

EPO-TEK® OE121

Epoxy; Epoxide

Epoxy Technology Inc.

Message:

A two component, optically clear, low stress, capillary grade semiconductor underfill. It is clear and colorless and capable of curing at low temperatures in the range of 23°C to 80°C, suggested for opto-device flip chip packaging. It can also be used for general potting and encapsulation.

General Information	
Uses	Electrical/Electronic Applications
Agency Ratings	EC 1907/2006 (REACH)
	EU 2003/11/EC
	EU 2006/122/EC
RoHS Compliance	RoHS Compliant
Forms	Liquid
Processing Method	Encapsulating
	Potting

Physical	Nominal Value	Unit
Ion Type		
Cl-	52	ppm
K+	2	ppm
Na+	10	ppm
NH4+	5	ppm
Degradation Temperature	350	°C
Die Shear Strength - > 15 kg (23°C)	35.2	MPa
Operating Temperature		
Continuous	-55 to 200	°C
Intermittent	-55 to 275	°C
Storage Modulus (23°C)	1.71	GPa
Weight Loss on Heating		
200°C	1.2	%
250°C	1.7	%
300°C	3.9	%
Thermal	Nominal Value	Unit
Glass Transition Temperature ¹	> 55.0	°C
CLTE - Flow		
-- ²	4.3E-5	cm/cm/°C
-- ³	1.6E-4	cm/cm/°C
Optical	Nominal Value	Unit

Refractive Index	1.527	
Transmittance (380 to 1640 nm)	> 94.0	%
Thermoset	Nominal Value	Unit
Thermoset Components		
Part A	Mix Ratio by Weight: 100	
Part B	Mix Ratio by Weight: 35	
Shelf Life (23°C)	52	wk
Uncured Properties	Nominal Value	Unit
Color		
-- 4	Clear/Transparent	
-- 5	Transparent, Light Yellow	
Density		
Part B	0.958	g/cm ³
Part A	1.16	g/cm ³
Viscosity ⁶ (23°C)	0.30 to 0.50	Pa·s
Curing Time (90°C)	> 1.0	hr
Pot Life	300	min
Cured Properties	Nominal Value	Unit
Shore Hardness (Shore D)	78	
Lap Shear Strength (23°C)	11.8	MPa
Relative Permittivity (1 kHz)	3.52	
Volume Resistivity (23°C)	> 1.0E+13	ohms·cm
Dissipation Factor (1 kHz)	9.0E-3	
NOTE		
1.	Dynamic Cure 20-200°C/ISO 25 Min; Ramp -10-200°C @ 20°C/Min	
2.	Below Tg	
3.	Above Tg	
4.	Part B	
5.	Part A	
6.	100 rpm	

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