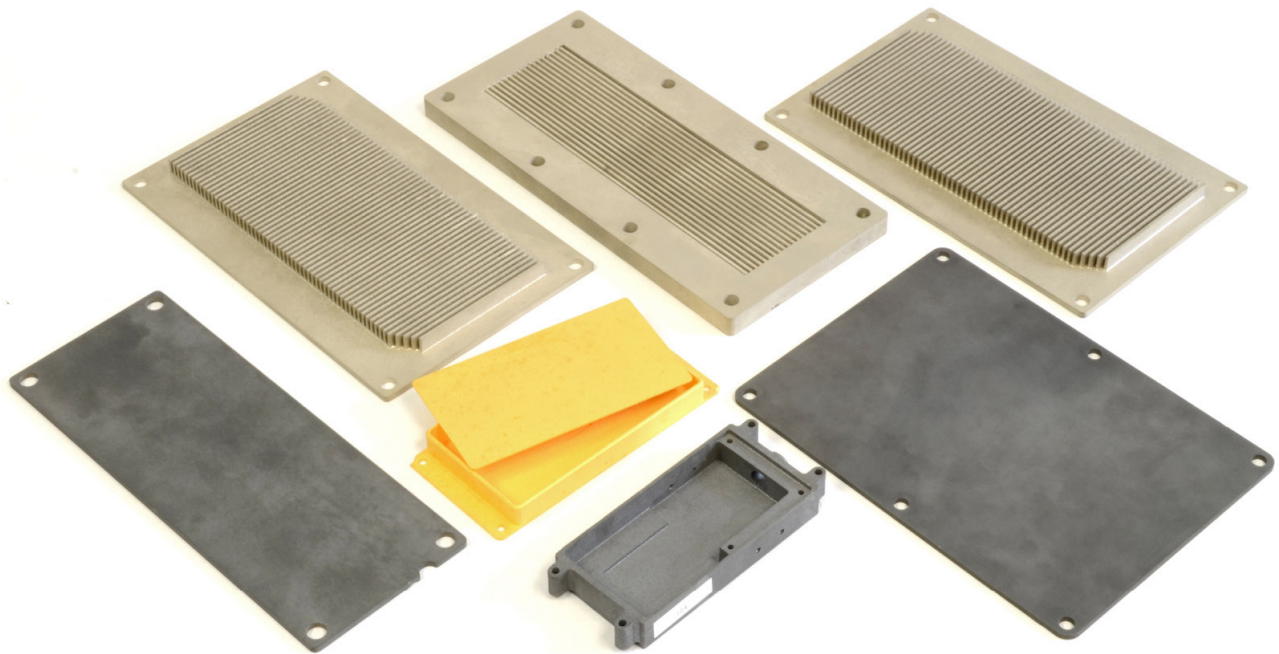


# HIGH THERMAL CONDUCTIVITY SiSiC

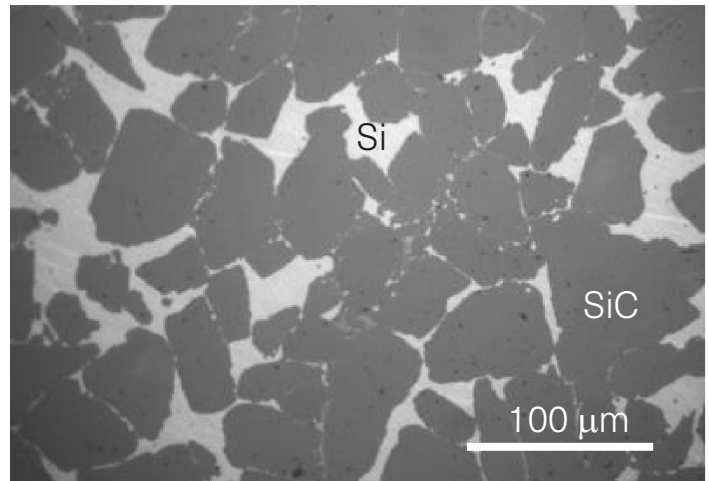
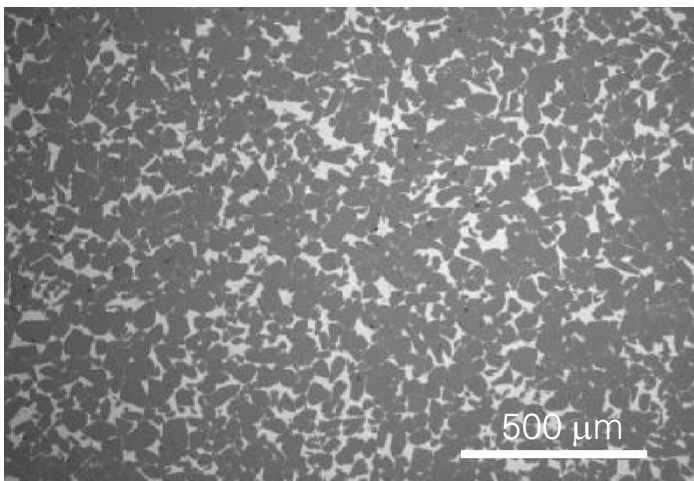
The unique thermal and mechanical properties of reaction-bonded silicon/silicon carbide (RB-SiSiC) make it ideally suited for thermal management applications including for high-voltage power supplies, electric vehicles, inverters for green energy, industrial motor drives, smart-grids, and wireless base stations. Advanced high power modules require faster and better heat dissipation. Coherent's new RB-SiSiC materials achieve over 255 W/m-K of thermal conductivity, while maintaining the same mechanical properties as other RB-SiSiC materials in its family.



## HIGH THERMAL CONDUCTIVITY SiSiC

Material Property	SSC-HTC
SiC Content (Vol. %)	78
Si Content (Vol. %)	~20
Bulk Density (g/cc)	3.02
Young's Modulus (GPa)	373
Poisson's Ratio	0.20
Thermal Conductivity @ -55°C (W/m-K)	402
@ 25°C	255
@ 150°C	157
CTE @ 25°C (1/K)	$2.6 \times 10^{-6}$
CTE 25 to 500°C (1/K)	$2.9 \times 10^{-6}$
CTE 25 to 500°C (1/K)	$3.8 \times 10^{-6}$
Specific Heat (J/kh-K)	670
Flexural Strength (MPa)	$265 \pm 20$
Fracture Toughness (MPa-m <sup>1/2</sup> )	$3.5 \pm 0.15$
Knoop Hardness @ 2kg (kg/mm <sup>2</sup> ) *	$1896 \pm 275$

\* internal calibration



All of the information in this datasheet is based on experimental results. Although we believe these results to be reliable, we expressly do not represent, warrant, or guarantee their accuracy, completeness, or reliability.