

# SOLDER CONNECTION

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## QUALITEK® Technical Bulletin

### Delta RA300 62/36/2 Rosin Activated Solder Wire

#### DESCRIPTION

RA300 62/36/2 contains a rosin activated core which has extremely rapid wetting action and excellent flowing properties. RA300 residues are non-corrosive and electrically non-conductive. RA300 conforms to IPC-J-STD-004B specifications

#### FEATURES AND BENEFITS

- Excellent wettability and solder flow
- Non-corrosive, non-conductive residues
- Rosin Based Solder
- Cleaning is not required but it will clean easily if required
- High SIR value

#### FEATURES AND BENEFITS

Flux Classification	Specification	Test Method
Softening Point	ROM1	J-STD-004
Copper Mirror	80 °C	
Corrosion	Partial removal of copper film	IPC-TM-650 2.3.32
SIR	Pass	IPC-TM-650 2.6.15
JSTD-004, Pattern Down	>1.0 x 10 <sup>10</sup>	IPC-TM-650 2.6.3.3
Electromigration	Pass	Bellcore GR-78-CORE 13.1.4
Post Reflow Flux Residue	60%	TGA Analysis
Acid Value (mgKOH//g)	150 - 160	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 <sup>2</sup>	IPC-TM-650 2.4.46

#### WIRE DIAMETER

Delta Solder Wire RA300 62/36/2 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	+/-0.003	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002

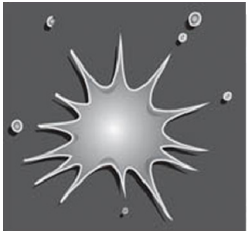
#### FLUX PERCENTAGE

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 leaded solder is 1.1 – 3.3%.

#### PHYSICAL PROPERTIES

A no clean resin based core flux with alloy composition 62/36/2. 62/36/2 alloys conform to and exceed the impurity requirements of IPC-J-STD-006C.

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## 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 <sup>4</sup> /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 <sup>2</sup> at 0.1mm/min 20 °C	3.3
Creep Strength, N/mm <sup>2</sup> at 0.1mm/min 20 °C	1
Thermal Conductivity, W/m.K	50.9

## FLUX RESIDUES & CLEANING

RA300 is a rosin activated formulation containing non-conductive residues, so residues do not need to be removed for typical applications. However, if residue removal is desired, please contact one of our sales offices to discuss your application.

## 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

RA300 62/36/2 solder should be disposed of in accordance with federal, state & local authority requirements.

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