

# Normal 4N Type ; TC-E/TC-ER

## Feature & Advantage

- ◆ 2 Types of 4NCu
  - Soft FAB type ; **TC-E**
  - Stable FAB type ; **TC-ER**
- ◆ [TC-E]Soft FAB
  - Less chip damage and Al splash than conventional 4NCu wire.
- ◆ [TC-ER]Stable FAB shape
  - FAB shape is stable.
- ◆ High reliability
  - TC-E & TC-ER contains extremely small amount of Cl.



## Mechanical Property

		0.7mil (18um)	0.8mil (20um)	0.9mil (23um)	1.0mil (25um)	1.2mil (30um)	1.5mil (38um)	2.0mil (50um)
<b>TC-E</b>	Breaking Load (gf)	3.5-7.5	4.5-8.5	5.5-11.5	7.0-15.0	11.0-19.0	19.0-29.0	35.0-49.0
	Elongation (%)	≥4	≥5	≥8	≥9	≥9	≥12	≥15
<b>TC-ER</b>	Breaking Load (gf)	3.0-7.0	4.0-9.0	5.0-12.0	7.0-15.0	12.0-21.0	21.0-33.0	39.0-53.0
	Elongation (%)	≥4	≥5	≥6	≥7	≥8	≥10	≥12

## Physical Property

	TC-E	TC-ER
Young's Modulus (GPa)	71	72
Coefficient of Thermal Expansion (×10 <sup>-6</sup> /degC)	16.5	16.5
Resistivity (μΩ cm) @20degC	1.7	1.7
Density (g/cm <sup>3</sup> )	8.93	8.93



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## Soft FAB

### Vickers Hardness of FAB

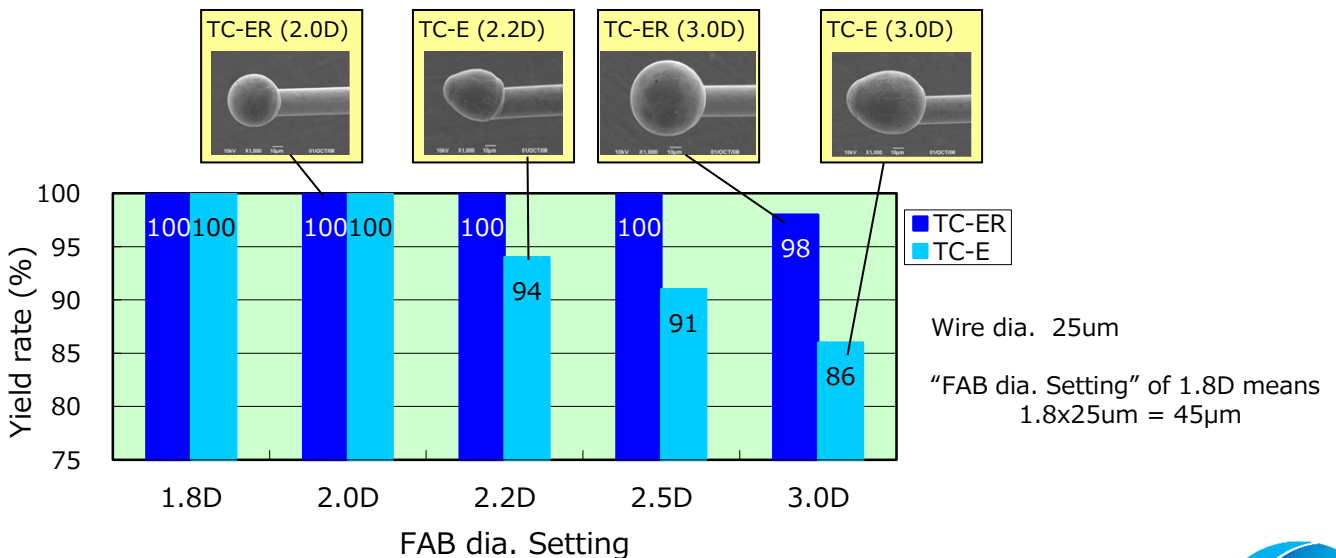
TC-E (Soft FAB type)	58
TC-ER (Stable FAB type)	60
Conventional 4N Cu-1	59
Conventional 4N Cu-2	63

## Typical Impurity Components

Unit:ppm

	TC-E	TC-ER	4NCu-1	4NCu-2
Cl	< 0.005 (ND)	< 0.005 (ND)	0.54	1
Ag	4.8	8.2	9.4	0.35
S	5.6	6.7	7.2	2.0
Fe	2.2	1.4	1.9	0.32
P	< 0.001 (ND)	*** (10-50)	0.24	47
:	:	:	:	:
Total	15	50	25	65

## Stable FAB Shape



Gas flow setting ; not optimum condition

→ TC-ER FAB shape is very stable in bad condition

