper flange temp. $\leq +60^{\circ}\text{C}$ $\Delta R \leq \pm 0.02\% / \leq \pm 0.03\% / \leq \pm 0.05\% / \leq \pm 0.1\%$
Dielectric withstanding voltage	$\leq \pm 0.2\%$ after 1,000 hours (Terminal temp $\leq +60^{\circ}\text{C}$ and copper flange. temp $\leq +60^{\circ}\text{C}$ )

### DIMENSIONS[mm] & DERATING CURVE



### ORDERING PROCEDURE



# Model



# Resistance value  
ex)  $1\text{m}\Omega$



# Tolerance [%]  
A :  $\pm 0.05\%$  / B :  $\pm 0.1\%$   
D :  $\pm 0.5\%$  / F :  $\pm 1.0\%$



# TK [ ppm/ $^{\circ}\text{C}$  ]  
3, 5

# HPS/UHPS // High Power Precision Shunt Resistor

## Ultra High Power Precision Shunt Resistor

- Up to 100W on heat sink (Forced cooling condition, Terminal temp.  $\leq 70^{\circ}\text{C}$  & Aluminum case temp.  $\leq 60^{\circ}\text{C}$ )
- Max. current limit 707A (At.  $0.2\text{m}\Omega$ )
- Excellent short term stability
- Low temperature coefficient of resistance (T.C.R)
- High current sensing & reference resistors in laboratories.
- Charge – discharge test equipment for high capacity batteries
- Current sources & laboratory power supplies



## GENERAL SPECIFICATIONS

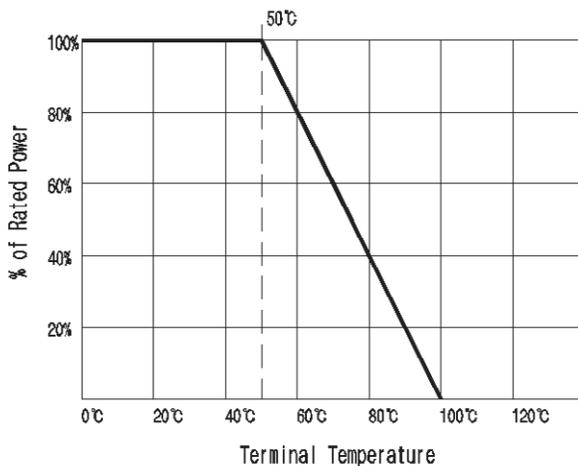
MODEL	*RATED POWER	RESISTANCE	TOLERANCE
UHPS	100W	0.2m $\Omega$ , 1m $\Omega$	A [ $\pm 0.05\%$ ], B [ $\pm 0.1\%$ ] D [ $\pm 0.5\%$ ], F [1.0%]

\* Terminal temp.  $\leq 70^{\circ}\text{C}$  & Aluminum case temp.  $\leq 60^{\circ}\text{C}$  on Heatsink

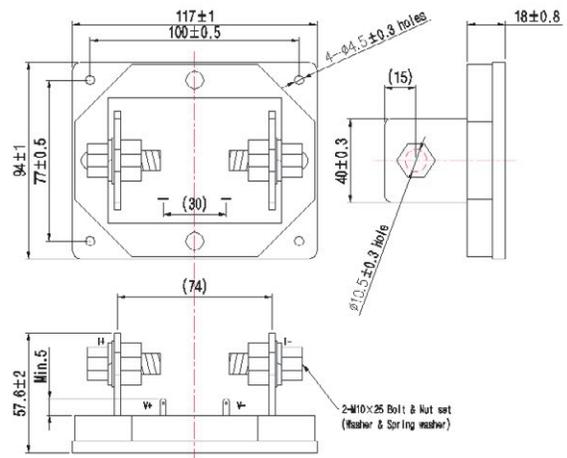
## CHARACTERISTICS

Applicable temperature range	-55C ~ +100C
Max. working current	707A at 0.2m $\Omega$
Temperature Coefficient Resistance	Max. $\pm 10\text{ppm}/^{\circ}\text{C}$
Dielectric withstanding voltage	AC 500V (Max. leakage current 2mA)
Short term stability	Current load for 1 hour at terminal temperature $\leq 70^{\circ}\text{C}$ , $R \leq 0.1\%$

## DERATING CURVE



## DIMENSION [mm]



## ORDERING PROCEDURE

UHPS	R0002	A	TK10
#Model	Resistance Value Ex) R0002 = 0.2m $\Omega$ R0010 = 1.0m $\Omega$	Tolerance A : $\pm 0.05\%$ B : $\pm 0.10\%$ D : $\pm 0.50\%$ F : $\pm 1.00\%$	TK [ppm/ $^{\circ}\text{C}$ ] 10ppm/ $^{\circ}\text{C}$