



SU-8 3000CF DFR Type-S, SU-8 3000CF DFR (WF1) and SU-8 3000CF-02 DFR Photosensitive Permanent Epoxy Dry Film

MATERIAL DESCRIPTION

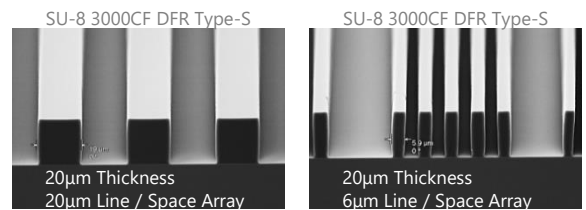
SU-8 3000CF DFR Series is a photosensitive permanent negative tone dry film resist. Utilizing a low halogen epoxy resin and antimony-free formulation. SU-8 3000CF DFR enables the fabrication of chemically and thermally stable structures. Such as support walls and capping layers for SAW & BAW Filter cavity packages, MEMS sensors and microfluidic devices. SU-8 3000CF DFR Type-S is standard grade.

SU-8 3000CF DFR (WF1) has high transparency and low haze support film with same resist layer as SU-8 3000CF DFR Type-S. WF1 can be exposed through the support film to avoid mask contamination on the contact mask aligner.

SU-8 3000CF-02 DFR is designed to improve adhesion to substrates with keeping good thermal and mechanical properties. CF-02 can be suitably used as wall of the cavity structure because of good adhesion.

KEY FEATURES

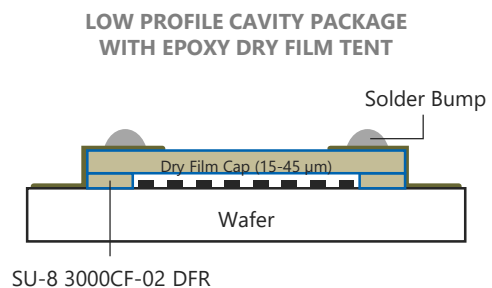
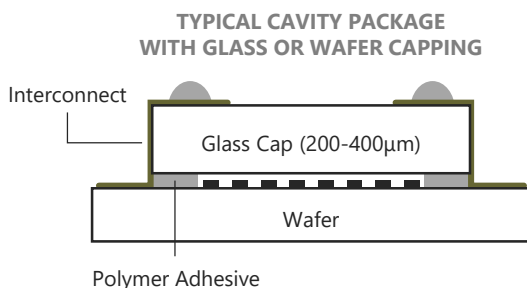
- Antimony-Free
- Low Halogen (Total Chlorine < 900 ppm)
- Excellent Resolution and Aspect Ratio (>3:1)
- Excellent Thermal Stability
- Low Process Temperature
- Low Water Absorption
- Proven Reliability with No Delamination or Corrosion after HAST: 85°C / 85% RH 168 hr



MATERIAL PROPERTIES

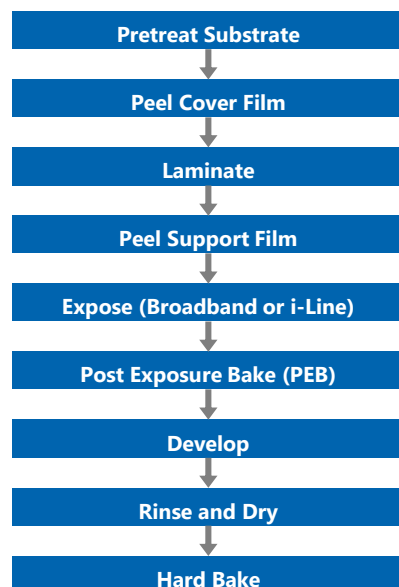
Property	Unit	SU-8 3000CF DFR Type-S	SU-8 3000CF DFR (WF1)	SU-8 3000CF-02 DFR
Glass Transition Temperature (Tg) (DMA)	°C	248		216
Thermal Stability (5% wt. loss temp. in Air)	°C	346		356
Adhesion Strength (Shear strength on Si / 20µm F.T.)	MPa	40		55
Adhesion Strength (Shear strength on LT/ 20µm F.T.)	MPa	21		44
Adhesion Strength (Shear strength on SiN/ 20µm F.T.)	MPa	29		46
Tensile Strength (at 25°C)	MPa	84		97
Young's Modulus (at 25°C)	GPa	2.7		2.7
Storage Modulus (at 30°C, DMA)	GPa	3.0		3.2
Storage Modulus (at 175°C, DMA)	GPa	1.5		1.3
Water Absorption (85°C/85% RH for 24 hr)	%	0.4		0.4

CAVITY STRUCTURE



PROCESS GUIDELINES

STEPS	SU-8 3000CF-02 DFR [Wall Layer]	SU-8 3000CF DFR Type-S or WF1 [Cap Layer]
Lamination	DXL2 series, Teikoku Taping System	
Roll Temp.	60 °C	40 °C
Stage Temp.	60 °C	40 °C
Speed	5 mm/sec	15 mm/sec
Pressure	600 kPa	100 kPa
Post Lamination Bake (Hot-Plate) (Optional)	150 °C / 10min	—
Exposure	240 mJ/cm2 (@ 365nm)	150 mJ/cm2 (@ 365nm)
	(To obtain vertical sidewalls we recommend the use of a long-pass Optical Filter. Eliminating <350nm UV radiation)	
PEB (Hot-Plate)	55 °C / 4min + 95 °C / 6min	55 °C / 3min + 95 °C / 5min
Development	Solvent Development : PGMEA	
Hard-Bake (Oven)	60min @ 200 °C	60min @ 180 °C



PRODUCT FORMAT

	SU-8 3000CF DFR Type-S	SU-8 3000CF DFR (WF1)	SU-8 3000CF-02 DFR
Available Resist Layer Thickness	20, 30 & 45 μm	20, 30 & 45 μm	20 & 30 μm
Resist Width	244 mm		
Core Width	270 mm		

SHELF LIFE

SU-8 3000CF DFR Series should be stored in refrigerated conditions (<15°C) in the original packaging. Shelf-life is 9 months under refrigerated conditions.

HANDLING PRECAUTIONS and DISPOSAL CONSIDERATIONS

Before using this product, consult the Safety Data Sheet (SDS) / Material Safety Data Sheet (MSDS) for details on the product hazards and handling precautions.

Dispose in accordance with all local, state, federal, government regulations. The material and its container must be disposed in a safe and legal manner. It is the user's responsibility to verify that treatment and disposal procedures comply with local regulations.

For further information on the use and performance of our products, please contact your local Nippon Kayaku group representative.

JAPAN (Headquarters)

NIPPON KAYAKU Co., Ltd.

Tel : +81-3-6731-5200

1-1, Marunouchi 2-chome, Chiyoda-ku,

Tokyo 100-0005, Japan

www.nipponkayaku.co.jp