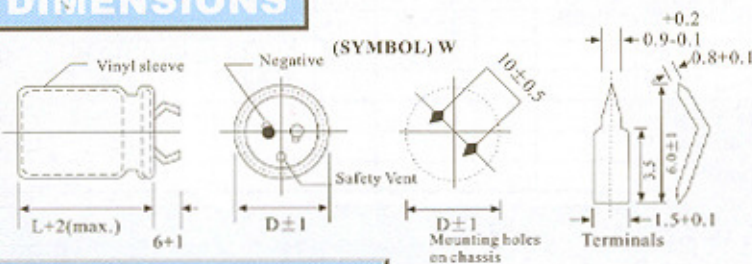


KH SERIES

FEATURES

- Terminal to be soldered easily as KG series.
- With high temperature 105°C, high reliability and high ripple current endurance.
- Applications for use in power supplies, OA equipment, computers and other industrial equipment as a filter.

DIMENSIONS



P.C.B. TERMINAL (SNAP-IN)

SPECIFICATIONS

| Item | Characteristics | | | | | | | | | | | | | | |
|---|---|------|------|------|------|------|------|-----------------------------------|------|------|------|------|------|------|------|
| Operation Temperature | -40 ~ +105°C | | | | | | | -25 ~ +105°C | | | | | | | |
| Rated Working Voltage Range | 10 ~ 100VDC | | | | | | | 160 ~ 450VDC | | | | | | | |
| Capacitance Tolerance (120Hz, 25°C) | ±20%(M) | | | | | | | | | | | | | | |
| Leakage Current (25°C) | 10 ~ 100VDC | | | | | | | 160 ~ 450VDC | | | | | | | |
| | $I \leq 0.01CV (\mu A)$ | | | | | | | $I \leq 0.03CV (\mu A)$ | | | | | | | |
| | I: Leakage Current (μA) C: Rated Capacitance (μF) V: Working Voltage (V) (After 5 minutes applying the DC working voltage) | | | | | | | | | | | | | | |
| Surge Voltage (25°C) | WV | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 | 160 | 200 | 250 | 350 | 400 | 450 |
| | SV | 13 | 20 | 32 | 44 | 63 | 79 | 100 | 125 | 200 | 250 | 300 | 400 | 450 | 500 |
| Dissipation Factor (120Hz, 25°C) $\tan \delta$ (max) | WV | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 | 160 | 200 | 250 | 350 | 400 | 450 |
| | $\tan \delta$ | 0.55 | 0.50 | 0.45 | 0.45 | 0.35 | 0.30 | 0.25 | 0.20 | 0.15 | 0.15 | 0.15 | 0.20 | 0.20 | 0.20 |
| Temperature Characteristics | WV | 10 | 16 | 25 | 35 | 50 | 63 | 80 | 100 | 160 | 200 | 250 | 350 | 400 | 450 |
| | -25°C/+25°C | 4 | 4 | 3 | 3 | 2 | 2 | 2 | 2 | 4 | 4 | 4 | 4 | 4 | 8 |
| | -40°C/+25°C | 15 | 15 | 10 | 8 | 6 | 6 | 5 | 5 | - | - | - | - | - | - |
| | Impedance ratio at 120Hz | | | | | | | | | | | | | | |
| Load Test | After 2000 hours application of WV at +105°C, the capacitor shall meet the following limits | | | | | | | | | | | | | | |
| | Capacitance Change | | | | | | | ≤ ±20% of initial value | | | | | | | |
| | $\tan \delta$ | | | | | | | ≤ 150% of initial specified value | | | | | | | |
| | Leakage Current | | | | | | | ≤ initial specified value | | | | | | | |
| Shelf Test | After 1000 hours, no voltage applied at +105°C, the capacitor shall meet the following limits. | | | | | | | | | | | | | | |
| | Capacitance Change | | | | | | | ≤ ±20% of initial value | | | | | | | |
| | $\tan \delta$ | | | | | | | ≤ 150% of initial specified value | | | | | | | |
| | Leakage Current | | | | | | | ≤ 200% of initial specified value | | | | | | | |

ALUMINIUM ELECTROLYTIC CAPACITOR

DIMENSIONS

| μF | ITEM | 10 | | | | 16 | | | | | | | |
|-------|-------|------|-------|------|-------|-------|-------|-------|------|-------|------|-------|------|
| | | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | | | | |
| 6800 | | | | | | 22*25 | 1.41 | | | | | | |
| 8200 | | | | | | 22*30 | 1.68 | | | | | | |
| 10000 | 22*25 | 1.40 | | | | 22*30 | 1.77 | 25*25 | 1.77 | | | | |
| 12000 | 22*30 | 1.59 | | | | 22*35 | 2.00 | 25*30 | 2.02 | 30*25 | 2.21 | | |
| 15000 | 22*30 | 1.77 | 25*25 | 1.76 | | 22*40 | 2.30 | 25*35 | 2.32 | 30*25 | 2.27 | | |
| 18000 | 22*35 | 1.99 | 25*30 | 2.01 | | 22*45 | 2.58 | 25*40 | 2.63 | 30*30 | 2.59 | | |
| 22000 | 22*40 | 2.26 | 25*35 | 2.29 | 30*25 | 2.16 | | 25*45 | 2.99 | 30*35 | 2.96 | 35*25 | 2.91 |
| 27000 | 22*50 | 2.64 | 25*40 | 2.61 | 30*30 | 2.58 | | 25*50 | 3.40 | 30*40 | 3.39 | 35*30 | 3.11 |
| 33000 | | | 25*45 | 2.97 | 30*35 | 2.95 | 35*30 | 2.84 | | 30*45 | 3.87 | 35*35 | 3.83 |
| 39000 | | | 25*50 | 3.31 | 30*40 | 3.32 | 35*30 | 3.09 | | 30*50 | 4.33 | 35*40 | 4.31 |
| 47000 | | | | | 30*45 | 3.75 | 35*35 | 3.38 | | | | 35*45 | 4.89 |
| 56000 | | | | | 30*50 | 4.21 | 35*40 | 4.20 | | | | 35*50 | 4.91 |
| 68000 | | | | | | | 35*50 | 4.91 | | | | | |

| μF | ITEM | 25 | | | | 35 | | | | | | | | |
|-------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| | | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | | | | | |
| 3300 | | | | | | 22*25 | 1.26 | | | | | | | |
| 3900 | | | | | | 22*30 | 1.41 | | | | | | | |
| 4700 | 22*25 | 1.35 | | | | 22*30 | 1.55 | 25*25 | 1.62 | | | | | |
| 5600 | 22*25 | 1.47 | | | | 22*35 | 1.76 | 25*30 | 1.76 | 30*25 | 1.79 | | | |
| 6800 | 22*30 | 1.67 | 25*25 | 1.68 | | 22*40 | 1.98 | 25*35 | 2.01 | 30*25 | 1.97 | | | |
| 8200 | 22*35 | 1.90 | 25*30 | 1.91 | 30*25 | 1.94 | | 22*50 | 2.30 | 25*40 | 2.28 | 30*30 | 2.48 | |
| 10000 | 22*40 | 2.15 | 25*35 | 2.18 | 30*25 | 2.13 | | | 25*45 | 2.58 | 30*35 | 2.61 | 35*30 | 2.62 |
| 12000 | 22*45 | 2.42 | 25*40 | 2.47 | 30*30 | 2.43 | | | 25*50 | 2.92 | 30*40 | 2.91 | 35*30 | 3.69 |
| 15000 | | | 25*45 | 2.84 | 30*35 | 2.82 | 35*30 | 2.94 | | | 30*45 | 3.35 | 35*35 | 3.30 |
| 18000 | | | 25*50 | 3.19 | 30*40 | 3.19 | 35*30 | 3.22 | | | | 35*40 | 3.93 | |
| 22000 | | | | | 30*45 | 3.64 | 35*35 | 3.28 | | | | 35*50 | 4.43 | |
| 27000 | | | | | | | 35*45 | 4.26 | | | | | | |
| 33000 | | | | | | | 35*50 | 4.85 | | | | | | |

| μF | ITEM | 50 | | | | 63 | | | | | | | |
|-------|-------|------|-------|------|-------|-------|-------|-------|------|-------|------|-------|------|
| | | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | | | | |
| 1200 | | | | | | 22*25 | 1.07 | | | | | | |
| 1500 | 22*25 | 1.05 | | | | 22*25 | 1.20 | | | | | | |
| 1800 | 22*25 | 1.20 | | | | 22*30 | 1.36 | 25*25 | 1.37 | | | | |
| 2200 | 22*30 | 1.28 | | | | 22*35 | 1.56 | 25*30 | 1.57 | | | | |
| 2700 | 22*30 | 1.52 | 25*25 | 1.53 | | 22*40 | 1.77 | 25*35 | 1.79 | 30*25 | 1.58 | | |
| 3300 | 22*35 | 1.74 | 25*30 | 1.67 | | 22*50 | 2.06 | 25*40 | 2.04 | 30*30 | 2.01 | | |
| 3900 | 22*40 | 1.94 | 25*35 | 1.96 | 30*25 | 1.76 | | 25*45 | 2.29 | 30*35 | 2.30 | 35*25 | 2.02 |
| 4700 | 22*45 | 2.19 | 25*35 | 2.15 | 30*30 | 2.03 | | 25*50 | 2.57 | 30*40 | 2.57 | 35*30 | 2.51 |
| 5600 | 22*50 | 2.48 | 25*40 | 2.43 | 30*35 | 2.48 | | | | 30*45 | 2.90 | 35*35 | 2.89 |
| 6800 | | | 25*50 | 2.97 | 30*40 | 2.97 | 35*30 | 2.93 | | 30*50 | 3.29 | 35*40 | 3.28 |
| 8200 | | | | | 30*45 | 3.24 | 35*35 | 3.20 | | | | 35*45 | 3.51 |
| 10000 | | | | | 30*50 | 3.64 | 35*40 | 3.63 | | | | 35*50 | 3.96 |
| 12000 | | | | | | | 35*45 | 4.10 | | | | | |

| μF | ITEM | 80 | | | | 100 | | | | | | | |
|------|-------|------|-------|------|-------|-------|-------|-------|------|-------|------|-------|------|
| | | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | | | | |
| 680 | | | | | | 22*25 | 1.05 | | | | | | |
| 820 | 22*25 | 1.00 | | | | 22*30 | 1.18 | 25*25 | 1.19 | | | | |
| 1000 | 22*25 | 1.09 | | | | 22*35 | 1.35 | 25*30 | 1.36 | | | | |
| 1200 | 22*30 | 1.24 | 25*25 | 1.25 | | 22*40 | 1.52 | 25*35 | 1.54 | 30*25 | 1.51 | | |
| 1500 | 22*35 | 1.43 | 25*30 | 1.44 | | 22*45 | 1.75 | 25*40 | 1.78 | 30*30 | 1.76 | | |
| 1800 | 22*40 | 1.62 | 25*30 | 1.58 | 30*25 | 1.48 | | 25*45 | 2.01 | 30*35 | 2.25 | 35*25 | 1.95 |
| 2200 | 22*45 | 1.84 | 25*35 | 1.81 | 30*30 | 1.84 | | 25*50 | 2.28 | 30*40 | 2.43 | 35*30 | 2.25 |
| 2700 | | | 25*45 | 2.12 | 30*35 | 2.12 | 35*25 | 2.06 | | 30*45 | 2.59 | 35*35 | 2.59 |
| 3300 | | | 25*50 | 2.41 | 30*40 | 2.41 | 35*30 | 2.21 | | 30*50 | 2.95 | 35*40 | 2.94 |
| 3900 | | | | | 30*45 | 2.70 | 35*35 | 2.68 | | | | 35*45 | 3.30 |
| 4700 | | | | | 30*50 | 3.05 | 35*40 | 3.04 | | | | 35*50 | 3.42 |
| 5600 | | | | | | | 35*45 | 3.51 | | | | | |
| 6800 | | | | | | | 35*50 | 3.70 | | | | | |

Case Size D×L (mm) ↑ Max Ripple Current A(rms)/120Hz 105°C

ALUMINIUM ELECTROLYTIC CAPACITOR

DIMENSIONS

| WV | 160 | | | | | | | | 200 | | | | | | | |
|------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|--|--|
| | ITEM | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | | | |
| 220 | | | | | | 22*25 | 0.71 | | | | | | | | | |
| 270 | 22*25 | 0.98 | | | | 22*25 | 0.78 | | | | | | | | | |
| 330 | 22*25 | 1.08 | | | | 22*30 | 1.08 | 25*25 | 1.09 | | | | | | | |
| 390 | 22*30 | 1.17 | 25*25 | 1.15 | | 22*35 | 1.18 | 25*25 | 1.18 | | | | | | | |
| 470 | 22*35 | 1.26 | 25*25 | 1.27 | | 22*40 | 1.26 | 25*30 | 1.27 | 30*25 | 1.34 | | | | | |
| 560 | 22*40 | 1.35 | 25*30 | 1.36 | 30*25 | 1.38 | 22*45 | 1.40 | 25*35 | 1.38 | 30*25 | 1.47 | | | | |
| 680 | 22*45 | 1.54 | 25*35 | 1.53 | 30*25 | 1.55 | 22*50 | 1.57 | 25*40 | 1.57 | 30*30 | 1.57 | | | | |
| 820 | 22*50 | 1.74 | 25*40 | 1.89 | 30*30 | 1.80 | | | 25*50 | 1.84 | 30*35 | 1.81 | 35*30 | 1.84 | | |
| 1000 | | | 25*45 | 1.98 | 30*35 | 2.00 | 35*25 | 1.90 | | | 30*45 | 2.07 | 35*35 | 2.07 | | |
| 1200 | | | 25*50 | 2.21 | 30*40 | 2.20 | 35*30 | 2.20 | | | 30*50 | 2.30 | 35*40 | 2.30 | | |
| 1500 | | | | | 30*45 | 2.54 | 35*35 | 2.25 | | | | | 35*45 | 2.50 | | |
| 1800 | | | | | 30*50 | 2.68 | 35*45 | 2.68 | | | | | 35*50 | 2.77 | | |
| 2200 | | | | | | | 35*50 | 3.01 | | | | | | | | |

| WV | 250 | | | | | | | | 350 | | | | | | | |
|------|-------|------|-------|------|-------|-------|-------|-------|------|-------|------|-------|------|--|--|--|
| | ITEM | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | | | |
| 68 | | | | | | 22*25 | 0.46 | | | | | | | | | |
| 82 | | | | | | 22*25 | 0.50 | | | | | | | | | |
| 100 | | | | | | 22*30 | 0.62 | 25*25 | 0.62 | | | | | | | |
| 120 | | | | | | 22*35 | 0.68 | 25*25 | 0.68 | | | | | | | |
| 150 | 22*25 | 0.64 | | | | 22*40 | 0.74 | 25*30 | 0.75 | 30*25 | 0.75 | | | | | |
| 180 | 22*25 | 0.70 | | | | 22*45 | 0.83 | 25*35 | 0.83 | 30*25 | 0.82 | | | | | |
| 220 | 22*30 | 0.86 | 25*25 | 0.86 | | 22*50 | 0.95 | 25*40 | 0.94 | 30*30 | 0.92 | | | | | |
| 270 | 22*35 | 1.03 | 25*25 | 0.95 | | | | 25*45 | 1.07 | 30*35 | 1.06 | 35*30 | 1.09 | | | |
| 330 | 22*40 | 1.13 | 25*30 | 1.08 | 30*25 | 1.13 | | | | 30*40 | 1.21 | 35*30 | 1.20 | | | |
| 390 | 22*45 | 1.34 | 25*35 | 1.34 | 30*25 | 1.25 | | | | 30*45 | 1.36 | 35*35 | 1.33 | | | |
| 470 | 22*50 | 1.41 | 25*40 | 1.41 | 30*30 | 1.41 | 30*25 | 1.41 | | | | 35*40 | 1.52 | | | |
| 560 | | | 25*45 | 1.61 | 30*35 | 1.61 | 35*30 | 1.61 | | | | 35*45 | 1.71 | | | |
| 680 | | | 25*50 | 1.66 | 30*40 | 1.80 | 35*30 | 1.77 | | | | | | | | |
| 820 | | | | | 30*45 | 1.94 | 35*35 | 1.80 | | | | | | | | |
| 1000 | | | | | | | 35*40 | 2.17 | | | | | | | | |
| 1200 | | | | | | | 35*45 | 2.39 | | | | | | | | |

| WV | 400 | | | | | | | | 450 | | | | | | | |
|-----|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|--|
| | ITEM | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | 22 | 25 | 30 | 35 | | | |
| 56 | | | | | | 22*25 | 0.36 | | | | | | | | | |
| 68 | 22*25 | 0.46 | | | | 22*30 | 0.45 | 25*25 | 0.45 | | | | | | | |
| 82 | 22*30 | 0.53 | 25*25 | 0.56 | | 22*35 | 0.51 | 25*25 | 0.50 | | | | | | | |
| 100 | 22*30 | 0.58 | 25*25 | 0.60 | | 22*40 | 0.58 | 25*30 | 0.52 | 30*25 | 0.58 | | | | | |
| 120 | 22*35 | 0.65 | 25*30 | 0.65 | 30*25 | 0.68 | 22*45 | 0.65 | 25*35 | 0.64 | 30*25 | 0.63 | | | | |
| 150 | 22*40 | 0.74 | 25*35 | 0.75 | 30*25 | 0.75 | 22*50 | 0.71 | 25*40 | 0.68 | 30*30 | 0.67 | 35*25 | 0.68 | | |
| 180 | 22*50 | 0.86 | 25*40 | 0.85 | 30*30 | 0.83 | | | 25*45 | 0.76 | 30*35 | 0.78 | 35*30 | 0.80 | | |
| 220 | | | 25*45 | 0.97 | 30*35 | 0.96 | 35*30 | 0.98 | | 25*50 | 0.89 | 30*40 | 0.89 | 35*30 | 0.90 | |
| 270 | | | 25*50 | 1.09 | 30*40 | 1.09 | 35*30 | 1.08 | | | | 30*45 | 1.03 | 35*35 | 1.05 | |
| 330 | | | | | 30*45 | 1.25 | 35*35 | 1.21 | | | | 30*50 | 1.24 | 35*40 | 1.24 | |
| 390 | | | | | 30*50 | 1.39 | 35*40 | 1.38 | | | | | 35*45 | 1.39 | | |
| 470 | | | | | | | 35*45 | 1.56 | | | | | 35*50 | 1.54 | | |

↑ Max Ripple Current A(rms)/120Hz 105°C

↑ Case Size D×L (mm)

RIPPLE CURRENT COEFFICIENTS

| Frequency(HZ) | 60(50) | 120 | 1K | 10K | 100K |
|---------------|------------|------|------|------|------|
| WV | Multiplier | | | | |
| 10-35V | 0.90 | 1.00 | 1.05 | 1.10 | 1.10 |
| 50-100V | 0.90 | 1.00 | 1.15 | 1.20 | 1.20 |
| 160-250V | 0.80 | 1.00 | 1.35 | 1.45 | 1.50 |
| 350-450V | 0.80 | 1.00 | 1.10 | 1.15 | 1.15 |

| Temperature(°C) | 45 | 65 | 85 | 105 |
|-----------------|------|------|------|------|
| Multiplier | 2.55 | 2.25 | 1.65 | 1.00 |