

Date : March 19, 2014

Messrs. Integrated Tracking Technologies

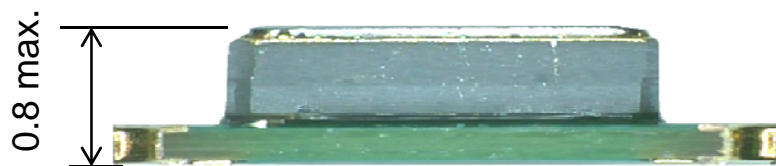
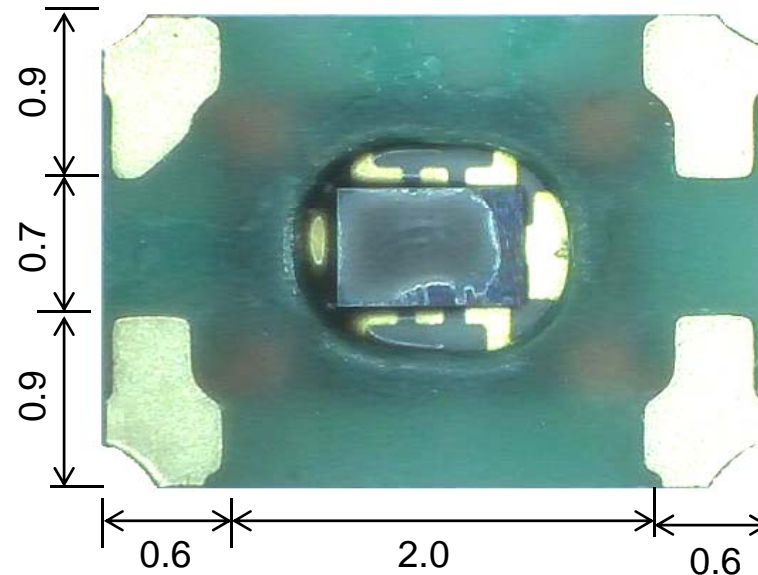
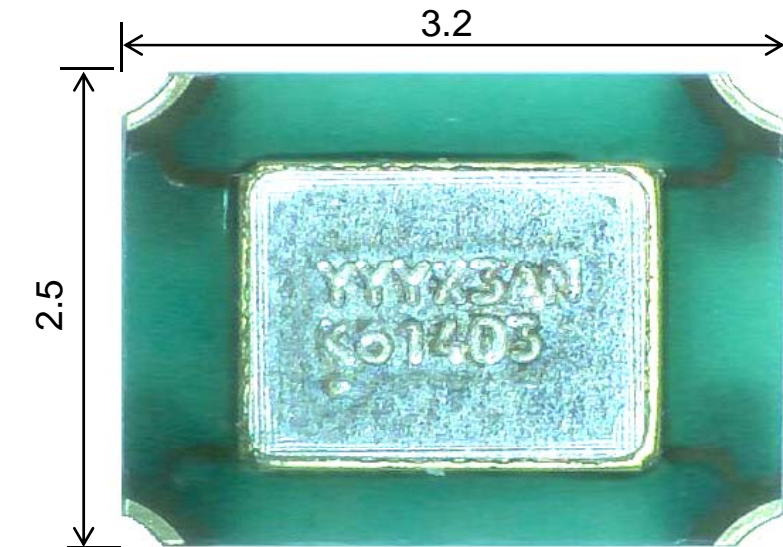
< Comparison Data >

Model : **KT3225R** vs. **KT3225K**

KYOCERA Crystal Device Corporation
Oscillator Division
Oscillator Engineering Department
Application Engineering Section

| Prepared | Checked | Approved |
|----------|----------|----------|
| Y.Kato | N.Nakano | Y.Yokoo |

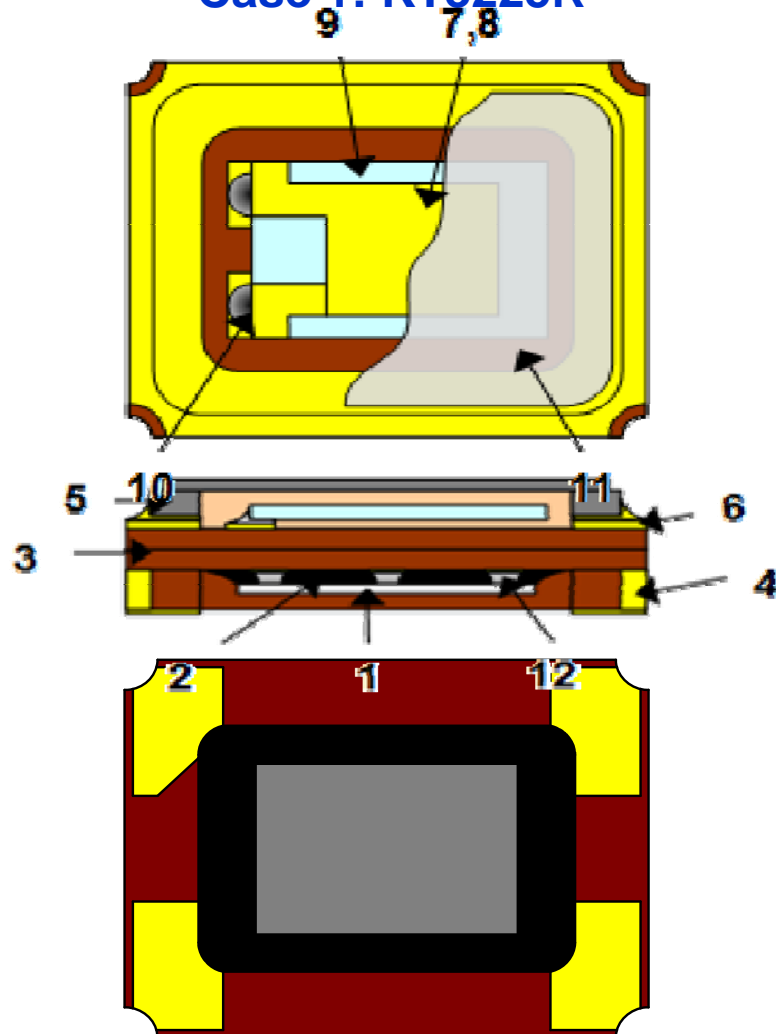
KT3225K Dimension & Pin Connection



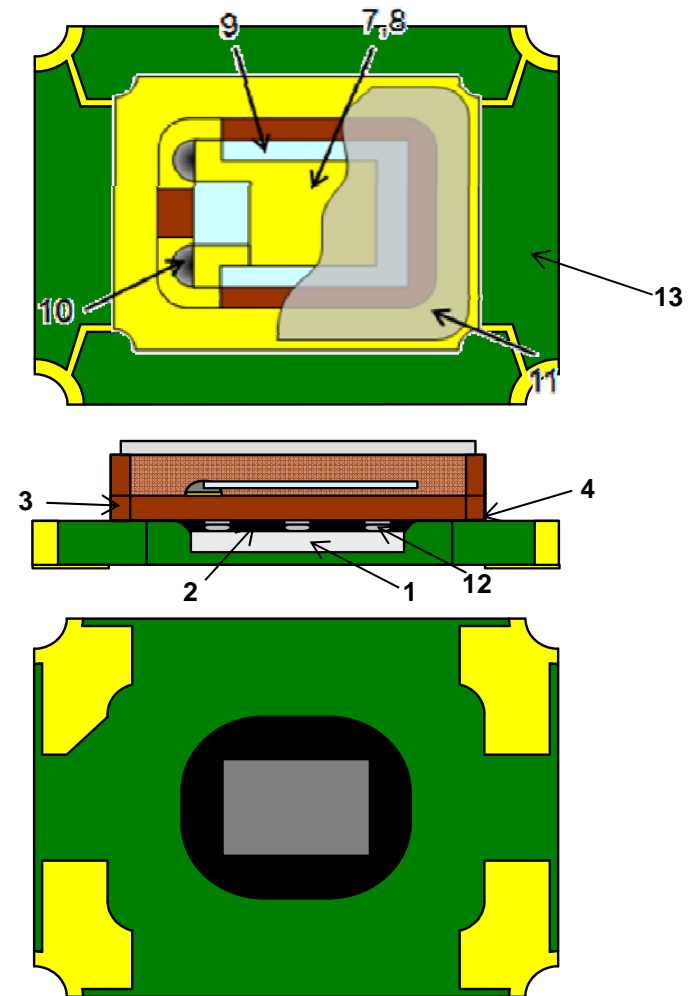
| Pin No | Function |
|--------|-------------------------------|
| #1 | TCXO:GND or NC VCTCXO:Vcon |
| #2 | GND |
| #3 | Output |
| #4 | Vcc |

Structure comparison of **KT3225R** and **KT3225K**

Case 1: **KT3225R**



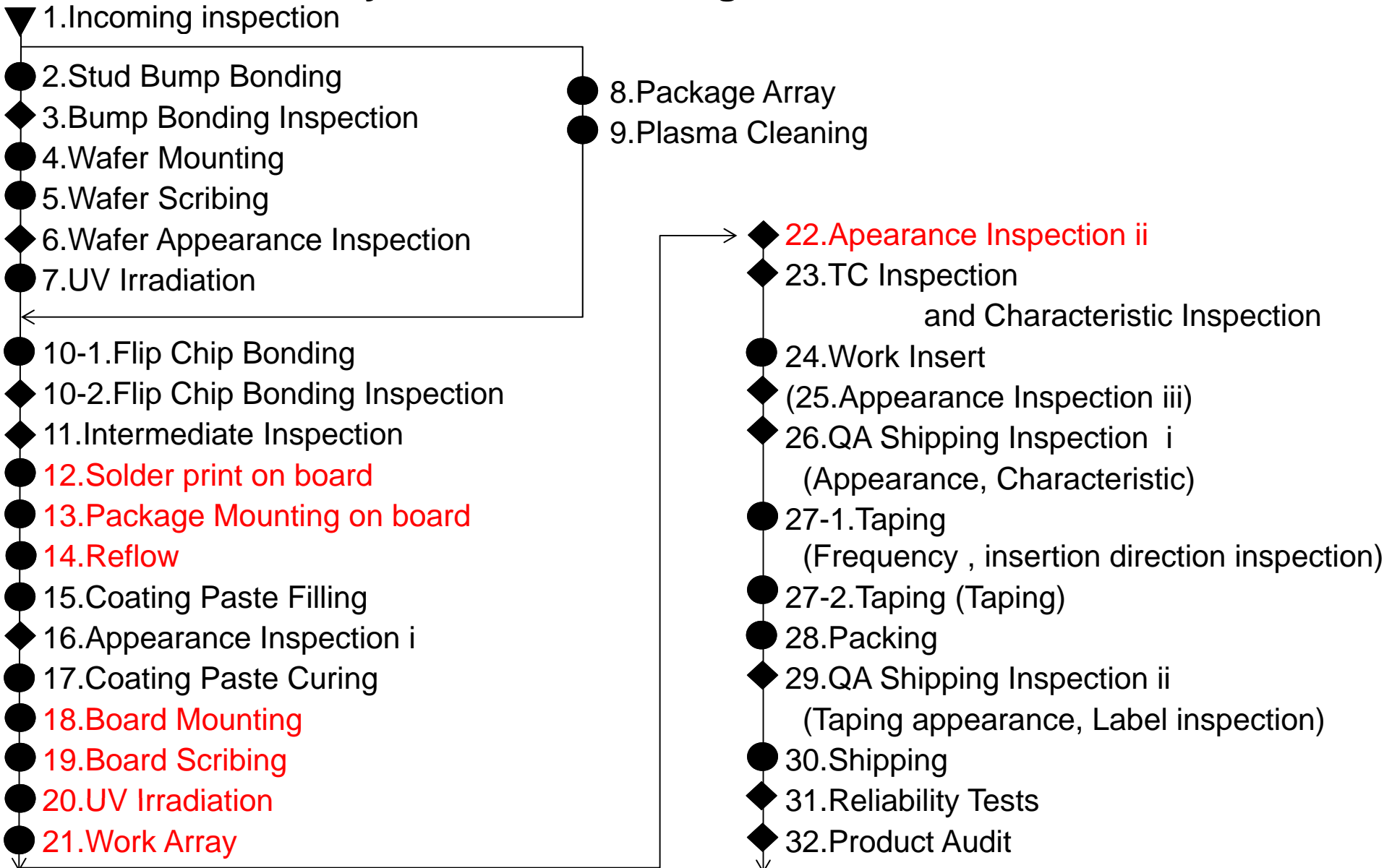
Case 2: **KT3225K**



Structure comparison of **KT3225R** and **KT3225K**

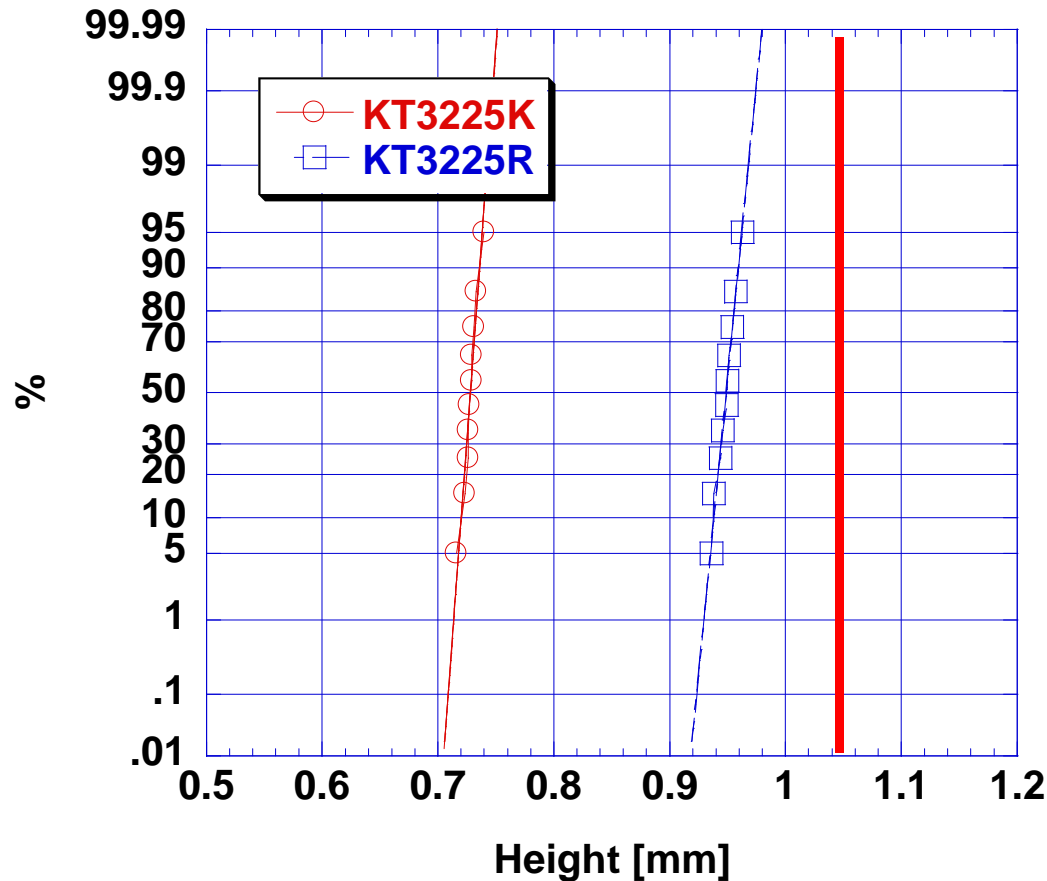
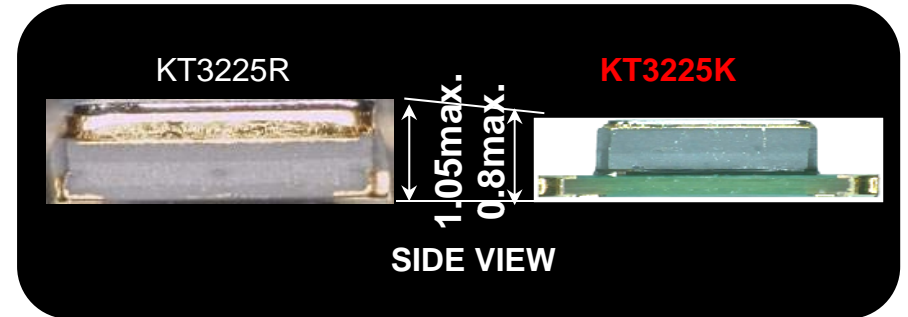
| | MATERIAL | KT3225R | KT3225K |
|----|--|--------------------------------|----------------------|
| 1 | IC CHIP | TYPE A | TYPE B |
| 2 | UNDER FILL RESIN | Epoxy resin | <- (same) |
| 3 | BASE-BASE Material | AL ₂ O ₃ | <- (same) |
| 4 | BASE-Metalized | W | MO |
| 5 | BASE-SEALING | Kv | NON (Direct-Seam) |
| 6 | BASE-SILVER BRAZING ALLOY CLAD FILM | Ag | |
| 7 | ELECTRODE | Mechanical Process | <- (same) |
| 8 | ELECTRODE UNDERLAYER | | |
| 9 | QUARTS CHIP | | |
| 10 | CONDUCTIVE ADHESIVE | Ag Paste | <- (same) |
| 11 | LID | Kv | Kv(DS-LID) |
| 12 | BUMP | Flip Chip Process | <- (same) |
| 13 | Glass Epoxy | NON | Glass Epoxy |

“K” series Assembly Process Flow Diagram



Height Data

KT3225K(0.8mm max.) vs. **KT3225R**(1.05mm max.)



| | Height | |
|----------|----------------|---------|
| | KT3225K | KT3225R |
| 1 | 0.73 | 0.95 |
| 2 | 0.73 | 0.95 |
| 3 | 0.73 | 0.96 |
| 4 | 0.73 | 0.95 |
| 5 | 0.74 | 0.94 |
| 6 | 0.73 | 0.94 |
| 7 | 0.72 | 0.94 |
| 8 | 0.73 | 0.95 |
| 9 | 0.73 | 0.95 |
| 10 | 0.72 | 0.96 |
| MAX | 0.74 | 0.96 |
| MIN | 0.72 | 0.94 |
| AVE | 0.728 | 0.949 |
| STD | 0.006 | 0.008 |
| SPEC MAX | 0.80 | 1.05 |

[mm]

Electrical Characteristics Comparison

P/N : **KT3225R26000ZAW28TMA**

Vs.

New P/N : **KT3225K26000ZAW28TCS**

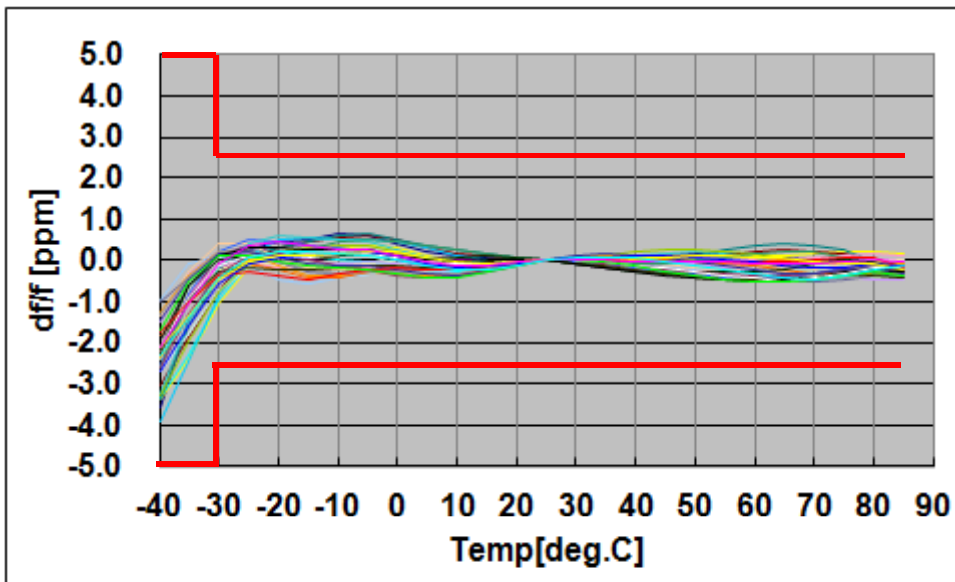
Electrical Characteristics

Freq.=26.0MHz

Test Condition : $V_{CC}=2.8V$
Load:10kohm//10pF

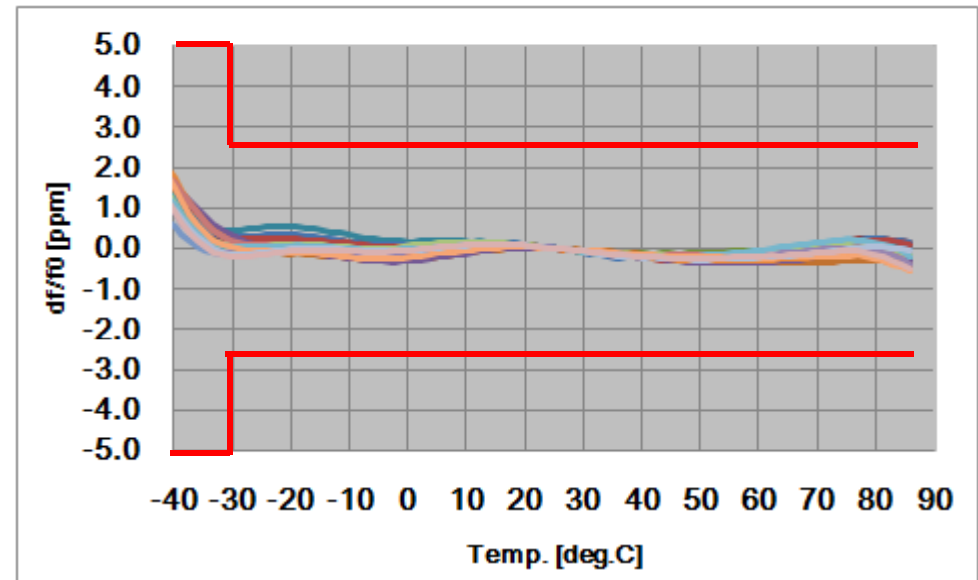
Current

Frequency stability vs. temp.



New

Frequency stability vs. temp.



Electrical Characteristics

Freq.=26.0MHz

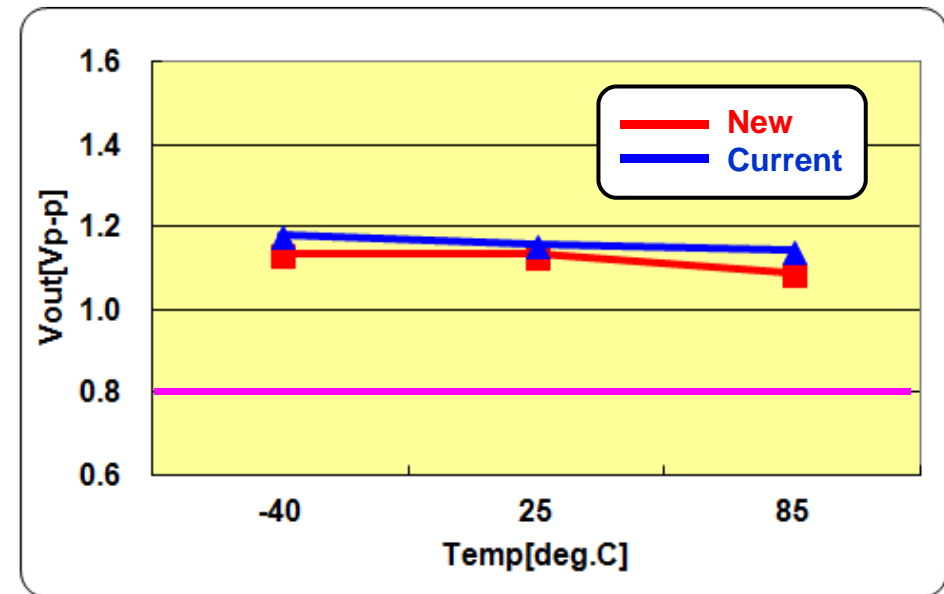
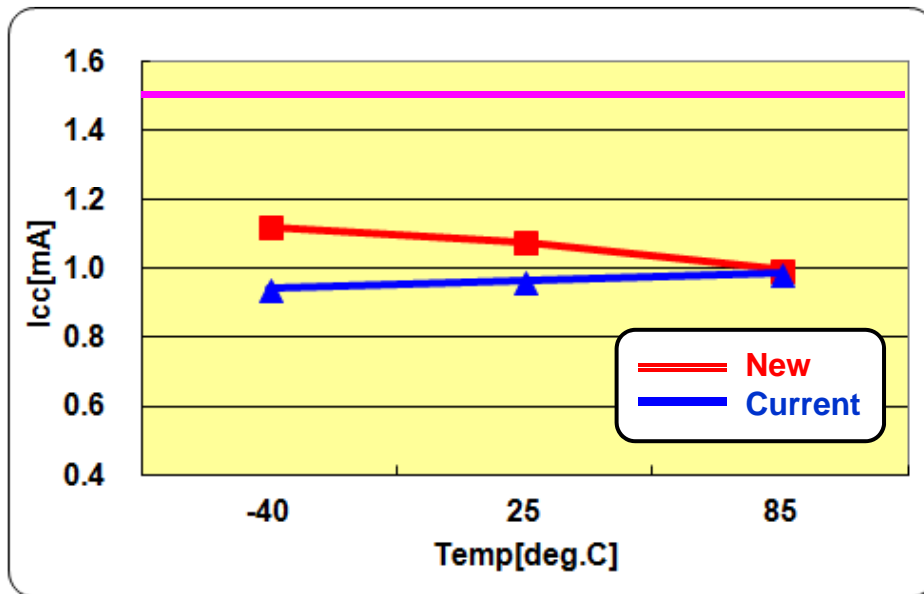
Test Condition : $V_{CC}=2.8V$
Load:10kohm//10pF

Power Supply Current

| | Temp[deg.C] | | |
|---------|-------------|------|------|
| | -40 | 25 | 85 |
| New | 1.12 | 1.07 | 0.99 |
| Current | 0.94 | 0.96 | 0.98 |
| | | | [mA] |

Output Voltage

| | Temp[deg.C] | | |
|---------|-------------|------|------|
| | -40 | 25 | 85 |
| New | 1.14 | 1.13 | 1.09 |
| Current | 1.18 | 1.16 | 1.15 |
| | | | [V] |

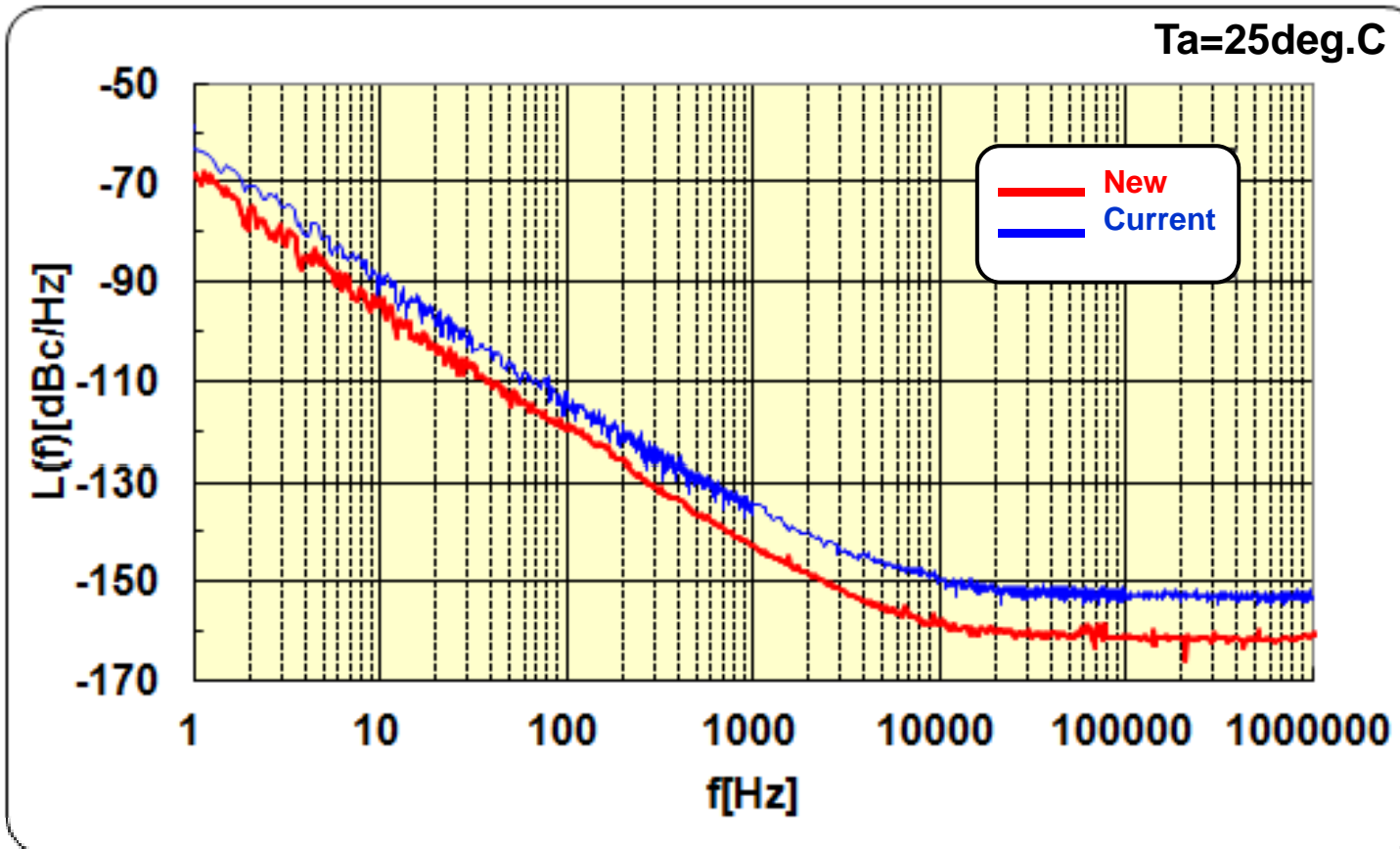


Phase Noise (1Hz to 1MHz)

Freq.=26.0MHz

Test condition : Vcc=2.8V

Ta=25deg.C



| | 1Hz | 10Hz | 100Hz | 1KHz | 10KHz | 100KHz | 1MHz |
|---------|-----|------|-------|------|-------|--------|------|
| New | -68 | -95 | -119 | -143 | -158 | -161 | -161 |
| Current | -62 | -89 | -113 | -135 | -150 | -153 | -153 |

[dBc/Hz]