

## SN100C- High First Pass Yield & Reliable Joints

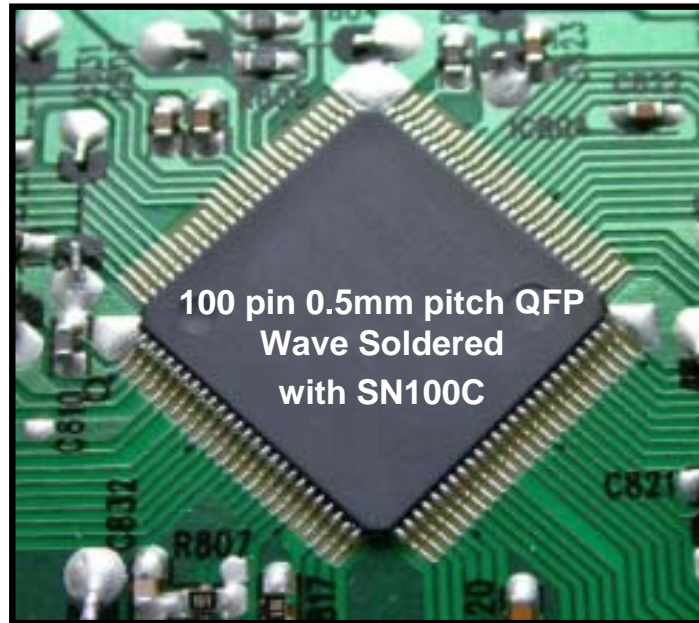
Excellent Drainage Reduces Bridging

# The “Icicle” Test

 SN100C is an excellent lead-free solder that offers *high first pass yield*, *reliable joints* and economical operation. We present here a selection of data that confirms excellent drainage properties of SN100C.

# Less bridging

## SN100C enables bridge-free soldering even in soldering 100 pin 0.5mm pitch QFP.



The excellent drainage properties of SN100C combined with its high fluidity makes bridge-free soldering possible even with 100pin 0.5mm pitch 100 pin QFP.

## The "Icicle" Test

### [Test condition]

- Test piece : Oxygen free copper ring (Wire. diameter 2.0mm、 Inside. diameter 20mm)
- Solder alloy : **SC**, **SCN**, **SN100C**, **SCNP**, **SC0.3A**, **SCAB**, **S3A0.5C**, **S37Pb**
- Flux : JIS Standard Flux A, B
- Melting temp. : 255 ( Sn37Pb at 235 )
- Contact depth : 6mm
- Contact speed : 4mm / sec.
- Contact time : 20 sec.
- Lifting speed : 2mm / sec.

Test piece: Oxygen free copper ring



### Wetting Test ( Tarutin Kester Co., Ltd. )



\*the device used:  
High Speed Camera  
MEMRECAMfx K4  
( nac Image Technology., Inc )



 Copper rings are immersed in the molten solder and withdrawn. The drainage of solder was recorded using a high speed camera. The icicle length was measured after solidification.

**SN100C/Sn-3.0Ag-0.5Cu Icicle Animation ( With JIS standard flux A )**

Click on the pictures to play the video of solder drainage



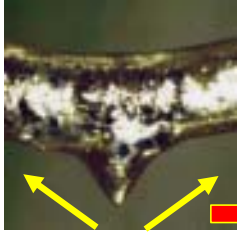


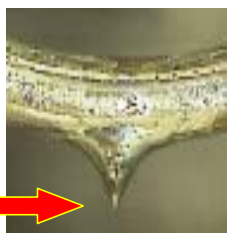
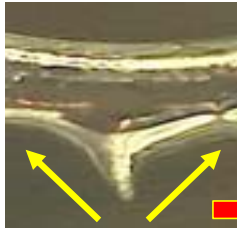


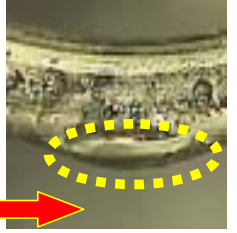
**SN100C**



**Sn-3.0Ag-0.5Cu  
(S3A0.5C)**

 The icicle on the SN100C drains away quickly. Because of the inferior drainage properties of the Sn-3.0Ag-0.5Cu alloy the icicle remains.

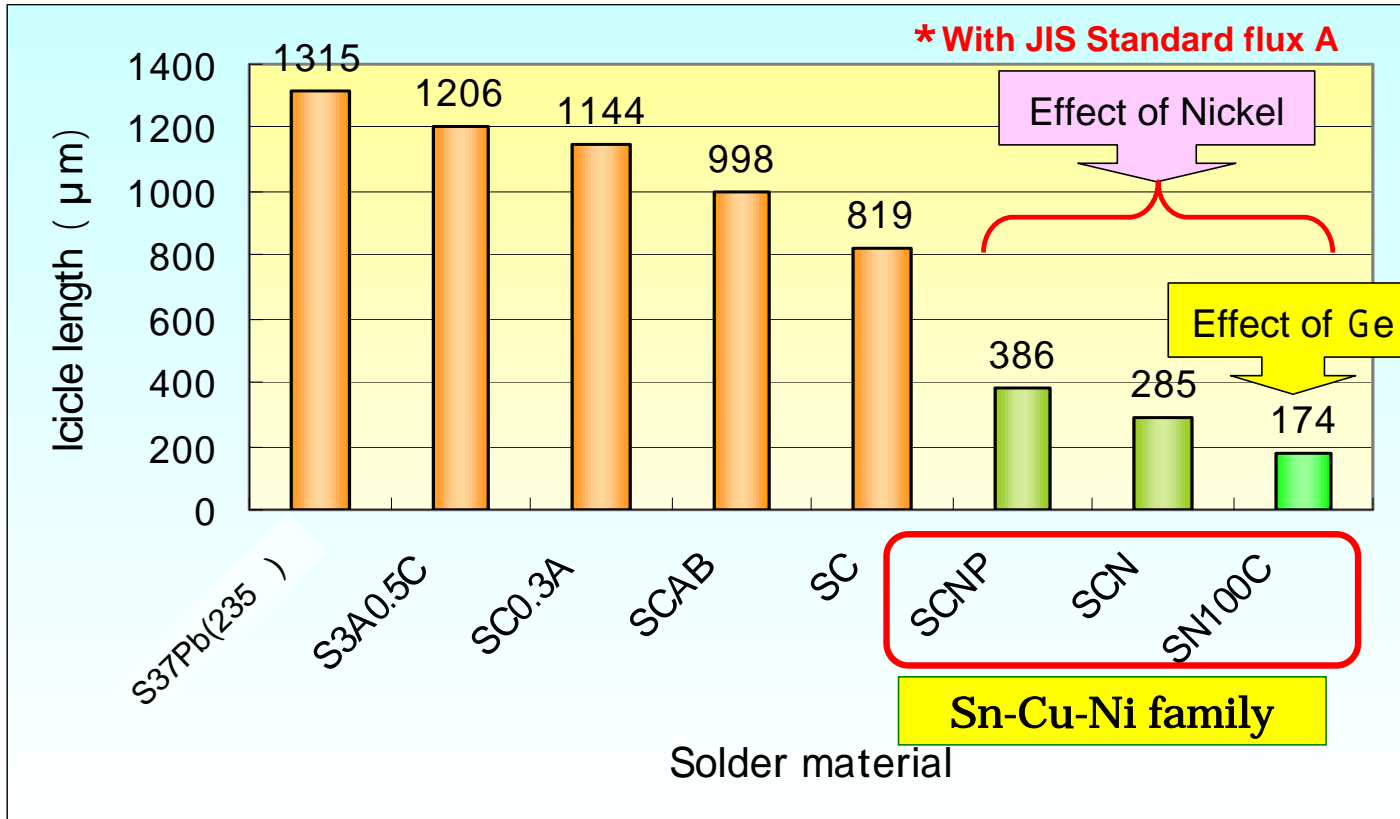
## The Result of Icicle Test (1)

Solder Alloy / Flux		High ← Fluidity → Low			
		SN100C		S3A0.5C(Sn-3.0Ag-0.5Cu)	
Active Force ↑ Weak ↓ Strong	Standard Flux A	Right after lifted 	After solidification 	Right after lifted 	After solidification 
	Standard Flux B	Right after lifted 	After solidification 	Right after lifted 	After solidification 

JIS Standard flux A : Non-active rosin flux / JIS Standard flux B : Halogen activated rosin flux

 Even with a non-activated rosin flux SN100C exhibits superb drainage in reducing icicle formation. With a JIS Type B activated rosin flux drainage of Sn-3.0Ag-0.5Cu is better but a bulge still remains.

**The Result of Icicle Test (2) Icicle length of each lead free solder**



➔ The icicle length of Sn-Cu-Ni family alloys was less than half that of other lead-free solders because of the effect of the Ni. Because of the further beneficial effect of Ge the icicle length of SN100C is the shortest amongst the Sn-Cu-Ni family alloys.