

Data Sheet

Performance SiC

Description

Ultra Pure SiC (Silicon Carbide) is made via a chemical vapour deposition (CVD) process, a method that produces very uniform material. The combination of excellent thermal, electrical and chemical properties makes CVD SiC well suited to many semiconductor, LED, and optical applications.

Features:

- Ultra-pure 99.9995% (by GDMS)
- High thermal conductivity
- Low thermal expansion
- Excellent corrosion resistance in plasma applications
- Proven durability in high temperature ammonia environments
- Dimensional stability
- Non-porous, theoretically dense
- Fine grained microstructure

Two Grades Available:

- Performance HR SiC – (high resistivity)
- Performance ELR SiC – (extremely low resistivity)

Typical Applications:

- Rapid Thermal Process (RTP) components
- Plasma Etch components
- Susceptors and Heating elements
- LED wafer carriers and cover plates
- Sputtering Targets

Morgan Capabilities:

- High volume growth capacity
- Patented RMax Process (near-net shape process for high volume ring applications)
- CNC grinding and lapping to very tight tolerances
- Prototype, batch and volume production
- EDM and Ultrasonic machining option available

Physical Properties*:

		Units	Value	Testing Methods
Mechanical	Bulk density	g/cc	3.21	-
	Vickers Hardness	-	2800	ASTM C1327
	Flexural Strength	Psi (MPa)	20°C - 54,000 (370) 1300°C - 81,000 (560)	ASTM C1161
	Fracture Toughness	MPa·m ^{1/2}	2.94	Vickers Indentation
Thermal	Thermal Conductivity (20°C)	W/m-C	Performance SiC – 250 Performance ELR SiC - 220	ASTM E1461
	CTE (-40°C to 950°C)	ppm/°K	4.5	ASTM E228
Electrical	Electrical Resistivity (20°C)	ohm-cm	Performance SiC > 1 Performance ELR SiC < 0.1	Van der Pauw
	Specific Heat	J/g-K	0.66	-

*Please note that these are typical properties and may vary.