LOCTITE®

LOCTITE® ECCOBOND UF 3811

LOCTITE® ECCOBOND UF 3811 is a reworkable epoxy underfill designed for Chip-Scale Package (CSP) and Ball Grid Array (BGA) applications. This low-viscosity material is formulated to flow at room temperature with no additional preheating required.

It also cures quickly at moderate temperatures to minimize stress to other components. When cured, UF 3811 has a high glass transition temperature while maintaining flexibility to protect solder joints during thermal cycling and drop testing.

LOCTITE® ECCOBOND UF 3811	
Technology	Epoxy
Appearance	Black liquid
Cure	Heat
Product Benefits	• One component • Room temperature flow capability • Halogen-free • Reworkable • Good thermal cycling reliability • Stable electrical performance under standard • Surface Insulation Resistance (SIR)
Cure Temp./Time, DSC	10 min. @ 130ºC
Application	Underfill, Encapsulant
Typical Package Application	CSP and BGA

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TYPICAL PROPERTIES OF UNCURED MATERIAL	
Viscosity @ 25ºC, mPa · s, Brookfield cp 41 / 20 rpm	350
Pot life @ 25ºC, days	3
Shelf life @ -20ºC, days	180

TYPICAL PROPERTIES OF CURED MATERIAL		
Glass Transition Temperature (Tg) by TMA, ºC	124	
	Below Tg, ppm / ºC	Above Tg, ppm / ºC
Coefficient of Thermal Expansion, TMA	61	190
	25ºC, GPa	200ºC, GPa
Storage modulus, DMA	2.45	0.027

SURFACE INSULATION RESISTANCE	
Sample	168 hrs. @ 60ºC / 90% RH
UF 3811	2.20e+10 Ohms

THERMAL SHOCK TEST		
-40ºC TO +85ºC, 0.4mm PITCH WLCSP		
Cycles	Failure Percentage	
	UF 3811	No Underfill
500	0	0
1000	0	25%

TIME TO FLOW TEST			
Flow Distance	5mm	10mm	15mm
UF 3811	25 sec.	1 min. 21 sec.	2 min. 52 sec.

Across the Board,
Around the Globe.

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