

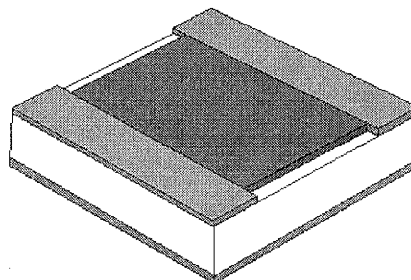
# State of the Art, Inc.

www.resistor.com

07/19/10

## S0505DBX High Power Thick Film Chip Resistor

Standard Grade, Solderable, Bottom Metallized



### MECHANICAL

	INCHES	MILIMETERS
Length	.052 (.050 - .058)	1.32 (1.27 - 1.47)
Width	.048 (.046 - .050)	1.22 (1.17 - 1.27)
Thickness	.010 (.008 - .018)	0.25 (0.20 - 0.46)
Top Term	.015 (.010 - .020)	0.38 (0.25 - 0.51)
Bottom Term (L)	.048 (.043 - .054)	1.22 (1.09 - 1.37)
Bottom Term (W)	.044 (.039 - .050)	1.12 (0.99 - 1.27)
Approx. Weight	.002 grams	

### CHARACTERISTICS

Resistance Range	1 ohm to 12 K ohm
Tolerance (others available)	1,2,5,10,20 %
Maximum Voltage	40 volts dc
Thermal Resistance (typical)	2.26 °C/watt
TCR (-55° / + 125°C)	100, 200, 300 ppm/ °C
Power Rating*	10W Maximum

\* Maximum power is based upon mounting to an Infinite and ideal heat sink maintained at 100°C and a maximum film temperature of 150°C.

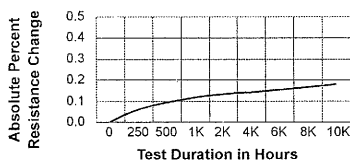
### ENVIRONMENTAL PERFORMANCE\*

Thermal Shock	±.03 %
Low Temperature Operation	±.03 %
Short Time Overload	±.03 %
Resistance to Bonding Exposure	±.03 %
Moisture Resistance	±.05 %
High Temperature Exposure	±.05 %

\* Typical percent resistance change -test methods and actual specification limits are in accordance with Mil-PRF-55342.

### TYPICAL LIFE PERFORMANCE

Parts are solder mounted on FR-4 board and tested at 70°C. Power is applied for 90 minutes on and 30 minutes off at a rate that achieves a film temperature 30°C above ambient.



### PART NUMBERING

**S0505DBX 500 J 20**

#### RESISTANCE VALUE

Three digits (>1% tolerance) or four digits (1% and lower) are used with all leading digits significant. The last digit specifies the number of zeros to add. The letter "R" is used to represent the decimal for fractional ohmic values.

#### TEMPERATURE COEFFICIENT

10:100 ppm 20:200 ppm 30:300 ppm

#### TOLERANCES

F: 1% G: 2% J: 5% K: 10% M: 20%

### PRODUCT FEATURES

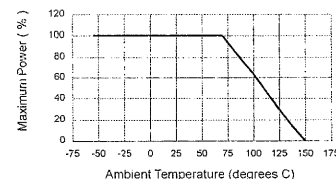
- High stability thick film resistor element on a high thermal conductivity BeO chip.
- Terminations are pretinned (Sn60) solder over nickel barrier compatible with reflow, vapor phase, wave and hand soldering.
- Operation temperature range: -55°C to + 150°C
- Produced with the same stringent quality and reliability standards as our QPL S level Mil-PRF-55342 and space level products
- Alternate termination styles are available to accommodate other attachment needs

### POWER DISSIPATION

Maximum power dissipation in thick film chip resistors is determined by the thermal properties of the chip and condition under which it is mounted. The ability of the mounting assembly to remove heat from the resistor is a primary consideration in determining the maximum load a resistor can safely handle. Maintaining the film temperature at or below 150°C ensures reliable operation. Higher power dissipation is attainable by providing paths of low thermal resistance from the chip base to the surrounding ambient conditions.

### POWER DERATING

For operation in ambient conditions in excess of 70°C, use the chart on the right. Long term operation of the resistor film at temperatures higher than 150°C is not recommended.



Consult our engineering department for specific performance needs.

### PACKAGING

Two packaging options are available:  
Waffle Pack - 400 per tray maximum  
Tape & Reel - 5000 per 7 inch reel maximum

### OPTIONS

Optional high reliability screening or custom testing or other special requirements can also be furnished. Consult our factory with your special needs.

"Specifications subject to change without notice."