

FL1601

Water-base No-clean Lead-free Soldering Flux

Currently, the majority of fluxes rely on volatile organic compounds (VOCs) as solvents, which pose environmental and health risks due to their flammability and harmful effects. As a response to these issues, FL-1601 utilizes deionized water as a solvent instead of VOCs, offering a solution to the drawbacks associated with traditional solvents. This innovative approach allows for the use of various lead-free solders and delivers outstanding application results. FL-1601 represents a novel environmentally friendly lead-free solder and an optimal water-based flux that requires no cleaning.

FEATURE

- Low surface tension and high solderability and flowability, patented product.
- Strong wettability and excellent ability of tin-penetration.
- The residues after welding are spread evenly, high reliability.
- Contains no VOC substances, no RoHS and other environmentally banned substances; non-flammable, safe to use, environmentally friendly flux.

APPLICATION

It is applied to various lead-free solders and widely used in power source, communication devices, audio devices, refrigeration devices, medical appliances etc. It can be used with techniques of spraying, dipping and expanding foam.

TECHNICAL TABLE

Items	Technical Parameters	Standards
Part Number	FL-1601	/
Flux Classification	ORLO	J-STD-004A
Appearance	Colorless transparent liquid	/
Solid content (wt %)	3.00 ± 0.80	GB/T 9491-2002 5.4
Specific Gravity (20°C)	0.979 ± 0.010	/
Acid Value (mg KOH/g)	22.00 ± 5.00	JPC-TM-650 2.3.13
Expansion Rate (%)	≥75	JIS-Z-3197 8.3.1.1
Chromate Paper Test	PASS	JPC-TM-650 2.3.33
Copper Mirror Corrosion	PASS	JPC-TM-650 2.3.32
Corrosion Test	PASS	JPC-TM-650 2.6.15
SIR (Ω)	≥1.0x10 ⁸	JPC-TM-650 2.6.3.3
ECM	PASS	JPC-TM-650 2.6.14.1
RoHS	PASS	RoHS Directive

PROCESS CONTROL

- **When used for spraying:** Pay attention to clean the nozzle to achieve the best atomized effect and make the PCB board to pass from the optimum atomized area, in order to make sure uniform distribution of spraying. Don't apply the flux to the surface of component.
- **When used for dipping:** The part of PCB board dipped in the flux should not be over 2/3 thickness of the board. Don't dip the flux to the top-side of component.
- **FL-1601** uses deionized water as the solvent. The boiling point of water is 100 °C . The preheating temperature is required during use. The measured temperature on the top surface of the PCB board is above 100 °C . In this way, the water in the PCB board surface and the through holes can be evaporated to prevent Solder splashes, producing solder balls.

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ADVISING PARAMETER

Items	Parameters	Remarks
Top-Side Preheat Temperature (°C)	110-130 (double-side board)	100-120 (single-side board)
Bottom Side Preheat Temperature (°C)	120-140 (double-side board)	110-130 (single-side board)
Temperature of Solder Bath (°C)	255-275	Determined by solder alloy requirement
Transfer Speed (m/min)	1.0-1.5	/
Contact time in the Solder (S)	2.5-5.0	/
Anger of track (°)	5-8	/
Coated amount (Solid Amount) (µm/cm ²)	Single wave : 160-260 Double wave : 180-320	Don't apply the flux to the surface of component.
Package	20 liters/barrel, 25 liter/barrel, 200 liter/barrel, 5 gal/barrel	

NOTICE

- The lid must be covered tightly to avoid the specific gravity of flux changing by the solvent evaporation after part of flux is used.
- The flux used can't be mixed with the flux unused in the same barrel.
- Keep flux-container clean to prevent dirt and other substances mixed with the flux and affect the quality of flux.
- Please refer to its MSDS as the source of health and safety information.

The data contained in this bulletin is provided only as a guide for evaluation/consideration. These material characteristics are typical properties that are based on a limited number of samples tested in the laboratory. We cannot assume responsibility for results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any product or method. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide.