



RMA200 (Sn96.5/Ag3.5)
LEAD FREE
R.M.A. DELTA®
SOLDER WIRE

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Description

Flux Core

Delta® Solder Wire RMA200 contains a rosin mildly activated core that is available with both lead-containing alloys and lead-free alloys, such as Sn/Ag/Cu and Sn/Ag alloys. RMA200 has been formulated for use in high reliability electronic assembly where pure rosin core does not provide fast spreading and wetting action; and activated rosin residues may be electronically less reliable. RMA200 conforms to IPC-J-STD-004B specifications.

Main Features

- Excellent wettability
- Non-corrosive, non-conductive residues

Technical Data (Flux Extract)

Flux Classification	Specification	Test Method
	ROLO	IPC-J-STD-004B
Softening Point	92 °C	
Copper Mirror	No removal of copper film	IPC-TM-650 2.3.32
Corrosion	Pass	IPC-TM-650 2.6.15
SIR		
J-STD-004, Pattern Down	3.21 x 10 ¹⁰	IPC-TM-650 2.6.3.3
Post Reflow Flux Residue	50%	TGA Analysis
Acid Value (mgKOH//g)	190 - 210	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

Sn96.5/Ag3.5 RMA200 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.

Standard wire diameters

Diamter/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 Gauge	11	13	16	18	19	21	22	23	25	28	31
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

Qualitek 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 lead free solder is **2.2-3.3%**.

Physical Properties

Solder Composition

Qualitek® Sn96.5/Ag3.5 is a eutectic lead-free alloy that conforms to and exceeds the impurity requirements of IPC-J-STD-006C and all other relevant international standards.

Typical Analysis													
Sn	Ag	Cu	Pb	Sb	Bi	In	As	Fe	Ni	Cd	Al	Zn	Au
Bal	3.0-4.0	0.080 Max	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

	Sn96.5/Ag3.5
Melting Point, °C	221 E
Hardness, Brinell	15HB
Coefficient of Thermal Expansion	Pure Sn= 30.2
Tensile Strength, psi	3873
Density, g/cc	7.5
Electrical Resistivity (μohm-cm)	12.3
Electrical Conductivity IACS	14.0

	Sn96.5/Ag3.5
Yield Strength, psi	3256
Total Elongation,%	24
Joint Shear Strength, at 0.1mm/min 20 °C	27
Joint Shear Strength, at 0.1mm/min 100 °C	17
Creep Strength, N/mm ² at 0.1mm/min 20 °C	13.7
Creep Strength, N/mm ² at 0.1mm/min 100 °C	5
Thermal Conductivity, W/m.K	55.3

Flux Residues & Cleaning

RMA200 is a rosin mildly activated formulation containing non-corrosive residues, so residues do not need to be removed for typical applications. However, 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

Delta 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.

Packaging

Qualitek flux-core wire and solid wire are packed in

12.5lb -box of ½ lb spools

25 lb -box of 1 lb spools

12.5kg -box of ½ kg spools

8 kg -box of 1kg spools

40 lb -box of 5 lb spools

20 lb -box of 20 lb spools

Disposal

Delta Solder Wire RMA200 lead free solder should be disposed of in accordance with federal, state & local authority requirements.