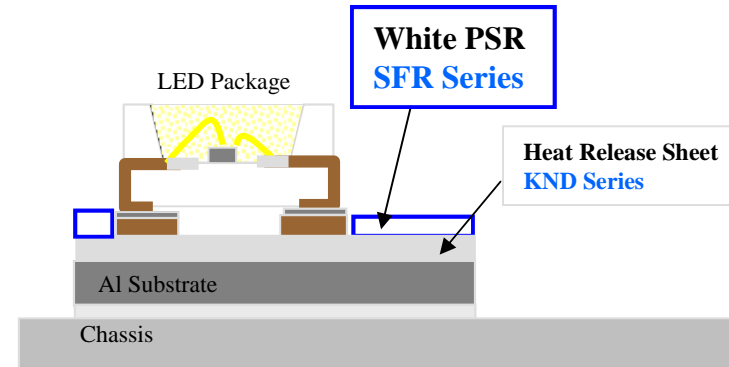


White Type Solder Resist for LED

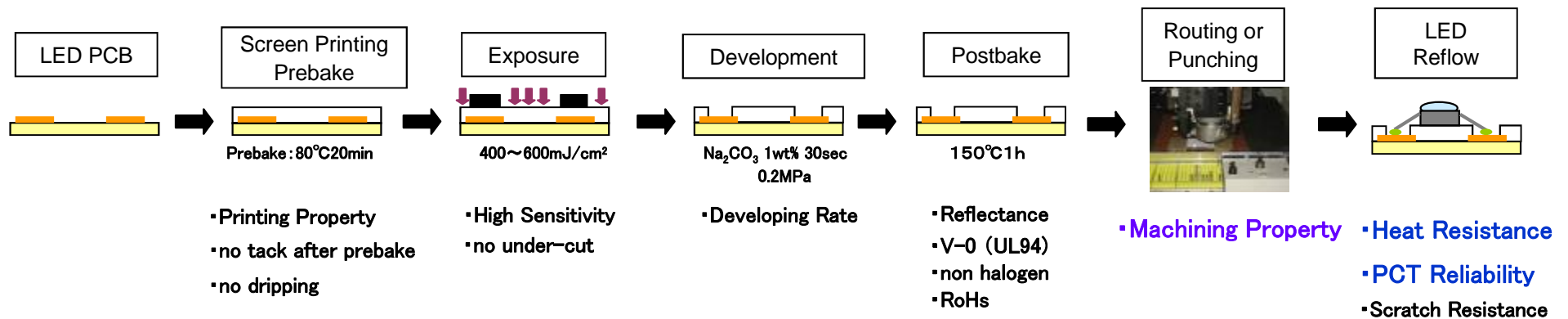
Features

SFR- 6

- ★ High Heat Resistance
(not yellowing & no crack)
- ★ High Process Adaptability
- ★ High Machining Property
- ★ High PCT Reliability



Process & Critical Property



Process Conditions in SEKISUI

Process	Equipment	Condition
Pretreatment		★FF-SSK0901 (MURATA KIKO) Rinse of Sulfuric Acid and Hydrogen Peroxide Mixture (30°C) 0.2MPa 15sec
Screen Printing		★SSA-PC560E (SERIA) Screen : #100 Tetron Screen (ca.22μm (23°C)) Squeegee Angle : 70°, Hardness : 70 Printing Pressure : 3.5kgf, Speed : 200mm/s Clearance Value : 5mm Doctor Speed : 100mm/s
Hold Time		10min
Pre-bake		80°C*20min
Exposure		★HMW-680GW (ORC) Metal Halide Lamp 7kW (Diffused Light) 400mJ/cm ² (on Resist)
Development		★YCD-500WA (YAMAGATA KIKAI) Na ₂ CO ₃ 1wt% (30°C) 30sec 0.2MPa
Post-bake		150°C*60min

Reflow Condition

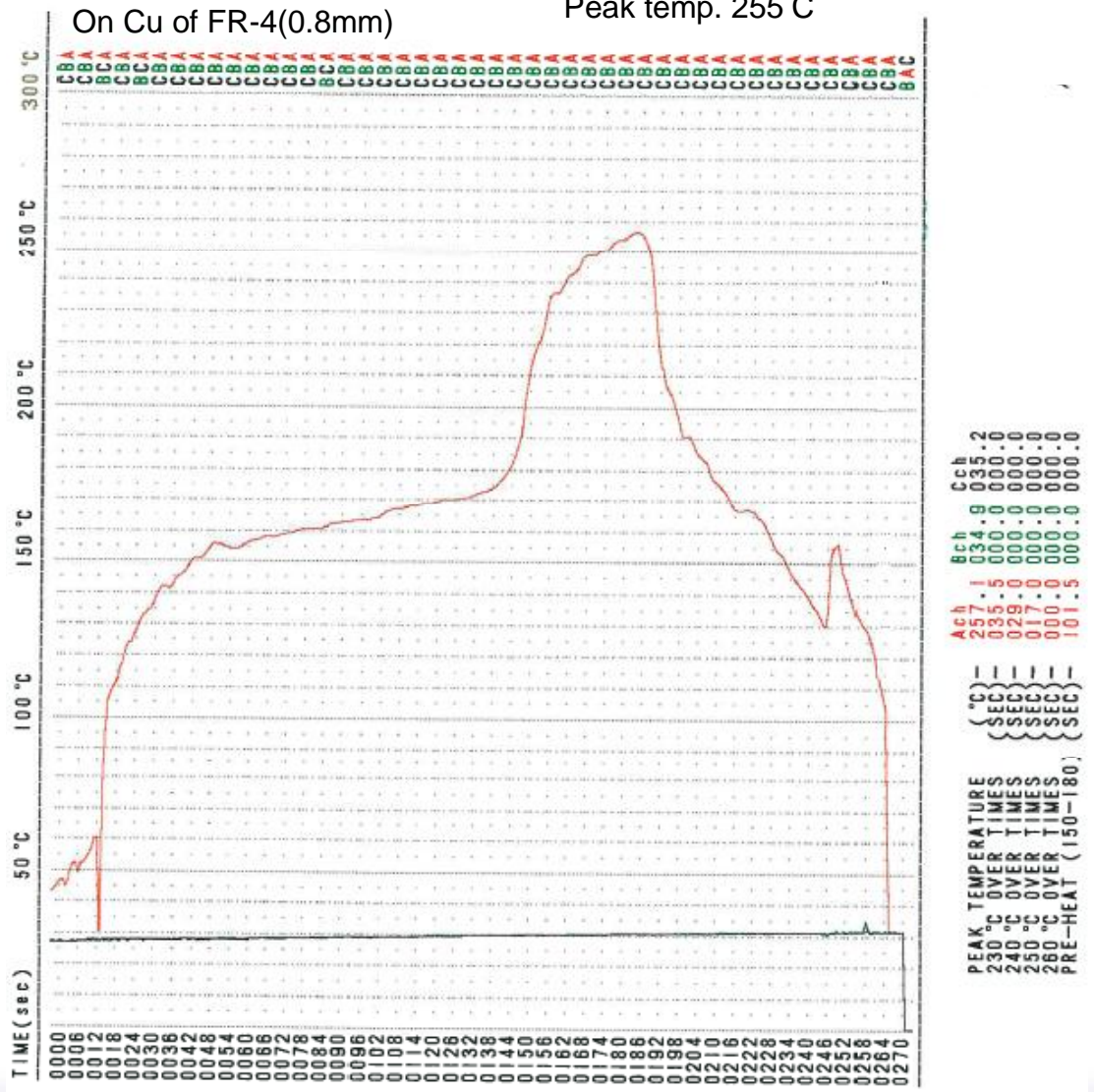
Reflow

ANTOM
UNI-5016F



Raw Profile

Recipe Name : SEKI-260-CU
230°C more 35sec
Peak temp. 255°C



Properties of SFR-6

AMC LSW-735 + S-700 W100

San-ei LE-6000S 505(韩国主流品)

Taiyo Ink WT03

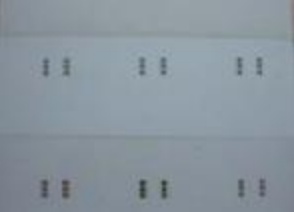




(Micro Control) MCP-100

Properties		SEKISUI SFR-6	Other Company A	Other Company B	Other Company C	Other Company D	
Thickness		21μm	20μm	23μm	30μm	24μm	
Initial Hue	Reflectance (Y Value)	81.9	72.5	86.7	71.2	79.9	
	L*	92.5	88.2	94.1	87.6	91.6	
	a*	0.3	-0.0	-0.4	-1.5	-0.7	
	b*	0.3	-4.9	0.4	-7.1	0.6	
	Gross (60°)	80	68	66	80	79	
Heat Resistance	Reflow x 5	Reflectance (Y Value)	80.7	72.2	87.2	70.1	79.8
		ΔE	0.8	1.2	1.0	4.5	0.9
	270°C 5min	Reflectance (Y Value)	81.0	71.8	86.7	69.7	78.3
		ΔE	0.7	2.5	1.3	6.5	4.6
	270°C 15min	Reflectance (Y Value)	77.2	68.5	83.9	61.4	74.4
		ΔE	5.6	7.9	5.8	21.3	8.6
	Process Adaptability	Photolithography	Dose	400mJ/cm ²	400mJ/cm ²	400mJ/cm ²	400mJ/cm ²
			Resolution (L/S)	60μm	90μm	90μm	90μm
Development Time (20μm)		20sec	45sec	28sec	25sec	20sec	
PCT 121°C 100%RH 2atm		300h OK	100h NG	120h NG	40h NG	200h NG	

PCT Test Results

Test Condition

Condition: 121°C 100%RH 2atm
 Sample: SFR-6, Other Company
 Check Point: Visual Check (Crack)

	Visual Check (Crack)	
SFR-6	300h OK	
Other Company A	100h NG	
Other Company B	120h NG	
Other Company C	40h NG	
Other Company D	200h NG	

Solvent, Chemical & Boiling Resistance

Test Method

☆ dipping test ••• solvent, acid, alkaline, boiling water

★ check point ••• IPC-SM-840C 3.6.1 compliance

Results

Properties		SFR-6
Solvent Resistance (23°C 2min dipping)	Isopropyl alcohol	OK
	Toluene	OK
	Propylene glycol mono-methyl ether acetate	OK
Chemical Resistance (23°C 30min dipping)	5% Sodium hydroxide aqueous solution	OK
	10% sulfuric acid	OK
	10% hydrochloric acid	OK
Boiling Resistance	100°C 2hours	OK

Other Data

Property		SFR-6
Adhesion ASTM D3002	on FR-4	Good (0)
	on Cu	Good (0)
Pencil Hardness	IPC-SM-840C 3.5.1 / IPC-TM-650TM 2.4.27.2	6H
Flammability	UL94	V-0
Amount of halogen	All chlorine (BS EN14582(2007))	<100 ppm
	All bromine (BS EN14582(2007))	None
RoHS	IEC62321 (Cd, Pb, Hg, Cr(VI), PBBs, PBDEs)	None

Ink Characteristics (SFR-6)

Ink Characteristics	SFR-6
Color Tone	White
Component Type	Two Component Type
Viscosity (after Mixing) (25°C, 10rpm)	ca. 15 Pa·s
After-Mixing Life (below 25°C)	24 hours
Shelf Life (below 20°C)	6 months

Recommended Process Condition

Process	Condition
Working Condition	Please use it under the yellow ramp wherever possible.
Stirring	ca. 100rpm, 20~40min
Deforming	ca. 10min
Screen Printing (23°C)	Screen : #100 Tetron Screen (ca. 23μm)
Hold Time	>10min
Pre-bake	80°C*20min
Exposure	400~600mJ/cm ² (on Resist)
Development	Na ₂ CO ₃ 1wt% (30°C) 25~50sec 0.2MPa
Post-bake	150°C*60min