



SOLDER CONNECTION

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QUALITEK® Technical Bulletin

NC600 SN100E SOLDER WIRE

DESCRIPTION

Delta® Solder Wire NC600 SN100e is a no clean formulation, comprising of tin, copper and cobalt that provides better product performance than Sn/Cu/Ni alloys; and is more cost effective than SAC alloys. NC600 contains a synthetically refined resin and very effective activator so spreads like an RA type flux core. NC600 exhibits virtually no spattering and leaves minimal residue

FEATURES AND BENEFITS

- Excellent wettability
- Yields clear, non-conductive residues
- RoHs compliant

FEATURES AND BENEFITS

Colour & Appearance	Specification	Test Method
Flux Classification	Light yellow opaque solid RELO	Visual J-STD-004
Copper Mirror	No removal of copper film	IPC-TM-650 2.3.32
Corrosion	Pass	IPC-TM-650 2.6.15
SIR		
JSTD-004, Pattern Down	>1 x 10 ⁸ ohms	IPC-TM-650 2.6.3.3
Acid Value (mgKOH/g)]	190-210	IPC-TM-650 2.3.13
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

Delta Solder Wire NC600 with Sn100e alloy 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	0.010
Diameter/mm	3.18	2.33	1.57	1.27	1.01	0.81	0.71	0.63	0.51	0.38	0.25
Std.Wire	11	13	16	18	19	21	22	23	25	28	31
Gauge											
Tolerance, in.	+/-0.006	+/-0.005	+/-0.003	+/-0.003	+/-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 SN100e alloy solder is 1.1 – 3.3%.

PHYSICAL PROPERTIES

Utilising a no clean resin based core flux, NC600 Sn100e (Sn/Cu/Co) alloy, conform to and exceed the impurity requirements of IPC-J-STD-006C.

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TYPICAL ANALYSIS

Typical Analysis														
Sn	Ag	Cu	Pb	Sb	Bi	In	As	Fe	Ni	Cd	Al	Zn	Au	Co
Bal	0.100 Max	0.3- 0.7	0.070 Max	0.200 Max	0.100 Max	0.100 Max	0.030 Max	0.020 Max	0.010 Max	0.002 Max	0.005 Max	0.003 Max	0.050 Max	0.03- 0.07

	Sn100e
Melting Point, °C	228 E
Hardness, Brinell	9 HB
Coefficient of Thermal Expansion	Pure Sn= 23.5
Tensile Strength, Mpa	28
Density, g/cc	7.40
Electrical Resistivity (μohm-cm)	0.123
Thermal Conductivity (J/m-s-K)	82

FLUX RESIDUES & CLEANING

NC600 is a no clean formulation; therefore, residue removal is not required 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

NC600 SN100e solder should be disposed of in accordance with federal, state & local authority requirements.

The information contained herein is based on data considered accurate and is offered at no charge. No warranty is expressed or implied regarding the accuracy of this data. Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of the materials designated.