



Liquid Photoimageable Solder Mask

	Grade	LP-4G G-05
Item		
Grade Description	Color	Green
	Hardener	HP-25D
	Mixing ratio	75/25 (Main agent/Hardener)
	Solid content	75±3%
	Viscosity (after mixing)	150~250 ps (25°C, VT-04 viscometer)
	Pot life (after mixing)	24 hours (below 25°C)
	Shelf life (before mixing)	9 months (below 25°C)
Using method	Pretreatment of circuit boards	1. Cleaning the boards with chemical or mechanical treatment is to avoid oil and oxide compound on the boards. 2. It make sure there are not residual water on the boards to bake the copper surface of them after rinse with water.
	Diluting	1. Ensuring the thickness of ink is above 15µm after curing. The usage of diluents is no suggested. 2. If the diluents must be used for special cases, please ensure the thickness of ink is suitable after curing. The diluents should be BCS or DPM. But the diluents can't be exceeded 3%.
	Printing	1. A polyester filament fabricated screen at 36~40T is recommendable. 2. It is necessary to keep the thickness of ink above 15µm after curing to ensure the soldering resistibility.
	Holding	10~20 minutes
	Pre-heating	◇ 1st side : 70°C/25 minutes~75°C/20 minutes Reverse side : 70°C/30 minutes~75°C/25 minutes ◇ Both sides : 70°C/50 minutes~75°C/45 minutes
	Cooling	Natural cooling to room temperature, the holding time will be excellent within 24 hours.
	Exposure	◇ 300~500 mJ/cm ² (on solder mask) ◇ 21 step sensitivity : 8~12 step
	Holding	10~20 minutes.
	Developing	◇ Developer : 0.8~1.2% Na ₂ CO ₃ (aq) ◇ Temperature of developer : 31~33°C ◇ Pressure of sprayer : 1.5~2.5 kg/cm ² ◇ Development time : 60~100 seconds
	Post-cure	◇ Immersion Ni/Au board : 150°C/60~155°C/50 minutes ◇ Hole-plugging solder board : (80~90°C/30 minutes) + (110~120°C/30 minutes) + (150~155°C/60~70 minutes) ◇ Others : 150~155°C/60~70 minutes

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Physical & Electrical Properties	1. Adhesion	100/100 (JIS D-0202)
	2. Pencil hardness	7H (JIS D-0202)
	3. Hot air solder leveling resistance	260°C / 10 seconds ×3 times
	4. Solder heat resistance	260°C / 10 seconds ×3 times
	5. Acid resistance (before solder)	≥ 30 minutes (10% H ₂ SO _{4(aq)} , 20°C)
	6. Alkali resistance (before solder)	≥ 30 minutes (10% NaOH _(aq) , 20°C)
	7. Solvent resistance	≥ 30 minutes (Trichloroethane , 20°C)
	8. Pressure cooker test	121°C 2atm, 5Hr
	9. Boiling test	100°C, 5Hr
	10. Dielectric strength	1000V DC/mil
	11. Volume resistance	1×10 ¹⁵ Ω · cm
	12. Surface resistance	5×10 ¹⁴ Ω
	13. Insulation resistance	5×10 ¹³ Ω
	14. Moisture & Insulation resistance	5×10 ¹⁰ Ω (In moisture) 1×10 ¹² Ω (Out of chamber)
	15. Dielectric loss factor (tan δ)	0.025 (1MHz)
	16. Dielectric constant (ε)	3.4 (1MHz)
	17. Flammability	UL 94V-0 (File No. E123174)
Note	<p>1. It has excellent heat resistance.</p> <p>2. It is good for development, less undercut, and compatible with high resolution PCB.</p> <p>3. For quality control, the product of solder mask must be well stored in the dark and controlled the temperature at 20~25°C when they are transported or in storage.</p> <p>4. Soldering must be finished within 10 minutes after flux coating. It can avoid the flux excessively corroding the copper foil.</p> <p>5. In assembly stage, the following factors will make the solder mask failed. Please check those factors before using.</p> <p>(1) The thickness of ink is insufficiency (below 15μm).</p> <p>(2) Ink has been cured deficiently.</p> <p>(3) Different flux makes different corrossions on the mask.</p> <p>(4) The concentration of flux is too high. (over supplier had been suggested) Or flux is coated too much.</p>	

※Above process condition just for reference purpose is not for guarantee.