



SOLDER CONNECTION

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QUALITEK® Technical Bulletin

NC601E Sn62/Pb36/Ag2 Solder Wire

DESCRIPTION

A no clean cored solder wire that is available with both lead-containing alloys and lead-free tin/silver copper alloys. NC601 contains purely organic acid activators so leaves minimal residue and spreads like an RA type cored solder wire. NC601 exhibits virtually no spattering and conforms to IPC-J-STD-004B.

FEATURES AND BENEFITS

- Excellent wettability
- Non-tacky residues
- RoHs compliant
- Colophony/Rosin Free

FEATURES AND BENEFITS

	Specification	Test Method
Color & Appearance	Light yellow solid	Visual
Flux Classification	ORL0	IPC-J-STD-004B
Copper Mirror	No removal of copper film	IPC-TM-650 2.3.32
Corrosion	Pass	IPC-TM-650 2.6.15
SIR	>1 x 10 ⁸ ohms	IPC-TM-650 2.6.3.3
Post Reflow Flux Residue	55%	TGA Analysis
Acid Value	280 - 320	IPC-TM-650 2.3.13
Flux Residue Dryness	Pass	IPC-TM-650 2.4.47
Spitting of Flux-Cored Solder	0.3%	IPC-TM-650 2.4.48
Solder Spread	100 mm2	IPC-TM-650 2.4.46

WIRE DIAMETER

Sn62/Pb36/Ag2 NC601E Delta Solder Wire is available in a variety of diameters. The chosen diameter is based on application methods, pad size, and desired solder joint volume. Generally, the diameter of the wire should be slightly larger than the width/diameter of the joint or connection to be soldered. Below is a list of standard diameters.

Diameter/Inch	0.125	0.092	0.062	0.050	0.040	0.032	0.028	0.025	0.020	0.015
Diameter/mm	3.18	2.33	1.57	1.27	1.01	0.81	0.71	0.63	0.51	0.38
Std. Wire Gauge	11	13	16	18	19	21	22	23	25	28
Tolerance, in.	+/-0.006	+/-0.005	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002

FLUX PERCENTAGE

Utilizes a state-of-the-art automatic wire extrusion and wire drawing machines to manufacture consistent solder. The introduction of flux core in the wire extrusion process involves continual monitoring of flux percentage to ensure minimal flux voids and irregular wire. Typical flux percentage for leaded solder solder is 1.1 – 3.3%.

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PHYSICAL PROPERTIES

A no clean resin-based core flux with alloy composition, Sn62/Pb36/Ag2, which is a non-eutectic alloy. Sn62/Pb36/Ag2 alloy conforms to and exceeds the impurity requirements of IPC-J-STD-006C.

TYPICAL ANALYSIS

Typical Analysis													
Sn	Pb	Cu	Ag	Sb	Bi	In	As	Fe	Ni	Cd	Al	Zn	Au
61.5–62.5	Bal.	0.080 Max	1.8 – 2.2	0.200 Max	0.100 Max	0.010 Max	0.030 Max	0.020 Max	0.010 Max	0.002 Max	0.005 Max	0.003 Max	0.050 Max

	Sn62/Pb36/Ag2
Melting Point, °C	179 - 189
Hardness, Brinell	14 HB
Coefficient of Thermal Expansion	27.0
Tensile Strength, psi	4442
Density, g/cc	8.50
Electrical Resistivity, (μohm-cm)	14.5
Electrical Conductivity, 10 ⁴ /ohm-cm	6.9

	Sn62/Pb36/Ag2
Yield Strength, psi	3950
Total Elongation %	48
Joint Shear Strength, at 0.1mm/min 20 °C	37.0
Joint Shear Strength, at 0.1mm/min 100 °C	16.2
Creep Strength, N/mm ² at 0.1mm/min 20 °C	3.3
Creep Strength, N/mm ² at 0.1mm/min 20 °C	1
Thermal Conductivity, W/m.K	50.9

FLUX RESIDUES & CLEANING

NC601 is a no clean formulation; therefore, residue removal is not required for typical applications.

STORAGE & SHELF LIFE

Solder wire storage should be in a 65-80 °F environment away from direct heat. We recommend using gloves when handling solder wire directly. Solder wire has an indefinite shelf life.

DISPOSAL

Sn62/Pb36/Ag2 NC601E leaded solder should be disposed of in accordance with federal, state & local authority requirements.

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