Liquid photoimageable solder mask (KSM-S6189)

KSM-S6189 is two-component , screen printing , high precision , lye-development solder mask ink. It is applicable to double-sided board and multi-layer board for making thin and intensive circuit. It has good screen printing adaptability and good surfacing. The post cured film provides excellent adhesion , resistance to chemicals and heat.

KSM-S6189 series of all the color ink has passed the safety certification of UL94 V-0.

KSM-S6189 series has a variety of colors to choose , good color stability , good screen printing adaptability and excellent adhesion , high resistance to chemicals and heat. It has extensive operating conditions . This liquid photoimageable solder mask possesses easy operation and is wildly accepted.

Surface Treatment	Spray Tin	Fill with ink in the hole	Chemical plating Aurum	OSP	Chemical plating Tin
Adaptability	◎	○	◎	◎	○
Time of pre-baked （75℃）	40 min	50 min	60 min	70 min	80 min
Adaptability	◎	◎	○	△	×
Production capacity of the smallest solder-dam			2mil		

KSM-S6189 E series is low halogen environmental protection solder mask ink. The halogen content is below 600ppm. The ink has bright and stable color, good screen printing adaptability and high resistance to chemicals and heat , easy operation and environmental protection.

Surface Treatment	Spray Tin	Fill with ink in the hole	Chemical plating Aurum	OSP	Chemical plating Tin
Adaptability	◎	○	◎	◎	○
Time of pre-baked （75℃）	40 min	50 min	60 min	70 min	80 min
Adaptability	◎	◎	○	△	×
Production capacity of the smallest solder-dam			2mil		

KSM-S6189 tamponade series solder mask ink is dedicated to Aluminum slice , which has high solid content, good flow performance , low curing shrinkage and good compatibility with other series of Liquid photoimageable solder mask. The ink in the hole is full, flat, no dehiscence , light transmission and taphole break.

Surface Treatment	Spray Tin	Fill with ink in the hole	Chemical plating Aurum	OSP	Chemical plating Tin
Adaptability	◎	○	◎	◎	○
Time of pre-baked （75℃）	40 min	50 min	60 min	70 min	80 min
Adaptability	◎	◎	○	△	×
Production capacity of the smallest solder-dam			2mil		

P.S. : “◎”excellent , “○”good , “△”general , “×”poor

1. Type of ink

Type of Base	Color	Type of Base	Color
KSM-S6189 Green series , Type of hardener: KSM-19H01			
KSM-S6189GL01	Light green	KSM-S6189GL02	Medium green
KSM-S6189GL05	Deep green	KSM-S6189GL06	Medium green
KSM-S6189GL08	Deep green	KSM-S6189GL10	Deep green
KSM-S6189GL12	Medium green	KSM-S6189GL13	Deep green
KSM-S6189GL16	Medium green	KSM-S6189GL17	Light green
KSM-S6189GL22	Light green	KSM-S6189GL23	Deep green
KSM-S6189GL30	Light green	KSM-S6189GL31	Light green
KSM-S6189GL33	Deep green	KSM-S6189GL35	Deep green
KSM-S6189GL39	Light green	KSM-S6189GM61	Green and matt
KSM-S6189GM62	Deep green and matt	KSM-S6189GM63	Medium green and matt
KSM-S6189 versicolor series , Type of hardener: KSM-19H01			
KSM-S6189BL01	Blue	KSM-S6189BL02	Deep blue
KSM-S6189R01	Red	KSM-S6189KM01	Black and matt
KSM-S6189YL01	Yellow	KSM-S6189BK31	Black
KSM-S6189WT21	White	KSM-S6189WT31	Deep white
KSM-S6189 E low halogen series , Type of hardener: KSM-19E01			
KSM-S6189EG01	halogen-free light green	KSM-S6189EG05	halogen-free deep green
KSM-S6189EG02	halogen-free medium green	KSM-S6189EBL1	halogen-free blue
KSM-S6189EGM1	halogen-free light green and matt	KSM-S6189EBK2	halogen-free black
KSM-S6189 tamponade series , Type of hardener: KSM-19H01			
KSM-S6189GLS1	Light green	KSM-S6189GLS2	Light green

2. Properties of Ink

Items	Features	Notes
Color	Green, Blue, Black, Yellow, White, Red	
Fineness	≤8μm	0 ~25μm Fineness gauge
Mix ratio	Base/Hardener=3:1	Weight ratio
Solid content after mixing	74±3%	
	84±3%	tamponade series
Viscosity after mixing (25℃)	200±30 dPa · s	VT-04F, Bright surface ink
	300±50 dPa · s	VT-04F, matt and tamponade series
Density after mixing (25℃)	1.30 ~1.50 g/ml	
Pot life after mixing	24 hour	Store below 25℃ in dark
Environment standard	In compliance with RoHs directives	SGS testing
Halogen content	≤600ppm	Only KSM-S6189 E series
Pre-baking limit	75℃ , 70 min	
Exposure energy	300 ~600 mJ/cm^2	The effective value through the polyester film
Package	Base :750g , Hardener :250 g	According to customer requirements
	Base :3kg , Hardener :1kg	
Shelf life	6 months since the date of manufacture	Store below 25℃ in dark

3. Properties of the film (after post cured)

Items	Features	Notes
Pencil hardness	≥6H	Pencil harder
Solvent resistance	Good	25℃, C_2H_5OH , 20min
Acid resistance	Good	25℃,10vol%H_2SO_4 ,20min
Alkali resistance	Good	25℃,10vol%NaOH ,20min
Insulation resistance	≥$1.0\times10^{12}\Omega$	IPC-SM-840D 3.8.2
Resistance to molten solder	288℃×10secends×3times OK	IPC-SM-840D 3.7.3
Resistance to flame	UL94V-0	Certified number:UL-E189612

Attention :

1. The base and hardener should be mixed according to the ratio and stirred thoroughly before using.
2. We will offer you special diluent or DPM if the ink need dilute.
3. The values above are based on experiments in our lab. Experiments need to be carried out in order to get proper using condition.

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Directions of use

1.Working procedure

Procedure	Content
(1) Mixing	Mixing a small amount main agent with hardener and stirring thoroughly, then mixing the mixture above with the remanent main agent， add appropriate diluent and stirring 5 ~10 minutes. The viscosity of ink is adjusted to 120±20 ps if printed by hand. And it is adjusted to 180±20 ps if printed by machine. it is adjusted to 200±40 ps if it is aluminum tamponade .The viscosity of ink mixed above is measured at 25 ℃. Please use the special diluent of our company if the viscosity of ink needs to adjust.
(2) Remain time	10 ~15 minutes after stirring uniformly
(3) Screen mesh	Ordinary boards:43T ; Chemical-plating Aurum or Tin boards:36T
(4) Pre-baking	1. Single side printing separately First side :72 ~76℃ ,15 ~18min Second side : 72 ~76℃ , 30 ~35min 2. Double sides printing simultaneously : 72 ~76℃ , 30 ~50min
(5) Exposure	300 ~500 mJ/cm^2 ， Black ink :600 ~750 mJ/cm^2 (the effective value through the polyester film)
(6) Developing	Developing solution :0.8 ~1.2wt%Na_2CO_3 or K_2CO_3 aqueous solution Developing solution temperature :28 ~32℃ Spray pressure :1.5 ~2.5 kg/cm^2 Developing time :40~90 seconds
(7) Post cure	Spray Tin board :150℃×(60 ~120) min Chemical-plating Aurum board:150℃×(45 ~55) min Thick copper plate , boards printed with black ink should be post-baked in subsection:75℃×(60 ~120) min+100℃×30 min+150℃×(60 ~90) min