SOLDER ECOLOY TSC355

Lead-free alloy for electronics

DESCRIPTION

Stannol Ecoloy TSC355 (Sn96Ag3.5Cu0.5) is a lead-free solder similar to S-Sn95.5Ag3.8Cu0.7 (DIN EN ISO 9453/alloy no. 713). Stannol Ecoloy TSC355 was designed to substitute the use of tin-lead alloys in all assembly operations of electronics manufacturing. Where lead has already been eliminated from PCBs and component surfaces, a complete lead-free process for manufacturing can be installed, using Stannol Ecoloy TSC355.

Stannol Ecoloy TSC355 has a reduced part of silver and copper.

CHARACTERISTICS

The product offers the following advantages:

- **Proven in production use for electronics manufacturing**
- **Low melting point of high-tin alloys**
- **Near eutectic alloy (defined melting range)**
- **Enhanced wetting characteristics**

APPLICATION

Some adjustments have to be made on production equipment, e.g. setting of temperature profiles in the reflow equipment. The properties of the resulting solder joints will perform as well as tin/lead solder joints or even better in all respects.

PHYSICAL PROPERTIES AND DATA OF LEAD-FREE ECOLOY ALLOYS COMPARED TO S-Sn63Pb37

GENERAL PROPERTIES	S-Sn63Pb37**	STANNOL ECOLOY TSC355 (Sn96Ag3.5Cu0.5)	STANNOL ECOLOY TC (S-Sn99.3Cu0.7)**	STANNOL ECOLOY TSC (S-Sn95.5Ag3.8Cu0.7)**
Melting point, °C:	183	**217-220**	227	217
Electrical Conductivity, %IACS:	11.9	**13**	15.6	13
Electrical Resistively, µΩcm:	14.5	**13**	12.6	13
Brinell Hardness, HB:	17	**15**	9	15
Density, g/cm³:	8.4	**7.5**	7.3	7.5
Tensile strength, (20°C) N mm⁻² at 0,004 s⁻¹ strain rate:	40	**n.b.**	---	48
Joint shear strength N mm⁻² at 0,1mm⁻¹, 20°C:	23	**n.b.**	23	27
N mm⁻² at 0,1mm⁻¹, 100°C:	14		16	17
Creep strength* N mm⁻² 20°C:	3.3	**n.b.**	8.6	13.0
N mm⁻² 100°C:	1.0		2.1	5.0

* shear stress for 103 hours to failure

** Complying with DIN EN ISO 9453

Haberstr. 24 • 42551 Velbert • Tel: +49 (0)2051-3120-0 • Fax: +49 (0)2051-3120-111 • E-Mail: info@stannol.de • www.stannol.de

RECOMMENDED CONDITIONS FOR USE

Wave soldering: The use of Ecoloy TSC355 for solder bath application requires operating temperatures of approx. 260 to 280°C. It is necessary to find out the optimum temperatures, which can differ depending on the type of PCB and the types of components. The usage of inert gas brings a considerable extension of the process window. The wetting of the solder will be easier, and there will be no excessive solder on the PCBs when leaving the wave. Moreover the formation of dross will be minimised considerably.

SUPPLY FORMS

Solder Wire (solid), Triangular bars, Kg-bars, Ingots with hanging hole

HEALTH AND SAFETY

Before use please read the material safety data sheet carefully and observe the safety precautions described.

NOTICE

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