# AP5025 8Watt Current Sense Chip Resistors



A very high power current sense chip resistor capable of dissipating a stunning 8 watts with recommended thermal management architecture on the PCB. Measuring just 12.8mm by 6.4mm the chip has excellent pulse/surge performance.



Power Dissipation 8 watts with 700 micron PCB thermal Pad

Value Range R0005 to R01
 Tolerance Options ±1% or ±5%
 TCR Options ±30ppm/°C
 Maximum Voltage √ P.R.
 Dielectric Strength 5KVac

Special Features An increase of 15°C or so in reflow temperature is required due to heat

dissipation potential. Please request mounting guide

**RoHS Compliant** 

#### Characteristics

	AP 5025 Specifications	Test Conditions
Resistance Values	R0005, R001, R002, R003, R004, R005, R010	
TCR	± 50ppm/°C	Measured ± 30ppm/°C
Tolerance	±1.0%(F), ±5.0%(J)	
Power Rating	8W	Attached
Current Rating	90A	At 1 mΩ
Maximum Current	126A	2.5 seconds one time
Series Inductance	5nH	
Operating Temperature	-55 °C to 175°C	
Storage Temperature	-55 °C to 175°C	
Short Time Overload	$\Delta R \pm (0.5\% + 0.5 \text{m}\Omega)$	Maximum current, 2.5 seconds
Low Temperature Storage	$\Delta R \pm (0.5\% + 0.5 \text{m}\Omega)$	-55°C, 24 hours
High Temperature Storage	$\Delta R \pm (1.0\% + 0.5 \text{m}\Omega)$	+175°C, 1000 hours
Heat Shock	$\Delta R \pm (0.5\% + 0.5 \text{m}\Omega)$	-55°C to +125°C, 20min. Interval, 5min. 5 cycles
Vibration	$\Delta R \pm (0.5\% + 0.5 \text{m}\Omega)$	10-2000 Hz, 1.5mm/20gr, 2 hours
Soldering Heat	$\Delta R \pm (0.25\% + 0.5 \text{m}\Omega)$	260°C ± 5°C, 10 ± 1 second
Solderability	90%/terminal surface	
Humidity	$\Delta R \pm (0.5\% + 0.1 \text{m}\Omega)$	85°C, 85% RH, dc0, 1W, 1000 hours
Load Life	$\Delta R \pm (0.5\% + 0.1 \text{m}\Omega)$	25°C, dc rated power, 90 min ON, 30min OFF, 1000 hours

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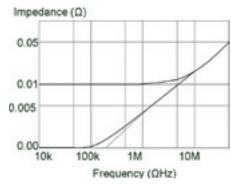
It is the responsibility of the customer to ensure that the component selected from our range is suitable for the intended application. If in doubt please ask Arcol.

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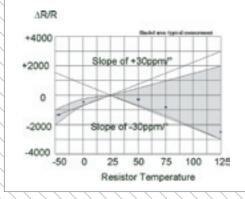
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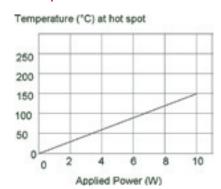
### **Frequency Characteristics**



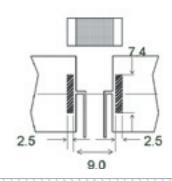
## TCR Curves



### **Temperature Rise**



#### Recommended Foot Print in mm



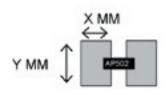
#### Soldering Recommendation

Due to the enhanced heat dissipation properties of the AP5025, the temperature profile during reflow soldering will need to be increased by 10 to 20°C.

#### Custom Designs

Alternative widths and lengths are available, please contact factory for details.

### FR4 Thermal PCB Characterisation



Pad Dimensions	P 90°C, 70µm (W)	P 90°C, 35µm (W)
(x,y mm)		
60, 45	5.8	4.6
50, 45	5.4	4.3
40, 40	4.2	4.1
30, 30	3.5	2.8
20, 20	2.9	2.7
10, 10	2.4	2.5

Notes: Characterisation carried out using 70 µm and 35 µm. PCB copper pad weights, with the temperature of 90°C used as a maximum reference on the PCB.

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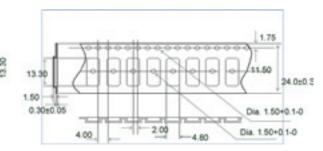
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## **Ordering Procedure**

Standard resistor: Series, Resistance, Tolerance e.g AP5025 R01 J





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