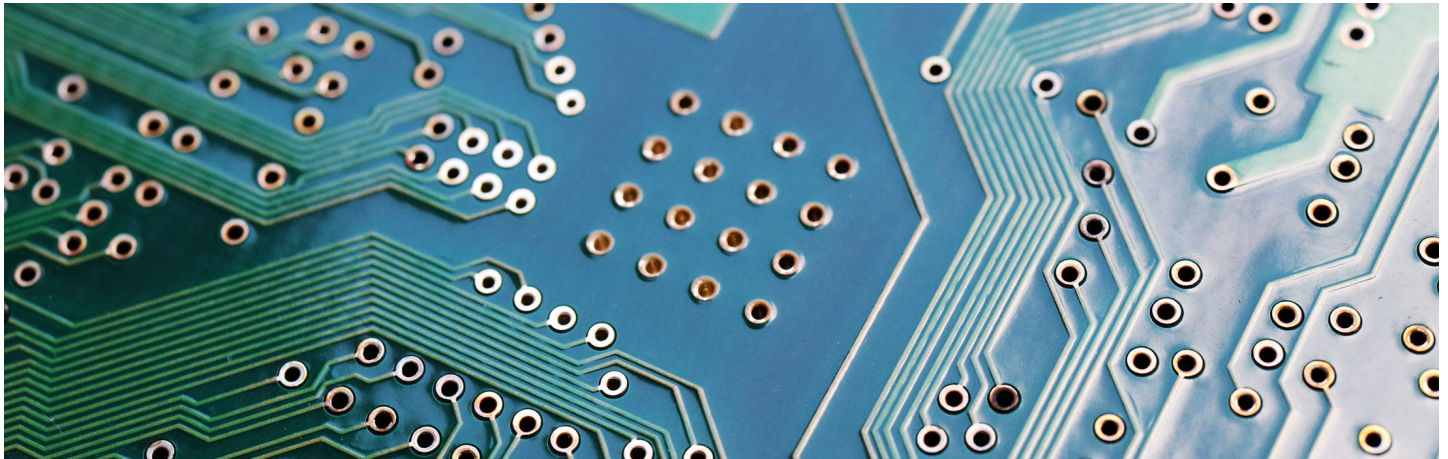
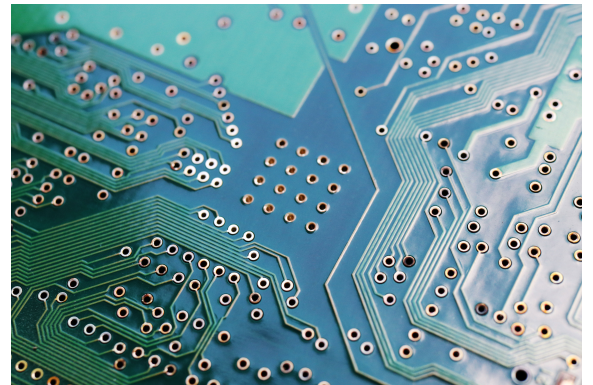




PHP-900 IR-6P

Permanent hole plugging ink

Official sales start on 01.07.2022



All technical data is taken from information from the manufacturer San-Ei Kagaku Co, Ltd., Japan.

Material Properties		
Item	Data	Notes
Viscosity	35±5 Pa·s	VISCONTESER VT-04, 25 °C
Particle size	Less than 15 micron	JIS K5600-2-5
Density	1.66	JIS K5600-2-4
Shelf life	3 months	Below 5 °C
Pot life	7 days	at 25 °C, 60 % RH
Halogen free	Total Cl: Less than 900 ppm Total Br: Less than 900 ppm Total Cl+ Br: Less than 1500 ppm	JPCA-ES01-2003
RoHS standard	Passed	Cd, Pb, Hg, Cr6+, PBBs, PBDEs
Cure condition	140 °C, 30 min (for PCB), 110 °C, 60 min + 150 °C, 30 min (for FCPKG)	Box type oven

Thermal Properties

Item	Data	Notes
Tg	168 °C	TMA, JPCA-BU01-1998
α1	39 ppm	TMA, JPCA-BU01-1998
α2	105 ppm	TMA, JPCA-BU01-1998
Young's modulus	5200 MPa	DMA, 30 °C
Tensile strength	28 MPa	JIS K7113, 23 °C
Elongation	0.5 %	JIS K7113, 23 °C
Tensile modulus	7.96 GPa	JIS K7113, 23 °C
Passion's ratio	0.325	JIS K7113, 23 °C
Specific heat	1055 J/kg·K	JIS K7123, 23 °C
Thermal conductivity	0.54 W/mK	Laser flash method

Heat Resistance

Item	Data	Notes
Solderability	No blister, no crack	288 °C, 60 sec
Heat cycle	No blister, no crack	288 °C, 10 sec, 5 cycles
1 % weight loss temperature	335 °C	TG/DTA
Thermal shock	No blister, no crack	-40 °C to 85 °C, 30 min, 5 cycles
Dry heat	No blister, no crack	85 °C, 500 hrs
Humidity	No blister, no crack	40 °C, 95 % RH, 500 hrs
Thermal cycle	No blister, no crack	-65 °C to 125 °C, 1000 cycles
PCT	No blister, no crack	121 °C, 100 % RH, 168 hrs
Peel strength	6.5 N/cm	Cu plating thickness: 20 micron

Chemical Properties

Item	Data	Notes
Water absorption	0.23 %	JIS C6481
Resistance to chemicals		
10 wt% Sulfuric acid	No blister, no crack	RT, 60 min
10 wt% Caustic soda	No blister, no crack	RT, 60 min
IPA	No blister, no crack	RT, 60 min
Dichloromethane	No blister, no crack	RT, 60 min
Acetone	No blister, no crack	RT, 60 min
Boiling water	No blister, no crack	100 °C, 60 min

Electrical Properties

Item	Data	Notes
Dielectric constant	5.08	IPC-TM-650 TM.2.5.5.1/ASTM-D150, 1 MHz
	4.4	ASTM D2520, 1 GHz
	4.4	ASTM D2520, 3 GHz
	4.4	ASTM D2520, 5 GHz
	4.5	ASTM D2520, 11 GHz
Dissipation factor	0.0237	IPC-TM-650 TM.2.5.5.1/ASTM-D150, 1 MHz
	0.02	ASTM D2520, 1 GHz
	0.018	ASTM D2520, 3 GHz
	0.02	ASTM D2520, 5 GHz
	0.02	ASTM D2520, 11 GHz
Surface resistivity	$1.9 \times 10^{16} \Omega$	ASTM D257
Volume resistivity	$4.9 \times 10^{13} \Omega/\cdot \text{cm}$	ASTM D257
Breakdown voltage	60.0 KV/mm	ASTM D149

Your contact person




Andrea Grau

Manager Sales Europe

T: +49 7171 607 229

andrea.grau@eu.umicore.com