

# Electronic **BALVER ZINN**<sup>®</sup>

## Technical Data Sheet

### BALVER ZINN SOLDER

#### SCAN-Ge

#### SnCuAgNi-Ge

### General Information

The **BALVER ZINN SCAN-Ge** series are patented alloys with different contents of copper and silver. By addition of Nickel and Germanium **The BALVER ZINN SCAN-Ge** shows better fluidity in comparison to standard silver containing alloys. **BALVER ZINN SOLDER SCAN-Ge** shows shiny solder joints with fine grained and homogenous microstructure in comparison to standard SnAg3.0Cu0.5. In the **BALVER ZINN SOLDER SCAN-Ge** formulation Ge plays the role of antioxidant, preferentially reacting with oxygen to protect the solder from the oxidation that results in the formation of dross. Ge is also appropriate for less copper dissolution better wetting time and reduction of bridging. By the fine grained microstructure and the high ductility the **SCAN-Ge** series is in reliability similar with the very known lead-free alloy **BALVER ZINN SN100C**<sup>®</sup> (SnCuNiGe). **BALVER ZINN SOLDERS SCAN-Ge** series are part of the new micro – alloyed lead-free solder based on SnAg.

**BALVER ZINN SOLDER SCAN-Ge** does not contain hazardous substances beyond the limits prescribed by EU Directive 2011/65/EU (“RoHS II”)

Further information are available in the **BALVER ZINN information „Lead-free wave soldering.“** Technical information and Data Sheets can be found on our website ([www.BALVERZINN.com](http://www.BALVERZINN.com)). You can also obtain all information and documents directly from **BALVER ZINN**.

### BALVER ZINN Product Range

The **BALVER ZINN** product range includes, in addition to solder bars, solder pastes, solder wires and soldering fluxes. Balver Zinn offers besides the alloy **SN100C**<sup>®</sup> **BALVER ZINN** a full range of patented and unpatented solders for wave soldering, reflow soldering and rework. More news from **BALVER ZINN: SN100CS; SN100CLS!**

### General Process Information

- When the copper content of a working wave solder pot exceeds 0.85% there is likely to be an increase in soldering defects, particularly bridging. To help you keep the copper content in the right range **BALVER ZINN** offer a prompt and complimentary solder bath analysis service.
- Because of the silver content **SCAN-Ge** is aggressive to the stainless steel used to make the pots and pumps of wave soldering machines. It should be used only in machines with a plated pots.
- Although with the right Ge level **SCAN-Ge** is resistant to oxidation, where circumstances result in a high tendency to dross production the use of a nitrogen blanket on the solder bath can be useful

<b>Alloy name</b>	<b>Patentee</b>	<b>Area of applicability</b>	<b>Patent-No.</b>
<b>SN100C</b> <sup>®</sup>	Nihon Superior	World wide	EP 0.985.486 JP 3.152.945 / USP 6.180.055
<b>SN97C</b>	IOWA State / Ames Senju / Matshushita	USA, Japan	USP 5.527.628 / JP 3.027.441
<b>SN96C</b>	IOWA State / Ames Senju / Matshushita	USA, Japan	USP 5.527.628 / JP 3.027.441
<b>SN96CI</b> <b>i-SAC</b>	IOWA State / Ames	USA	USP 6.231.691B1
<b>SCAN-Ge</b>	Fuji Electronic	Japan <sup>(1)</sup> USA, Deutschland	JP 3.296.289 USP 6.179.935B1 / DE 19.816.671C2

### Process Conditions for Wave Soldering

- Solder bath temperature 260 – 270°C. Please note that it is not the solder temperature but the temperature measured on the components that determine that thermal stress to which the component is subjected!
- Before entering the wave, the printed circuit boards should be about 110 – 135°C, measured on the top surface, are usual conditions. Here, the old rule applies: “Do not try to use the wave for preheating”!
- Contact time 3 – 5 seconds.

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#### Composition of the Alloy according to WBZ TripleX: 2009

Alloy name	Typical alloy composition	Sn	Cu	Ag	Ni	Ge	Al	As	Au	Bi	Cd	Fe	In	Pb	Sb	Zn
SCAN-Ge 0703	SnCu0,7Ag0,3NiGe	Rest / Remainder	0,6 – 0,7	0,2 – 0,3	0,04 ... 0,06	0,009 ... 0,011	Max. 0,001	Max. 0,03	Max. 0,03	Max. 0,03	Max. 0,002	Max. 0,02	Max. 0,03	Max. 0,05	Max. 0,05	Max. 0,001
SCAN-Ge 0705	SnCu0,7Ag0,5NiGe			0,4 – 0,5												
SCAN-Ge 0708	SnCu0,7Ag0,8NiGe			0,7 – 0,8												
SCAN-Ge 071	SnCu0,7Ag1,0NiGe			0,9 – 1,1												
SCAN-Ge 072	SnCu0,7Ag2,0NiGe			1,8 – 2,2												
SCAN-Ge 073	SnCu0,7Ag3,0NiGe			2,8 – 3,2												
SCAN-Ge 074	SnCu0,7Ag3,8NiGe			3,6 – 4,0												
SCAN-Ge 053	SnCu0,5Ag3,0NiGe		0,4 – 0,6	2,8 – 3,2												
SCAN-Ge 0003	SnAg0,3NiGe		max. 0,2	0,2 – 0,3												
SCAN-Ge 0005	SnAg0,5NiGe			0,4 – 0,5												
SCAN-Ge 0008	SnAg0,8NiGe			0,7 – 0,8												
SCAN-Ge 001	SnAg1,0NiGe			0,9 – 1,1												
SCAN-Ge 002	SnAg2,0NiGe			1,8 – 2,2												
SCAN-Ge 003	SnAg3,0NiGe			2,8 – 3,2												
SCAN-Ge 004	SnAg3,8NiGe			3,6 – 4,0												

#### Storage Conditions / Durability

Dry storage at room temperatures

#### Safety Advice

Before use please refer to the appropriate Safety Data Sheet.

#### Physical properties of SCAN-Ge

	SCAN-Ge 0703 SnCu70.7Ag0.3NiGe WBZ triplex: 2009	SCAN-Ge 053 SnCu0.5Ag3NiGe WBZ triplex: 2009
Melting point °C	217 – 228	217 – 219
Specific Gravity g/cm <sup>3</sup>	7.36	7.5

#### Delivery sizes

Format		L mm	W mm	H mm
Ingots*	1 kg	325	28	15
	4 kg	300	50	40
Ingots with hole	3,7 kg	540	50	20
	6 kg	570	48	35
Bar		400x10x10		
Pellet		12 x 25		
Wire, solid, on reel		Ø 1.0 – 6.0		

\*Other dimensions available on request.

Although the information in this data sheet is considered accurate, the measured values do not represent assured properties or delivery specifications. Because of the wide range of potential materials and applications, and with respect to possible protective rights and third parties, Balver Zinn Josef Jost GmbH & Co. KG **cannot** accept any liability.

#### OUR GLOBAL DISTRIBUTION NETWORK

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