

# Highly Durable Lead-free Solder Paste LSP

## Features of Newly Developed Highly Durable Lead Free Solder Alloy

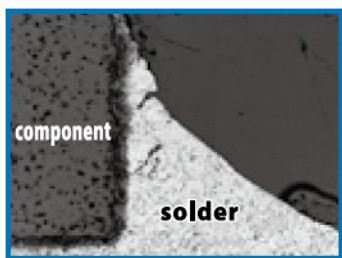
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Product name	Metal composition	
PS40BR-600A-LSP	C-13	Sn-3.8Ag-0.5Cu-3.0Bi+ $\alpha$ *
	F-4	Sn-1.1Ag-0.6Cu-1.5Bi+ $\beta$ *

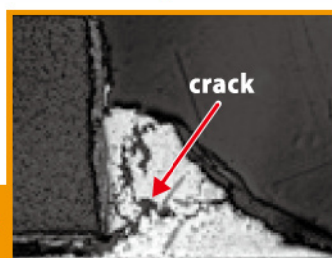
\*  $\alpha$ ,  $\beta$ : additional trace elements

	C-13	F-4	SAC305	Unit
Solidus temperature	186	219	217	°C
Liquidus temperature	212	238	220	°C
Pull strength	90.5	90.0	42.1	N/mm <sup>2</sup>
Elongation	10.6	21.1	33.7	% (10mm/min)
Young's modulus	4.7	5.3	5.2	10 <sup>10</sup> N/m <sup>2</sup>

### Cross Section Analysis after 3,000 cycles



LSP (C-13)

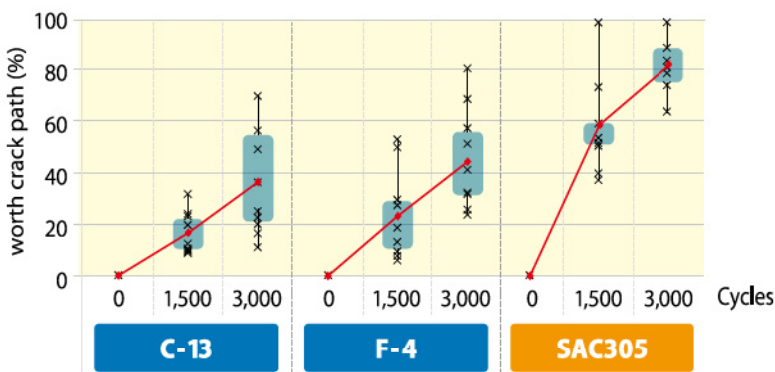


SAC305

Solid solution by Bi addition

Formation of finer compounds

### Excellent Durability

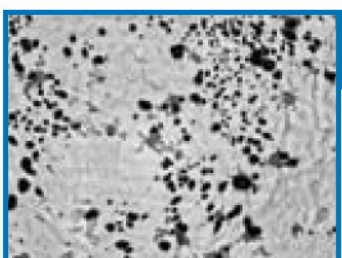


<-40°C⇔125°C 30min.each>

#### Evaluation condition

- Reflow condition : -40°C⇔125°C
- Component : 3216R
- Base : FR-4

### Cross Section Analysis after 3,000 cycles (SEM)



LSP (C-13)



SAC305

Growth inhibition of inter-metallic compounds  
▶ Inhibition of crack generation