



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 in lead-containing 60/40 alloy. NC601E 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
- Low Splattering
- 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 mm ²	IPC-TM-650 2.4.46

WIRE DIAMETER

Sn60/Pb40 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%.

PHYSICAL PROPERTIES

An organic-based core flux with alloy composition, Sn60/Pb40 conforms to and exceeds the impurity requirements of IPC-J-STD-006C.

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TYPICAL ANALYSIS

Typical Analysis													
Sn	Pb	Ag	Al	As	Au	Bi	Cd	Cu	Fe	In	Ni	Sb	Zn
59.5 -60.5	Bal	0.100 Max	0.005 Max	0.030 Max	0.050 Max	0.100 Max	0.002 Max	0.080 Max	0.020 Max	0.100 Max	0.010 Max	0.200 Max	0.003 Max

	Sn60/Pb40
Melting Point, °C	183 - 188
Hardness, Brinell	16 HB
Coefficient of Thermal Expansion	23.9
Tensile Strength, kgf/cm ²	535
Tensile Elongation, %	40
Density, g/cm ³	8.50
Electrical Resistivity, (μΩ-cm)	15.3
Thermal Conductivity, W/m-K	49

FLUX RESIDUES & CLEANING

NC601E is a no clean formulation; therefore, the residues do not need to be removed for typical applications. If residue removal is desired, the use of Everkleen 1005 Buffered Saponifier with a 5-15% concentration in hot 60 °C (140 °F) de-ionized water will aid in residue removal.

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

Sn60/Pb40 NC601E leaded solder should be disposed of in accordance with federal, state & local authority requirements.

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