

The TAP1000 Series resistors deliver 1000 watts of continuous power with thick film on alumina substrate technology. Up to 30% smaller, the TAP1000 is capable of 2 to 4 times the power dissipation of traditional heat sinkable resistor technologies. Designed for use with liquid cooled heat sinks, TAP1000 resistors are capable of dissipating 1000 watts of continuous power when properly mounted (based on 70°C base temperature).

Offering the highest power available in a heat sinkable package, the TAP1000 is well suited for power conditioning, power distribution, power conversion, and power control applications. Constructed of durable, lightweight materials, the TAP1000 package is easy to design and mount.

## FEATURES

- Dissipates 1000 Watts @ 70°C Mounting Plate Temperature
- High Energy Rating
- Low Inductance
- Resistor Element Electrically Isolated
- High Dielectric Strength
- Small Footprint

## APPLICATIONS

- Power semiconductor balancing
- Motor control
- Inrush Current Limiting

## SPECIFICATIONS

### Material

**Resistor Element:** Thick Film on Alumina Substrate

### Electrical

**Power Rating:** 1000 watt @ 70°C Mounting Plate

**Resistance Values:** 2.5Ω to 50Ω

**Resistance Tolerance:** +20% std.

**Max Operating Voltage:** 2000VDC

**Temperature Coefficient:** ± 250 PPM/°C

**Dielectric Strength:** 6KV Standard, up to 12KV available

**Operating Temperature Range:** -55°C to 150°C

### Case

**Terminal Screws:** #10-32

**Max Contacts Torque:** 10 in-lb

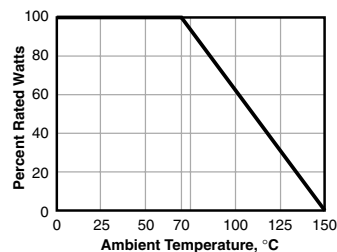
**Mounting Screws:** #8-32

**Max Mounting Torque:** 15 in-lb

**Creepage Distance:** 50mm ± 1mm (min)

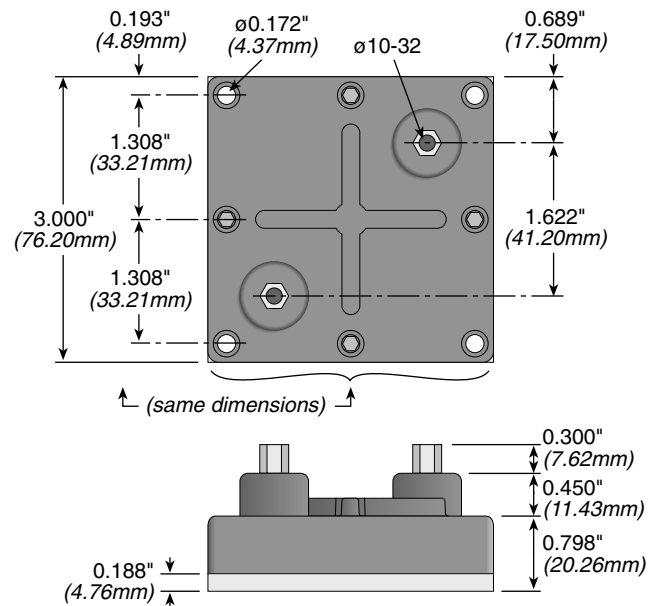
**Thermal Resistance:** 0.05°C / Watt

## DERATING CURVE



# TAP1000 Series

## 1000 Watt Heat Sinkable Planar Resistor



## PERFORMANCE DATA

Test	Rating	
	Continuous	Pulse
Rated Power, max. current and heat sink plate temperature limited	1000W	
Operating Voltage	$\sqrt{P \cdot R}$	N/A
Max. Applied Voltage, ohms law limited	223V	2000VDC
Max. Current	10A	53.33A
Critical Resistance; below this resistance max power has to be de-rated due to exceeding max current	10 ohms	

Test	Method	Maximum ΔR
Short Time Overload	1.14 x $\sqrt{P \cdot R}$ / 10 sec @ 70°C	Max % $\Delta R_{sto} = \pm(2\% + 0.05\Omega)$
Moisture Resistance	1000 hrs @ 40°C, 90-95% RH	≤1%
Thermal Shock	MIL-STD-202, Method 107	MIL-STD-202, Method 107
Vibration, elec.	MIL-STD-202, Method 201	±2% Resistance
Vibration, mech.	MIL-STD-202, Method 201	No Loose Terminal Screws
Load Life, 1000 Hrs	90 min ON / 30 min OFF	≤1%
Pulse Tolerance 20,000 Pulses	52μF @ 2KV / 60 sec intervals, 104J	≤1%
Dielectric Strength	6KVDC for 1 minute	≤1%

## APPLICATION NOTES

Proper heat sinking techniques are essential to performance of a TAP1000 resistor. Pleased follow these guidelines when designing TAP1000 system:

- Heat sink compound must always be used. Phase change material is preferred over silicon pastes.
- Heats sink plate (base plate of the resistor) temperature must be monitored to establish proper de-rating. Best technique is to attach a thermocouple to the side of the base plate of the resistor. Temperature of plastic housing or heat sink cannot be used to establish rating of the resistor. Usage of laser thermometers should be avoided.
- Due to very high power density, only liquid cooled heat sinks are recommended for applications when >300W power rating is desired.
- Properly designed heat sink should have more than 2 cooling pipes under the surface of the TAP1000 resistor. Hydroblok-1000, a 4 pass aluminum heat sink (<http://www.d6industries.com/heatsinks.html>) is an example of properly designed heat sink.

## ORDERING INFORMATION

RoHS Compliant

# TA1KOPH10R0LE

Style	Package Type	Resistance 1 ohm = 1R00 50 ohms = 50R0	Tolerance K = 10% (standard) L = 20%
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## STOCK PART NUMBERS

Ohms	Part Number 10% Tolerance	Ohms	Part Number 10% Tolerance
3	TA1KOPH3R00KE	15	TA1KOPH15R0KE
4	TA1KOPH4R00KE	20	TA1KOPH20R0KE
5	TA1KOPH5R00KE	25	TA1KOPH25R0KE
8	TA1KOPH8R00KE	30	TA1KOPH30R0KE
10	TA1KOPH10R0KE	50	TA1KOPH50R0KE