

CERAMIC CHIP CAPACITORS X7R/X5R DIELECTRIC

APPLICATION

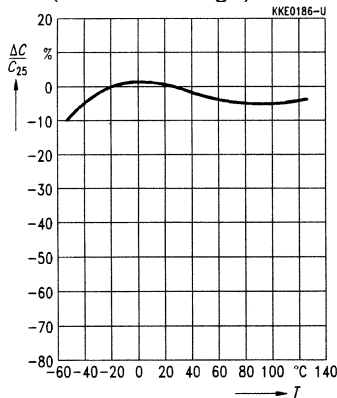
X7R/X5R dielectric properties: suited for by-pass and coupling purposes, filtering, frequency discrimination, DC blockage, and as voltage transient suppression elements.

General Specification

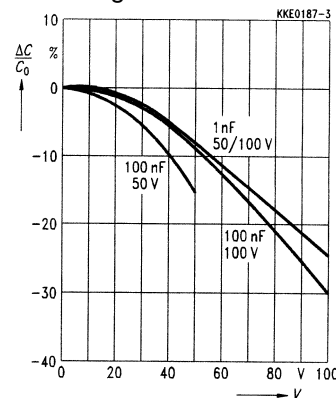
- **Operating temperature range** : X7R: $-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$, X5R: $-55^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- **Temperature coefficient**: ΔC : $\pm 15\%$ maximum
- **Capacitance Range**: 100pF ~ 470uF
- **Capacitance Tolerance**: $\pm 10\%$, $\pm 20\%$, $\pm 5\%$ (Test condition : $C \leq 10\mu\text{F}$, $1 \pm 0.2\text{Vrms}$, 1KHz, $C > 10\mu\text{F}$, $0.5\text{V} \pm 0.2\text{Vrms}$, 120Hz)
- **Rating Voltage (DC)** : 6.3V, 10V, 16V, 25V, 50V, 100V, 200V, 250V, 500V, 630V, 1KV, 2KV, 3KV, 4KV
- **Dissipation Factor**: 2.5% Max ($\geq 50\text{V}$), 3.5% Max (25V,16V), 5% Max(10V) (Test condition: same as capacitance)
- **Insulation resistance**: 10,000 M Ω or 100 Ω -F min, whichever is less. (rated voltage applied at 25°C)
- **Dielectric strength**: $> 250\%$ of rated voltage for 6.3~100V, 200% for 200&250V, 150% for 500V, 120% for $\geq 1000\text{V}$

Characteristics

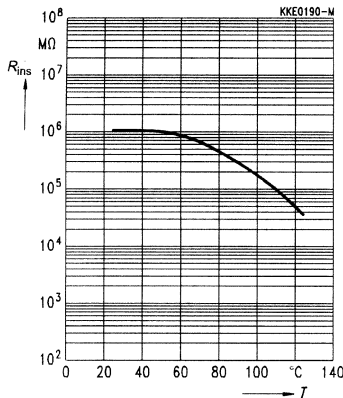
Capacitance change $\Delta C/C_{25}$ versus temperature T (tolerance range)



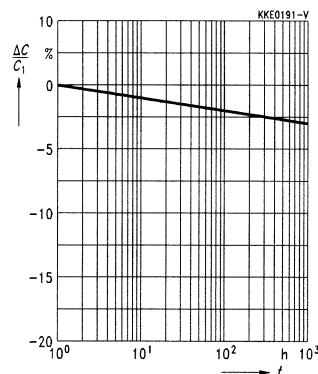
Capacitance change $\Delta C/C_0$ versus superimposed dc voltage V



Insulation resistance R_{ins} versus Temperature T



Capacitance change $\Delta C/C_1$ versus time (aging rate)



CERAMIC CHIP CAPACITORS X7R/X5R DIELECTRIC

SIZE AND VALUES AVAILABLE (X7R) 10V – 50V

| Size | | 0402 | | | | 0603 | | | | 0805 | | | | 1206 | | | | 1210 | | | 1812 | | 2220 | |
|--------------|----|-----------|----|----|----|-----------|----|----|----|-----------|----|----|----|-----------|----|----|----|-----------|----|----|-----------|----|-----------|-----|
| (L) | mm | 1.00±0.05 | | | | 1.60±0.10 | | | | 2.00±0.20 | | | | 3.20±0.20 | | | | 3.20±0.30 | | | 4.50±0.30 | | 5.70±0.40 | |
| (W) | mm | 0.50±0.05 | | | | 0.80±0.10 | | | | 1.25±0.20 | | | | 1.60±0.20 | | | | 2.50±0.20 | | | 3.20±0.20 | | 5.00±0.40 | |
| (T) | mm | 0.50±0.05 | | | | 0.80±0.12 | | | | 1.25±0.20 | | | | 1.65±0.20 | | | | 2.50±0.20 | | | 3.00±0.20 | | 3.00±0.20 | |
| (t) | mm | 0.15~0.35 | | | | 0.27~0.60 | | | | 0.30~0.70 | | | | 0.30~0.70 | | | | 0.30~0.70 | | | 0.35~1.00 | | 0.35~1.00 | |
| Cap. \\ W.V. | | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 | 10 | 16 | 25 | 50 | 16 | 25 | 50 | 25 | 50 | 25 | 50 |
| 100 | pF | | | | S | | | | P | | | | H | | | | | | | | | | | |
| 120 | pF | | | | S | | | | P | | | | H | | | | | | | | | | | |
| 150 | pF | | | | S | | | | P | | | | H | | | | | | | | | | | |
| 180 | pF | | | | S | | | | P | | | | H | | | | | | | | | | | |
| 220 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 270 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 330 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 390 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 470 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 560 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 680 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 820 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 1000 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 1200 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 1500 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 1800 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 2200 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 2700 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 3300 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 3900 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 4700 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 5600 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 6800 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 8200 | pF | | | | S | | | | P | | | | H | | | | | H | | | | | | |
| 10 | nF | | | S | S | | | | P | | | | H | | | | | H | | | | | | |
| 12 | nF | | | S | | | | | P | | | | H | | | | | H | | | | | | |
| 15 | nF | | | S | | | | | P | | | | H | | | | | H | | | | | | |
| 18 | nF | | | S | | | | | P | | | | H | | | | | H | | | | | | |
| 22 | nF | | | S | S | | | | P | | | | H | | | | | H | | | | | | |
| 27 | nF | | | S | | | | | P | | | | H | | | | | H | | | | | | |
| 33 | nF | | | S | | | | | P | | | | H | | | | | H | | | | | | |
| 39 | nF | | | S | | | | | P | | | | H | | | | | H | | | | | | |
| 47 | nF | | S | S | S | | | | P | P | | | H | | | | | H | | | | | | |
| 56 | nF | | S | | | | | | P | P | | | H | | | | | H | | | | | | |
| 68 | nF | | S | | | | | | P | P | | | H | | | | | H | | | | | | |
| 82 | nF | | S | | | | | | P | P | | | H | | | | | H | | | | | | |
| 100 | nF | S | S | S | S | | | | P | P | P | | H | | | | | H | | | | | X | |
| 150 | nF | | | | | | | | P | P | P | | X | X | X | | | X | | | | | X | |
| 220 | nF | S | S | | | | | | P | P | P | | X | X | X | | | X | | | | | X | |
| 330 | nF | | | | | | | | P | P | P | | X | X | X | | | X | X | | | | X | |
| 470 | nF | | | | | | | | P | P | P | | X | X | X | | | X | L | | | | X | |
| 680 | nF | | | | | | | | P | P | | | X | X | X | | X | X | L | | | | L/Z | |
| 1.0 | uF | | | | | | | | P | P | P | | X | X | X | X | | X | X | L | | | L | Z |
| 2.2 | uF | | | | | | | | P | | | | X | X | X | X | | L | L | L | | | Z | Z |
| 3.3 | uF | | | | | | | | | | | | | | | | | | | | | | G | Z |
| 4.7 | uF | | | | | | | | | | | | X | X | X | X | | L | L | L | | | Z | G |
| 10 | uF | | | | | | | | | | | | X | *X | | | | L | L | L | | | Z | Z/G |
| 22 | uF | | | | | | | | | | | | | | | | | I | | | | | G | G |

CERAMIC CHIP CAPACITORS X7R/X5R DIELECTRIC

SIZE AND VALUES AVAILABLE (X7R) 100V – 630V (Medium Voltage)

| Size | | 1825 | | | | | 2220 | | | | | 2225 | | | | |
|-------------|----|-----------|-----|-----|-----|-----|-----------|-----|-----|-----|-----|-----------|-----|-----|-----|-----|
| (L) | mm | 4.50±0.30 | | | | | 5.70±0.40 | | | | | 5.70±0.40 | | | | |
| (W) | mm | 6.30±0.40 | | | | | 5.00±0.40 | | | | | 6.30±0.40 | | | | |
| (T) | mm | 2.50±0.30 | | | | | 3.00±0.20 | | | | | 3.00±0.20 | | | | |
| (t) | mm | 0.35~1.00 | | | | | 0.35~1.00 | | | | | 0.35~1.00 | | | | |
| Cap. \\ W.V | | 100 | 200 | 250 | 500 | 630 | 100 | 200 | 250 | 500 | 630 | 100 | 200 | 250 | 500 | 630 |
| 470 | pF | | | | | | | | | | | | | | | |
| 680 | pF | | | | | | | | | | | | | | | |
| 1000 | pF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 1500 | pF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 2200 | pF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 3300 | pF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 4700 | pF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 6800 | nF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 10 | nF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 15 | nF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 22 | nF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 33 | nF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 47 | nF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 68 | nF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 100 | nF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 150 | nF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 220 | nF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 330 | nF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 470 | nF | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z |
| 560 | nF | Z | Z | Z | Z | Z | Z | Z | Z | G | G | Z | Z | Z | Z | Z |
| 680 | nF | Z | Z | Z | G | G | Z | Z | Z | G | G | Z | Z | Z | Z | Z |
| 1.0 | uF | Z | Z | Z | | | Z | Z | Z | U | U | Z | Z | Z | G | G |
| 2.2 | uF | Z | G | G | | | Z | G | G | | | Z | G | G | | |
| 3.3 | uF | Z | | | | | Z | | | | | Z | U | U | | |
| 4.7 | uF | G | | | | | G | | | | | G | | | | |
| 6.8 | uF | G | | | | | G | | | | | G | | | | |
| 10 | uF | G | | | | | G | | | | | G | | | | |

CERAMIC CHIP CAPACITORS X7R/X5R DIELECTRIC

SIZE AND VALUES AVAILABLE (X7R) 1000V – 4000V (High Voltage)

| Size | | 0805 | 1206 | 1210 | 1808 | 1812 | 1825 | 2220 | 2225 | | | | | | | | | | | | | | | | |
|-------------|----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----|----|----|----|----|----|----|----|----|----|----|----|---|---|---|---|
| (L) | mm | 2.10±0.20 | 3.30±0.30 | 3.30±0.30 | 4.60±0.40 | 4.60±0.40 | 4.50±0.30 | 5.70±0.40 | 5.70±0.40 | | | | | | | | | | | | | | | | |
| (W) | mm | 1.25±0.20 | 1.60±0.20 | 2.50±0.20 | 2.00±0.25 | 3.20±0.40 | 6.30±0.40 | 5.00±0.40 | 6.30±0.40 | | | | | | | | | | | | | | | | |
| (T) | mm | 1.25±0.20 | 1.65±0.20 | 2.50±0.20 | 2.00±0.20 | 3.00±0.20 | 2.50±0.30 | 3.00±0.20 | 3.00±0.20 | | | | | | | | | | | | | | | | |
| (t) | mm | 0.30~0.70 | 0.40~0.80 | 0.30~0.70 | 0.40~1.10 | 0.40~1.10 | 0.40~1.10 | 0.40~1.10 | 0.40~1.10 | | | | | | | | | | | | | | | | |
| Cap. \ W.V. | | 1K | 1K | 2K | 1K | 2K | 1K | 2K | 3K | 1K | 2K | 3K | 4K | 1K | 2K | 3K | 4K | 1K | 2K | 3K | 4K | | | | |
| 100 | pF | H | X | X | | | | | | | | | | | | | | | | | | | | | |
| 120 | pF | H | X | X | | | | | | | | | | | | | | | | | | | | | |
| 150 | pF | H | X | X | | | X | X | X | | | | | | | | | | | | | | | | |
| 180 | pF | H | X | X | | | X | X | X | | | | | | | | | | | | | | | | |
| 220 | pF | H | X | X | | | X | X | X | | | | | | | | | | | | | | | | |
| 270 | pF | H | X | X | X | L | X | X | X | X | X | L | Z | | | | Z | | | | Z | | Z | | |
| 330 | pF | H | X | X | X | L | X | X | Z | X | X | L | Z | | | | Z | | | | Z | | Z | | |
| 390 | pF | H | X | X | X | L | X | X | Z | X | X | L | Z | | | | Z | | | | Z | | Z | | |
| 470 | pF | H | X | X | X | L | X | X | Z | X | X | L | Z | | | | Z | | | | Z | | Z | | |
| 560 | pF | H | X | X | X | L | X | X | Z | X | X | L | Z | | | | Z | | | | Z | | Z | | |
| 680 | pF | H | X | X | X | L | X | X | Z | X | X | Z | Z | | | | Z | | | | Z | | Z | | |
| 820 | pF | H | X | X | X | L | X | X | Z | X | X | Z | Z | | | | Z | | | | Z | | Z | | |
| 1000 | pF | H | X | X/L | X | L | X | X | Z | X | X | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | Z | | |
| 1200 | pF | H | X | L | X | Z | X | Z | Z | X | X | Z | G | Z | Z | Z | G | Z | Z | Z | G | Z | Z | Z | G |
| 1500 | pF | X | X | L | X | Z | X | Z | Z | X | X | Z | G | Z | Z | Z | G | Z | Z | Z | G | Z | Z | Z | G |
| 1800 | pF | X | X | L | X | Z | X | Z | Z | X | L | G | G | Z | Z | Z | G | Z | Z | Z | G | Z | Z | Z | G |
| 2200 | pF | X | X | L | X | Z | X | Z | Z | X | L | G | | Z | Z | Z | | Z | Z | Z | | Z | Z | Z | |
| 2700 | pF | X | X | L | X | G | X | Z | | X | L | G | | Z | Z | Z | | Z | Z | Z | | Z | Z | Z | |
| 3300 | pF | X | X | L | X | G | X | Z | | X | Z | G | | Z | Z | Z | | Z | Z | Z | | Z | Z | Z | |
| 3900 | pF | X | X | | L | G | X | Z | | X | Z | G | | Z | Z | Z | | Z | Z | Z | | Z | Z | Z | |
| 4700 | pF | X | X | | L | G | X | Z | | X | Z | G | | Z | Z | Z | | Z | Z | Z | | Z | Z | Z | |
| 5600 | pF | X | X | | L | G | Z | Z | | X | G | | | Z | Z | G | | Z | Z | Z | | Z | Z | G | |
| 6800 | pF | X | X | | L | G | Z | Z | | X | G | | | Z | Z | G | | Z | Z | G | | Z | Z | G | |
| 8200 | pF | X | X | | L | G | Z | | | X | G | | | Z | Z | G | | Z | G | G | | Z | Z | G | |
| 10 | nF | | X | | L | | Z | | | X/L | G | | | Z | Z | G | | Z | G | G | | Z | Z | G | |
| 12 | nF | | L | | L | | Z | | | Z | | | | Z | G | U | | Z | G | U | | Z | G | G | |
| 15 | nF | | L | | L | | Z | | | Z | | | | Z | G | U | | Z | G | U | | Z | G | G | |
| 18 | nF | | L | | L | | Z | | | G | | | | Z | G | U | | Z | U | U | | Z | G | U | |
| 22 | nF | | L | | L | | Z | | | G | | | | Z | G | | | Z | U | | | Z | G | | |
| 27 | nF | | | | L | | Z | | | G | | | | Z | U | | | Z | U | | | Z | G | | |
| 33 | nF | | | | L | | Z | | | G | | | | Z | U | | | Z | U | | | Z | G | | |
| 39 | nF | | | | Z | | Z | | | G | | | | Z | U | | | Z | U | | | Z | U | | |
| 47 | nF | | | | G | | Z | | | G | | | | Z | U | | | Z | U | | | Z | U | | |
| 56 | nF | | | | G | | Z | | | G | | | | Z | U | | | Z | U | | | Z | U | | |
| 68 | nF | | | | G | | Z | | | G | | | | Z | | | | G | | | | Z | | | |
| 82 | nF | | | | | | | | | G | | | | G | | | | G | | | | Z | | | |
| 100 | nF | | | | | | | | | G | | | | G | | | | G | | | | G | | | |
| 120 | nF | | | | | | | | | | | | | U | | | | G | | | | U | | | |
| 150 | nF | | | | | | | | | | | | | U | | | | U | | | | U | | | |
| 180 | nF | | | | | | | | | | | | | U | | | | U | | | | U | | | |
| 220 | nF | | | | | | | | | | | | | U | | | | U | | | | U | | | |
| 330 | nF | | | | | | | | | | | | | U | | | | U | | | | U | | | |
| 390 | nF | | | | | | | | | | | | | U | | | | U | | | | U | | | |

Remark: Customized size and specification is available upon request. Please contact us for further details

CERAMIC CHIP CAPACITORS X7R/X5R DIELECTRIC

SIZE AND VALUES AVAILABLE (X5R) 6.3V – 50V *Standard Tolerance is 20%, 10% on request

| Size | | 0402 | | | | | 0603 | | | | | 0805 | | | | | 1206 | | | | | | |
|------------|----|-----------|----|----|----|----|-----------|-----|----|----|----|-----------|---|-----|----|----|-----------|----|-----|----|----|----|----|
| (L) | mm | 1.00±0.05 | | | | | 1.60±0.10 | | | | | 2.00±0.20 | | | | | 3.20±0.20 | | | | | | |
| (W) | mm | 0.50±0.05 | | | | | 0.80±0.10 | | | | | 1.25±0.20 | | | | | 1.60±0.20 | | | | | | |
| (T) | mm | 0.50±0.05 | | | | | 0.80±0.12 | | | | | 1.25±0.20 | | | | | 1.65±0.20 | | | | | | |
| (t) | mm | 0.15~0.35 | | | | | 0.27~0.60 | | | | | 0.30~0.70 | | | | | 0.30~0.70 | | | | | | |
| Cap./ W.V. | | 6.3 | 10 | 16 | 25 | 50 | 4 | 6.3 | 10 | 16 | 25 | 50 | 4 | 6.3 | 10 | 16 | 25 | 50 | 6.3 | 10 | 16 | 25 | 50 |
| 100 | nF | | | S | S | S | | | | | | | | | | | | | | | | | |
| 220 | nF | S | S | S | S | | | | | | P | | | | | | | | | | | | |
| 330 | nF | S | | | | | | | | | P | | | | | | | | | | | | |
| 470 | nF | S | S | S | S | | | | | P | P | P | | | | | | | | | | | |
| 680 | nF | S | | | | | | | P | P | P | | | | | | | | | | | | |
| 1.0 | uF | S | S | S | S | | | | P | P | P | P | | | | | | | | | | | L |
| 2.2 | uF | S | S | S | S | | | P | P | P | P | P | | X | X | X | X | X | | | | | L |
| 3.3 | uF | S | | | | | | | | | | | | | | | | | | | L | L | |
| 4.7 | uF | S | S | | | | | P | P | P | P | | | X | X | X | X | X | | | L | L | L |
| 10 | uF | *S | *S | | | | | *P | *P | *P | *P | | | X | X | X | X | X | | L | L | L | L |
| 22 | uF | | | | | | | *P | *P | *P | | | | *X | *X | *X | *X | | | *L | *L | *L | *L |
| 47 | uF | | | | | | | | | | | | | *X | *X | *X | | | | *L | *L | *L | *L |
| 100 | uF | | | | | | | | | | | | | *X | | | | | | *L | *L | | |

| Size | | 1210 | | | | | 1812 | | | | | 2220 | | | | |
|------------|----|-----------|-----|------|------|------|-----------|---|-----|----|----|-----------|----|----|----|----|
| (L) | mm | 3.20±0.30 | | | | | 4.50±0.30 | | | | | 5.70±0.40 | | | | |
| (W) | mm | 2.50±0.20 | | | | | 3.20±0.20 | | | | | 5.00±0.40 | | | | |
| (T) | mm | 2.50±0.30 | | | | | 3.00±0.20 | | | | | 3.00±0.20 | | | | |
| (t) | mm | 0.30~0.70 | | | | | 0.35~1.00 | | | | | 0.35~1.00 | | | | |
| Cap./ W.V. | | 4 | 6.3 | 10 | 16 | 25 | 50 | 4 | 6.3 | 10 | 16 | 25 | 10 | 16 | 25 | 50 |
| 1.0 | uF | | | | | | | | | | | | | | | |
| 2.2 | uF | | | | | | G | | | | | | | | | |
| 3.3 | uF | | | | | | | | | | | | | | | |
| 4.7 | uF | | | | | | G | | | | | | | | | |
| 10 | uF | | | *C/Z | *C/Z | *C/G | G | | | | | G | | | | G |
| 22 | uF | | | *C/G | *C/G | G | | | | | *G | *G | | | *G | |
| 47 | uF | | *G | *G | *G | | | | *G | *U | | | | *G | | |
| 100 | uF | | *G | *G | | | | | *U | *U | | | *G | | | |
| 220 | uF | *G | *G | | | | | | | | | | | | | |
| 330 | uF | *G | *G | | | | | | | | | | | | | |
| 470 | uF | | | | | | *U | | | | | | | | | |

Remark: Customized size and specification is available upon request. Please contact us for further details

CERAMIC CHIP CAPACITORS X7R/X5R DIELECTRIC

Thickness Code & Standard Packing Q'ty per reel

| Thickness Code | Chip Size | Chip Thickness | Max Tape Thickness | Q'ty of carboard tape in | | Q'ty of Embosses tape in | |
|----------------|-----------|----------------|--------------------|--------------------------|----------|--------------------------|----------|
| | | | | 7" reel | 13" reel | 7" reel | 13" reel |
| S | 0402 | 0.50±0.05 mm | 0.60 mm | 10,000 | 50,000 | -- | -- |
| P | 0603 | 0.80±0.10 mm | 0.95 mm | 4,000 | 15,000 | -- | -- |
| A | 0805 | 0.60±0.10 mm | 0.75 mm | 4,000 | 15,000 | -- | -- |
| H | | 0.85±0.10 mm | 0.95 mm | 4,000 | 15,000 | -- | -- |
| X | | 1.25±0.10 mm | 1.80 mm | -- | -- | 3,000 | 10,000 |
| H | 1206 | 0.85±0.10 mm | 0.90 mm | 4,000 | 15,000 | -- | -- |
| C | | 0.95±0.10 mm | 1.80 mm | | | 3,000 | 10,000 |
| X | | 1.25±0.10 mm | 1.80 mm | -- | -- | 3,000 | 10,000 |
| L | | 1.65±0.20 mm | 1.80 mm | -- | -- | 2,000 | -- |
| C | 1210 | 0.95±0.10 mm | 1.80 mm | | | 3,000 | 10,000 |
| X | | 1.25±0.10 mm | 1.80 mm | -- | -- | 2,000 | -- |
| L | | 1.65±0.20 mm | 1.80 mm | -- | -- | 2,000 | -- |
| Z | | 2.00±0.20 mm | 2.20 mm | -- | -- | 2,000 | -- |
| G | | 2.50±0.20 mm | 2.75 mm | -- | -- | 1,000 | -- |
| X | 1808 | 1.25±0.10 mm | 1.80 mm | -- | -- | 2,000 | -- |
| F | | 1.40±0.20 mm | 1.80 mm | -- | -- | 2,000 | -- |
| L | | 1.65±0.20 mm | 1.80 mm | -- | -- | 2,000 | -- |
| Z | | 2.00±0.20 mm | 2.20 mm | -- | -- | 1,000 | -- |
| X | 1812 | 1.25±0.20 mm | 1.80 mm | -- | -- | 1,000 | -- |
| L | | 1.65±0.20 mm | 1.80 mm | | | 1,000 | |
| Z | | 2.00±0.20 mm | 2.20 mm | -- | -- | 1,000 | -- |
| G | | 2.50±0.20 mm | 2.75 mm | -- | -- | 500 | -- |
| U | | 2.80±0.30 mm | 3.00 mm | -- | -- | 500 | -- |
| Z | 1825 | 2.00±0.20 mm | 2.20 mm | -- | -- | 1,000 | -- |
| G | | 2.50±0.20 mm | 2.75 mm | -- | -- | 500 | -- |
| U | | 2.80±0.30 mm | 3.00 mm | -- | -- | 500 | |
| Z | 2220 | 2.00±0.20 mm | 2.20 mm | -- | -- | 500 | -- |
| G | | 2.50±0.20 mm | 2.75 mm | -- | -- | 500 | -- |
| U | | 2.80±0.30 mm | 3.00 mm | -- | -- | 500 | -- |
| L | 2211 | 1.65±0.20 mm | 1.80 mm | | | 1,000 | |
| Z | | 2.00±0.20 mm | 2.20 mm | -- | -- | 1,000 | -- |
| G | | 2.50±0.20 mm | 2.75 mm | -- | -- | 500 | -- |
| Z | 2225 | 2.00±0.20 mm | 2.20 mm | -- | -- | 1,000 | -- |
| G | | 2.50±0.20 mm | 2.75 mm | -- | -- | 500 | -- |