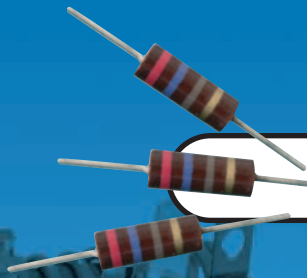


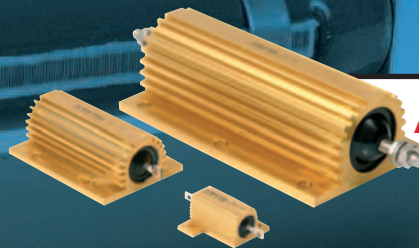
# ARCOL



**High Precision**



**High Energy**



**Aluminium Housed**



**Thick Film Power**



**High Voltage**



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## Description

### ASP10



A non-inductive surface mount resistor pack capable of dissipating 10 watts with the use of a suitable thermal pcb pad. With low thermal resistance in each axis, this is a unique SOIC resistor package

### AP725



This novel surface mount power resistor in a TO263 style (D pak) will dissipate 20 watts subject to the case temperature being between, minus 55°C and +25°C. It can be soldered or clipped to the board

### AP825



A high quality, innovative T0126 style resistor pack designed for high frequency emitter circuits in switching power supplies or in snubber and pulse handling circuits.

### AP820



A high power T0220 style resistor pack designed for high frequency emitter circuits in switching power supplies. Also used in motor control and drive circuits

## Power Dissipation

5 watts - consult us for power to 10 watts

20 watts with h/s  
2.5 watts no h/s

20 watts with h/s  
(<200R – 10 watts)

20 watts with h/s  
2.25 watts no h/s

## Value Range

R01 to 100K

R01 – 51K

R01 – 51K

R01 – 51K

## Tolerance Options

±1% or ±5%

±1% or ±5%

±1% or ±5%

±1% or ±5%

## TCR Options

±100ppm/°C

±50 - 250ppm/°C  
(re ohmic value)

±50 - 250ppm/°C  
(re ohmic value)

±50 - 250ppm/°C  
(re ohmic value)

## Maximum Voltage

500Vdc or  
 $\sqrt{(P.R)}$

500Vdc or  
 $\sqrt{(P.R)}$

500Vdc or  
 $\sqrt{(P.R)}$

500Vdc or  
 $\sqrt{(P.R)}$

## Dielectric Strength

4000 Vdc

2000 Vdc

2000 Vdc

2000 Vdc  
(60 secs)

## Special Features

Non inductive, ROHS compliant and suited to inrush current protection

The resistor will dissipate 20 watts subject to the case tab temperature being kept at 25°C max

This is a small thin package for high-density PCB mounting – current rating 25 amps max

Low thermal resistance 5.9°C/W resistor hotspot to metal tab

## AP850



A really high power T0220 resistor pack with very low thermal resistance. New high technology materials and rapid heat transfer to heat sink via thermal grease is the secret.

## AP140



A T0247 resistor pack with low thermal resistance and capable of dissipating 140 watts! High technology materials aid rapid heat transfer to heat sink via thermal grease

## FCR



A novel thick film resistor on alumina, requiring tiny board real estate, but with excellent power dissipation and of course completely non inductive

## FPA



Thick Film resistors in SOT 227 pack (100 watts) and the larger 250 watt pack. These are designed for high frequency and pulse load applications. 2 and 4 terminal versions with different circuits

## FPA600



Designed for use as a snubber resistor to compensate the C-R peaks in traction power supplies, the FPA600 has a large creep distance and a special resistor element for perfect current yield over entire area

50 watts (tab temp max 25°C) 2.25 watts no h/s

140 watts (tab temp max 25°C) 5 watts no h/s

5 watts and 10 watts

100 watts and 250 watts

600 watts at max 85°C bottom case temp

R01 – 51K

R01 – 51K

1R to 200K

1R to 2 Meg

R5 to 100K

±1% or ±5%

±1% or ±5%

±5%

±5% or ±10%  
±1% possible

±5% or ±10%

±50 - 250ppm/°C  
(re ohmic value)

±50 - 250ppm/°C  
(re ohmic value)

±100ppm/°C

±100ppm/°C

±150ppm/°C

500Vdc or  
√(P.R)

700Vdc or  
√(P.R)

300Vac/500Vac

100W 1000Vac  
250W 5000Vac

5000Vdc

2000 Vdc  
(60 secs)

2500 Vdc  
(60 secs)

5000 Vdc

100W 4000Vac  
250W 7000Vac

12000Vdc





Low thermal resistance at 2.3°C/W resistor hotspot to metal tab

Extremely low thermal resistance at 0.9°C/W resistor hotspot to metal tab. Please consult with company re application areas

High power densities in two planar different sizes packages

Special very high power SOT227 available to order – please ask

Partial discharge 4Kvrms <10 pc up to 7kV. Please consult with company re application areas

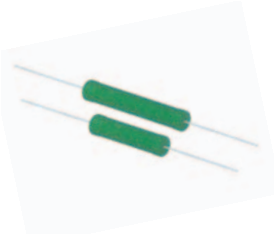
Description	HS	HS200+	NHS	HSW
	 <p>Globally the No 1 range of aluminium housed power resistors. They are manufactured to meet the requirements of MIL 18546 and IEC 115 and are of course RoHS compliant.</p>	 <p>For high power duties, Arcol have extended the conventional range to three new sizes above 200 watts. Each requires six mounting bolts and the terminals are solid nut, bolt, washer.</p>	 <p>Using the Ayrton Perry winding technique, the NHS offers a very low inductance together with a high power performance (on a suitable heatsink). Working voltage and ohmic values are derated accordingly</p>	 <p>Manufactured to meet the requirements of MIL 18546 and IEC 115, the HSW is mounted to a heat sink, then pipes connected to optimise water cooling, it dissipates a full 600 watts in a compact package</p>
<b>Power Dissipation</b>	10 watts to 150 watts	200 watts to 300 watts	10 watts to 300 watts	600 watts
<b>Value Range</b>	R005 to 100K	R01 to 68K	R01 to 20K	R1 to 30K
<b>Tolerance Options</b>	Std $\pm 5\%$ , $\pm 1\%$	Std $\pm 5\%$ , $\pm 1\%$	$\pm 5\%$ or $\pm 1\%$	$\pm 5\%$
<b>TCR Options</b>	$\pm 25\text{ppm} - 100\text{ppm}/^\circ\text{C}$ (re ohmic value)	$\pm 25\text{ppm} - 100\text{ppm}/^\circ\text{C}$ (re ohmic value)	$\pm 25\text{ppm} - 100\text{ppm}/^\circ\text{C}$ (re ohmic value)	$\pm 25\text{ppm} - 100\text{ppm}/^\circ\text{C}$ (re ohmic value)
<b>Maximum Voltage</b>	160 to 2500 Vdc (ac-rms max)	1900 to 2500 Vdc (ac-rms max)	1300 to 1700 Vdc (ac-rms max)	2200 Vdc (ac-rms max)
<b>Dielectric Strength</b>	1400 to 6000 Vac peak re size	5000 Vac	3000 Vac peak	3000 Vac peak
<b>Special Features</b>	Special high pulse versions routinely available. Stocked extensively in distribution	Special high dielectric breakdown versions 3500 Vdc available. Stocked in distribution globally – please ask	Special high pulse versions 2500 Vdc available	Dissipates 600 watts on a 3750cm <sup>2</sup> x 3mm aluminium plate with 25°C water flowing @ 2 litres a minute

## ACS



Generally available from stock, this range of silicone coated axial resistors does not compromise quality to deliver a very low price. Having a high purity alumina core, the ACS, size for size, dissipates more power than most of its competitors.

## V



A full range of classic axial vitreous enamel coated resistors covering both the European and North American sizes v power. The finest materials are fully encapsulated in a solid vitrified glass coating for ultimate humidity proofing

## PE



Where axial vitreous power resistors end, then the PE takes over. The nichrome winding is encapsulated with several coats of enamel allowing it to withstand the most extreme conditions. Faston terminals or ferrule ends can be specified to order

## PT



The PT is similar to the PE but utilises edge wound tape to lift the power capability in a smaller body package. Resistor values are consequently lower than its PE wirewound sister

## PB/PHD



The PHD is normally selected for dynamic braking where a high pulse load resistor is required. High energy absorption winding over 6 wattage sizes. Faston terminals or ferrule ends are available

1 watts to 10 watts

3 watts to 14 watts

30 watts to 380 watts

35 watts to 625 watts

200 watts to 750 watts

R1 to 100K

R1 to 100K

2R2 to 125K

R02 to 30R

R45 to 3K1

±5% to ±10%  
(±5% standard)

±1% to ±10%  
(±5% standard)

±5% or ±10%

±5% or ±10%

±5% or ±10%

±20ppm - 90ppm/°C  
(re ohmic value)

Typically  
±75/200ppm/°C

Typically  
±100/200ppm/°C

Typically  
±100/200ppm/°C

Typically  
±100/200ppm/°C

20 Vdc to 800 Vdc  
(re size)

200 Vdc to 750 Vdc  
(re size)

√ P.R.

√ P.R.

√ P.R.

500 Vac

500 Vac

3000 Vac peak  
(relating to size)

3000 Vac peak (relating  
to size)

Relates to size. Please  
ask for spec.

Non inductive windings  
are available – with  
reduced ohmic value  
range

Meets the requirements  
of JSS50402 and  
CECC40201. Special  
winding and high pulse  
versions available

These resistors are  
available with one or  
more tap bands making  
them fully adjustable

Mounting horizontally,  
vertically or with ferrule  
ends clips

These resistors are  
available with one or  
more tap bands making  
them fully adjustable

## Description

### AP 5025



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.

### MSR



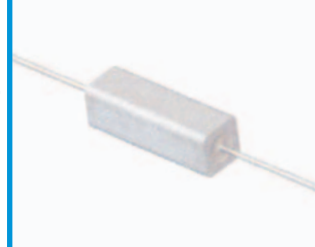
A flexible range of open frame, pluggable current sense shunts offered from stock, at very attractive prices. Full value range available in three popular power ratings. Stocked in distribution.

### APR



A range of very high power, non inductive shunt resistors, ideally suited to metering and current detection in motors. ROHS compliant. These products are mostly custom designed. Please advise your requirements.

### ABL



A tough ceramic encased, low ohm current sense resistor with inductance less than 20 nH and with a low temperature rise. A well tried robust solution for current shunts in high frequency circuits

## Power Dissipation

8 watts with 700 micron PCB thermal Pad

1, 2 or 5 watts

$W = I^2 \times R$

4 watts

## Value Range

R005 to R01

R005 to R1

R001 to R05

R005 to R051

## Tolerance Options

±1% or ±5%

±1%

±1% or ±5%

±1% or ±5%

## TCR Options

±50ppm/°C

±20ppm/°C

±50ppm/°C

±160ppm - 600ppm/°C

## Maximum Voltage

√ P.R.

√ P.R.

To 30 amps

√ P.R.

## Dielectric Strength

5KVac

Contact Arcol

250% rated power  
5 seconds

2KVdc

## Special Features

An increase of 15°C or so in reflow temperature is required due to heat dissipation potential. Please request mounting guide

Inductance less than 10nH

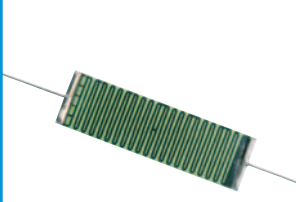
The resistor should be kept at 200°C max via heatsink if necessary. Custom designs and SMD versions possible

Whilst value range is standard (see data sheet) we are able to produce any exact value where quantity justifies

# High Voltage Solutions



## 967



These versatile, low cost planar resistor enables high-density packaging for high volume applications. RoHS compliant, 967 plate resistors can have lead wires attached radially or axially.

1 watt to 10 watt depend on plate size

4K to 30G

±0.1% to ±10%

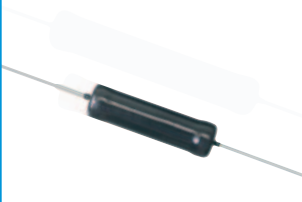
15ppm - 200ppm/°C

To 35KVdc (largest size)

>1000 Vdc

Ten different plate sizes allow power handling up to 10 watts

## HTS



A range of fine axial high voltage resistors within a tough epoxy coating. Non-inductive of course, these resistors combine very high stability with very high ohmic values, in a range of body sizes

0.2 watts to 9 watts

100K to 1G

±1% to ±10%

±75ppm/°C (±20ppm/°C on request)

2.5KV to 48KVdc (largest size)

>60KVdc (largest size)

These resistors are not suitable for use in aggressive atmospheres. Consult us for special coatings

## HTE



Designed for applications such as voltage dividers, medical and measuring instruments and electrostatic and current limiting devices where high stability and high ohmic values are important

0.7 watts to 15 watts

1K to 700M

±1% to ±10%

±100ppm/°C

2.5KV to 48KVdc (largest size)

>1000Vdc

Wide range of values and body sizes. Please ask about customised solutions

## 969



These tubular resistors have screw terminals and combine very high precision with very high ohmic values and high voltage capability. Five convenient sizes ensure power handling between 11 watts and 105 watts.

11 watts to 105 watts

80R to 25G

±0.1% to ±10%

±15ppm - ±200ppm/°C

96KVdc

60KVdc

These resistors are not suitable for use in aggressive atmospheres. Consult us for special coatings

## UT



The UT range of tubular, high voltage resistors are designed to handle impulse energy with high voltage and extreme resistor values. All sizes can be supplied with 10 terohms max ohmic value

20 watts to 150 watts

10R to 10T

±1% to ±10%

±100ppm/°C (others on request)

40KVdc to 100KVdc (largest size)

180KVdc (largest size)

Impulse energy 62000 joules in a 460mm length. Please ask about customised solutions



## Description

### RN



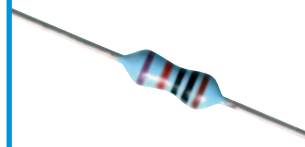
A very high precision nichrome thin film chip. Most popular is 08.05 size but 12.06 and 06.03 are available. Nickel chrome is sputtered onto high purity alumina substrates.

### SP



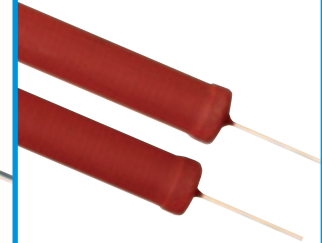
The S types are a fully moulded SMD series. The SP is the high precision product, offering high power dissipation in a wide resistor value range, and tolerances down to 0.0005%

### MRA



Europe's No 1 selling axial thin film high precision resistor. Stable films are sputtered on to high purity alumina rods, then covered in tough epoxy to protect from any environmental extremes

### 968



These are precision very high voltage resistors, with wire leads for PCB mounting. A combination of tight TCR, low resistor tolerance and high ohmic value make this almost unique in the market

## Power Dissipation

0.063 watts to 0.125 watts

0.5 watts to 4 watts

0.25 watts

3.8 watts to 17 watts

## Value Range

5R to 3M3

R01 to 50K

10R to 1M

400R to 30G

## Tolerance Options

±0.1% or ±0.5%

±0.005% or ±0.1%

±0.1%

±0.1% to ±10%

## TCR Options

±5ppm - 100ppm/°C

±20ppm/°C above 100 ohms

±15ppm/°C

±15ppm - 200ppm/°C

## Maximum Voltage

100, 150 or 200 Vdc  
Re chip size

100 Vdc to 400 Vdc  
Re chip size

350 Vac

54KVdc

## Dielectric Strength

200, 300, 400 Vdc  
Re chip size

500 Vac

500 Vdc

60KVdc

## Special Features

Taped 5000 per reel to EIJ specification

Supplied loose or taped and reeled

Selection series E48 or E96 (E96 stocked)

Very high voltage for use in air. For aggressive environments please consult with company re application areas

# High Energy Solutions



## RCC



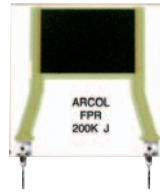
Solid carbon resistors designed for high energy dissipation. These small leaded resistors are non inductive and combine high pulse characteristics with excellent stability

## PK



Careful selection of materials has created a film resistor tolerant of high pulses yet essentially non inductive. Special processing of the film gives excellent pulse to size capability over a wide value range

## FPR



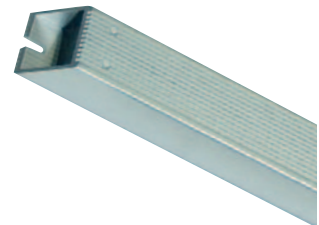
A thick film inrush protective resistor, having a power rating up to 50 watts (2" long substrate) and strengthened terminals to inhibit vibration. Range of sizes to 50 watts available

## TFB



This resistor utilises a 0.9mm stainless steel plate which is insulated by the deposition of several layers of glass. A serpentine track is printed in a special silver ink and the whole encapsulated in a protective silicone coat

## ABR



A new range of dynamic braking resistors encased in a solid aluminium extrusion offered in a range of power ratings ,dependent on body footprint. The element is encapsulated in silicone cement for ultimate environmental protection.

0.25 watts or 0.5 watts

2 watts to 15 watts

3 watts to 50 watts

300 watts

60 to 500 watts

2R2 to 22M

1R to 2M

R1 to 200K

R5 – 270R

1R to 60R

±5% to ±10%

±10% also ±5% and ±2% on request

±5% (±1% possible)

±10%

±5% or ±10%

See product data sheet

±100ppm/°C

Typically ±100ppm/°C

±500ppm/°C

±260ppm/°C

250 and 350 Vdc

3.5KV to 12KVdc (re size)

500 Vdc

√ P.R.

√ P.R.

500 and 700 Vdc

>1000 Vdc

5KVdc min

2500 Vdc

2500 Vac

Peak pulse voltage is 6kv on 0.25w size and 10kv on 0.5 watt size. Available in distribution

Up to 2500 joules – single impulse in largest body size subject to ohmic value

Withstands vibration at 20G, 10Hz to 2Hz, no change in resistance. Power ratings are in free air

Inductance is less than 5uH. Resistor withstands 16000 watt pulse for 1ms. Custom designs are expected

Six popular body sizes between 115mm and 335mm long with a 20mm height in the smaller sizes and 30 mm in the remainder

