

Part Numbering System



① Category code

| Type | Code |
|------------------------|------|
| | 1 |
| Electrolytic Capacitor | E |
| Conductive Polymer | S |

② Series code

| Series name | Code | |
|-------------|------|---|
| | 2 | 3 |
| WH | W | H |
| CD11GE | G | E |
| CD11GES | G | X |
| CD11GAS | G | W |
| CD11GHS | G | S |
| NR | N | R |
| PZ | P | Z |

③ Voltage code

| WV (V _{dc}) | Code | |
|-----------------------|------|---|
| | 4 | 5 |
| 2.5 | 0 | E |
| 3 | 0 | D |
| 4 | 0 | G |
| 6.3 | 0 | J |
| 6.8 | 0 | C |
| 7 | 0 | Q |
| 7.5 | 0 | A |
| 10 | 1 | A |
| 12 | 1 | T |
| 16 | 1 | C |
| 25 | 1 | E |
| 35 | 1 | V |
| 40 | 1 | G |
| 50 | 1 | H |
| 63 | 1 | J |
| 80 | 1 | B |
| 100 | 1 | K |
| 120 | 2 | B |
| 160 | 2 | C |
| 180 | 2 | L |
| 200 | 2 | D |
| 220 | 2 | N |
| 250 | 2 | E |
| 315 | 2 | F |
| 350 | 2 | V |
| 380 | 2 | P |
| 400 | 2 | G |
| 420 | 2 | T |
| 450 | 2 | W |
| 500 | 2 | H |
| 550 | 2 | J |
| 600 | 2 | K |

④ Capacitance tolerance code

| Tol. (%) | Code |
|----------|------|
| | 6 |
| -10~+10 | K |
| -20~+20 | M |
| -10~+30 | Q |
| -10~+20 | V |
| 0~+20 | A |
| -5~+20 | C |
| -10~-20 | B |
| -5~+5 | D |
| 0~+10 | E |
| -5~-20 | F |
| -15~+5 | N |

⑤ Capacitance code

| Cap (μF) | Code | | |
|----------|------|---|---|
| | 7 | 8 | 9 |
| 0.10 | R | 1 | 0 |
| 0.22 | R | 2 | 2 |
| 0.33 | R | 3 | 3 |
| 0.47 | R | 4 | 7 |
| 0.68 | R | 6 | 8 |
| 1 | 0 | 1 | 0 |
| 2.2 | 2 | R | 2 |
| 3.3 | 3 | R | 3 |
| 4.7 | 4 | R | 7 |
| 6.8 | 6 | R | 8 |
| 10 | 1 | 0 | 0 |
| 22 | 2 | 2 | 0 |
| 33 | 3 | 3 | 0 |
| 47 | 4 | 7 | 0 |
| 68 | 6 | 8 | 0 |
| 100 | 1 | 0 | 1 |
| 220 | 2 | 2 | 1 |
| 330 | 3 | 3 | 1 |
| 470 | 4 | 7 | 1 |
| 680 | 6 | 8 | 1 |
| 1000 | 1 | 0 | 2 |
| 2200 | 2 | 2 | 2 |
| 3300 | 3 | 3 | 2 |
| 4700 | 4 | 7 | 2 |
| 6800 | 6 | 8 | 2 |
| 10000 | 1 | 0 | 3 |
| 22000 | 2 | 2 | 3 |
| 33000 | 3 | 3 | 3 |
| 68000 | 6 | 8 | 3 |

⑥ Size code

| ΦD (mm) | Code |
|---------|------|
| 4 | C |
| 5 | D |
| 6.3 | E |
| 8 | F |
| 10 | G |
| 11 | H |
| 12 | J |
| 12.5 | W |
| 13 | K |
| 14 | X |
| 16 | L |
| 18 | M |
| 19 | Z |
| 20 | N |
| 22 | O |
| 25 | P |
| 30 | Q |
| 35 | R |
| 40 | Y |
| 51.6 | S |
| 64.3 | T |
| 76.9 | U |
| 91 | V |
| 100 | A |

| L (mm) | Code | |
|--------|------|----|
| | 11 | 12 |
| 5 | 0 | 5 |
| 7 | 0 | 7 |
| 11 | 1 | 1 |
| 12 | 1 | 2 |
| 16 | 1 | 6 |
| 20 | 2 | 0 |
| 25 | 2 | 5 |
| 30 | 3 | 0 |
| 35 | 3 | 5 |
| 40 | 4 | 0 |
| 46 | 4 | 6 |
| 50 | 5 | 0 |
| 60 | 6 | 0 |
| 80 | 8 | 0 |
| 100 | A | 0 |
| 115 | B | 5 |
| 120 | C | 0 |
| 130 | D | 0 |
| 140 | E | 0 |
| 160 | G | 0 |
| 200 | K | 0 |
| 220 | M | 0 |
| 236 | N | 6 |
| 250 | P | 0 |

⑦ Terminal code

| Specification | Code | Size | |
|---------------------------------------|------|------|----|
| | 13 | 14 | 15 |
| Bulk packing | O | - | - |
| Taping (SMD Type) | D | 0 | 0 |
| Φ4~8 Taping F=5.0mm | P | 5 | 0 |
| Φ10~12.5 Taping F=5.0mm | B | 5 | 0 |
| Lead Cut L=3.5mm | C | 3 | 5 |
| Lead Cut L=11.0mm | C | B | 0 |
| Lead Forming & Cut L=4.5mm | F | - | - |
| Kink & Cut L=4.5mm | J | - | - |
| Snap-in type Terminal 4.0mm in length | K | - | - |
| Three Terminals | T | - | - |
| Ring clip mounting standard design | A | 0 | 0 |
| Ring clip mounting special design | S | - | - |

⑧ Sleeve/Marking code

| Sleeve/Marking | Code |
|----------------|------|
| | 16 |
| PVC | C |
| PET | T |
| Dark blue | B |
| Bright red | R |
| Sky-blue | S |
| Light blue | T |
| Pink | Z |
| Black | H |
| Purple-blue | V |
| Red | O |

Lead Forming
Taping Specifications

Fig.1 code: X



Fig.2 code: B



Fig.3 code: B



Fig.4 code: P



Lead Forming

Specification Fig.1 & Fig.2 & Fig.3

| Items | Symbol | Case size | | | | | | | | | | Tolerance | | |
|---|--------|------------|-----|------------|------|------|------|-------|----------------|------------------|-----------------------------------|-----------|--------------|--|
| | | 4*5 4*7 | | 5*5 5*7 | | 5*11 | | 6.3*5 | 6.3*7 6.3*9 | 6.3*11 6.3*12 | 8*5/7 8*9/11 8*11.5 8*12 | | 8*16 8*20 | 10*9/12 10*12.5 10*13/16 10*20/25 |
| Pin Code | | X | B | X | B | X | B | B | B | B | B | B | B | |
| Lead wire diameter | Φd | 0.45 | | 0.45 | | 0.5 | | 0.45 | 0.5 | 0.5 | 0.45/0.5 | 0.6 | 0.6 | ±0.05 |
| Pitch of body | P | 12.7 | | 12.7 | | 12.7 | | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | ±1.0 |
| Feed hole pitch | P0 | 12.7 | | 12.7 | | 12.7 | | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | ±0.2 |
| Distance from hole center to lead | P1 | 5.1 | 5.6 | 5.1 | 5.35 | 5.1 | 5.35 | 5.1 | 5.1 | 5.1 | 4.6 | 4.6 | 3.85 | ±0.7 |
| Distance from feed hole center to body center | P2 | 6.35 | | 6.35 | | 6.35 | | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | ±1.0 |
| Lead-to-lead distance | F | 2.5 | 1.5 | 2.5 | 2.0 | 2.5 | 2.0 | 2.5 | 2.5 | 2.5 | 3.5 | 3.5 | 5.0 | ±0.5 |
| Height of body from tape center | H | 18.5 | | 18.5 | | 18.5 | | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | ±0.75 |
| Base tape width | W | 18.0 | | 18.0 | | 18.0 | | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | ±0.5 |
| Adhesive tape width | W0 | 6.0 | | 6.0 | | 6.0 | | 6.0 | 6.0 | 8.0 | 8.0 | 8.0 | 11.0 | min |
| Hole position | W1 | 9.0 | | 9.0 | | 9.0 | | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | +0.75 -0.5 |
| Hole down tape position | W2 | 3.0 | | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | max |

Specification Fig.4

| Items | Symbol | Case size | | | | | | | | | Tolerance |
|---|--------|------------|------|------|------|-------|----------------|------------------|------------------------------|--------------|---------------|
| | | 4*5 4*7 | 5*5 | 5*7 | 5*11 | 6.3*5 | 6.3*7 6.3*9 | 6.3*11 6.3*12 | 8*5/7 8*9/11 8*11.5/12 | 8*16 8*20 | |
| Pin Code | | P | P | P | P | P | P | P | P | P | |
| Lead wire diameter | Φd | 0.45 | 0.45 | 0.45 | 0.5 | 0.45 | 0.5 | 0.5 | 0.45/0.5 | 0.6 | ±0.05 |
| Pitch of body | P | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | ±1.0 |
| Feed hole pitch | P0 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | 12.7 | ±0.2 |
| Distance from hole center to lead | P1 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | ±0.7 |
| Distance from feed hole center to body center | P2 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | 6.35 | ±1.0 |
| Lead-to-lead distance | F | 1.5 | 2.0 | 2.0 | 2.0 | 2.5 | 2.5 | 2.5 | 3.5 | 3.5 | ±0.5 |
| Lead to lead distance | F1 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | +0.8 -0.2 |
| Height of body from tape center | H | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | ±0.75 |
| Lead wire clinch height | H0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | ±0.5 |
| Base tape width | W | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | ±0.5 |
| Adhesive tape width | W0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 8.0 | 8.0 | 8.0 | min |
| Hole position | W1 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | +0.75 -0.5 |
| Hole down tape position | W2 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | max |

Lead Forming

Lead Forming & Cut

Code:C
RANGE: $\Phi 4 \sim \Phi 18$



Code:F
RANGE: $\Phi 4 \sim \Phi 8$



| ΦD | F | L | ΦD | F | L |
|----------|-----|----------|----------|-----|--------------------|
| 4 | 1.5 | 3.0~12.0 | 4 | 5.0 | 3.5, 4.5, 5.0, 7.0 |
| 5 | 2.0 | 3.0~12.0 | 5 | 5.0 | 3.5, 4.5, 5.0, 7.0 |
| 6.3 | 2.5 | 3.0~12.0 | 6.3 | 5.0 | 3.5, 4.5, 5.0, 7.0 |
| 8 | 3.5 | 3.0~12.0 | 8 | 5.0 | 3.5, 4.5, 5.0, 7.0 |
| 10 | 5.0 | 3.0~12.0 | - | - | - |
| 12.5 | 5.0 | 3.0~12.0 | - | - | - |
| 16 | 7.5 | 3.0~12.0 | - | - | - |
| 18 | 7.5 | 3.0~12.0 | - | - | - |

Code:J
RANGE: $\Phi 10 \sim \Phi 18$



| ΦD | F | L |
|----------|-----|---------------|
| 10 | 5.0 | 4.0, 4.5, 5.0 |
| 12.5 | 5.0 | 4.0, 4.5, 5.0 |
| 16 | 7.5 | 4.0, 4.5, 5.0 |
| 18 | 7.5 | 4.0, 4.5, 5.0 |

Solering Recommendation

■ Flow Soldering(Radial Lead Type)



■ Reflow Soldering

- (For Polymer SMD Type)

Recommended Reflow Profile



| Item | Preheating | T1(°C) | T2(°C) | T3(°C) | t1(sec.) | t2(sec.) | t3(sec.) | Reflow cycle |
|-------------|---------------------------------|--------|--------|--------|----------|----------|----------|--------------|
| Condition 1 | 150°C to 180°C Within 90sec. | ≤260 | 230 | 200 | ≤10 | ≤40 | ≤60 | 1 |
| Condition 2 | | ≤250 | 230 | 200 | ≤10 | ≤40 | ≤60 | 2 |

● (For Liquid SMD Type)

Case size: $\Phi 6.3$ – $\Phi 10$ mm:

- Temperature at surface of capacitor shall not exceed $T^{\circ}\text{C}$.
- The duration for over 200°C temperature and $T_1^{\circ}\text{C}$ at surface of capacitor shall not exceed t and t_1 seconds, respectively.
- Preheat shall be done at 100°C to 200°C and for Maximum 180 seconds.



| Case size (mm) | $T(^{\circ}\text{C})$ ① | $T_1(^{\circ}\text{C})$ | $t(\text{sec.})$ ② | $t_1(\text{sec.})$ ③ | Reflow cycle |
|----------------|-------------------------|-------------------------|--------------------|----------------------|--------------|
| $\Phi 6.3$ | 250 | 230 | 90 | 40 | 1 |
| $\Phi 8$ | 240 | 230 | 90 | 30 | 1 |
| $\Phi 10$ | 235 | 230 | 60 | 30 | 1 |

- ① Peak temperature
- ② The duration over 200°C (max.)
- ③ The duration over $T_1^{\circ}\text{C}$
- Please contact us if capacitors are subject to the conditions other than the allowable range of reflow.

Case size: $\Phi 12.5$ – $\Phi 18$ mm:

- Temperature at surface of capacitor shall not exceed $T^{\circ}\text{C}$.
- The duration for over 200°C temperature and $T_1^{\circ}\text{C}$ at surface of capacitor shall not exceed t and t_1 seconds, respectively.
- Preheat shall be done at 100°C to 180°C and for Maximum 150 seconds.



| Case size (mm) | $T(^{\circ}\text{C})$ ① | $T_1(^{\circ}\text{C})$ | $t(\text{sec.})$ ② | $t_1(\text{sec.})$ ③ | Reflow cycle |
|-------------------------|-------------------------|-------------------------|--------------------|----------------------|--------------|
| $\Phi 12.5$ – $\Phi 18$ | 240 | 230 | 60 | 30 | 1 |

- ① Peak temperature
- ② The duration over 200°C (max.)
- ③ The duration over $T_1^{\circ}\text{C}$
- Please contact us if capacitors are subject to the conditions other than the allowable range of reflow.

GH series

- Endurance: +105°C 5,000~10,000 hours
- Especially designed for electronic ballast, intelligent instrument, etc.
- RoHS Compliant

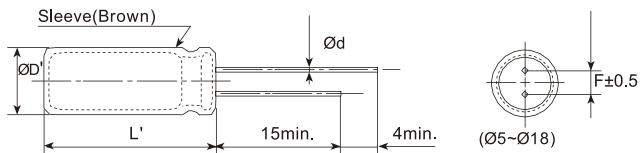
Upgrade



SPECIFICATIONS

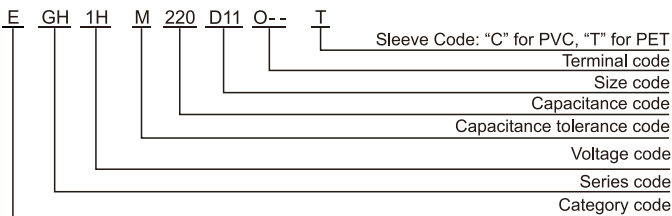
| Items | Characteristics | | | | | | | | | | | | | |
|--|---|---|------|------|------------------------|------|----------------|------|---|---------|-----------|-------------------|---------|----------|
| Category Temperature Range | -40~+105°C | | | | | | | | | | | | | |
| Rated Voltage Range | 6.3~450 V _{dc} | | | | | | | | | | | | | |
| Capacitance Tolerance | ±20%(M) (at 20°C, 120Hz) | | | | | | | | | | | | | |
| Leakage Current | 6.3~100V _{dc} | | | | 160~450V _{dc} | | | | Where, I:Max.leakage current (μA), C:Nominal capacitance (μF), V: Rated voltage (V) | | | | | |
| | I≤0.01CV or 3μA (2 minutes) Whichever is greater. | | | | CV | | After 1 minute | | After 5 minutes | | | | | |
| | | | | | CV≤1,000 | | I≤0.1CV+40μA | | I≤0.03CV+15μA | | | | | |
| Dissipation Factor (tanδ) | Rated Voltage(V _{dc}) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160~250 | 350~450 | | | |
| | tanδ(max.) | 0.30 | 0.24 | 0.20 | 0.18 | 0.16 | 0.14 | 0.12 | 0.10 | 0.15 | 0.20 | | | |
| | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz) | | | | | | | | | | | | | |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated Voltage(V _{dc}) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160~250 | 350~450 | | | |
| | Z(-25°C)/Z(+20°C) | 5 | 4 | 3 | 2 | | | | 3 | | 6 | | | |
| | Z(-40°C)/Z(+20°C) | 12 | 10 | 8 | 5 | 4 | 3 | | 7 | | 7 | (at 120Hz) | | |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105°C. | | | | | | | | | | | | | |
| | Capacitance Change | ≤±20% of the initial value(6.3V, 10V:≤±30%) | | | | | | | | | Case Dia. | Load life (hours) | | |
| | D.F. (tanδ) | ≤200% of the initial specified value | | | | | | | | | ØD≤6.3 | 6.3~10V | 16~100V | 160~450V |
| | Leakage Current | ≤The initial specified value | | | | | | | | | ØD=8&10 | 6,000 | 7,000 | 10,000 |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. | | | | | | | | | | | | | |
| | Capacitance Change | ≤±20% of the initial value(6.3V, 10V:≤±30%) | | | | | | | | | | | | |
| | D.F. (tanδ) | ≤200% of the initial specified value | | | | | | | | | | | | |
| | Leakage Current | ≤200% of the initial specified value | | | | | | | | | | | | |

DIMENSIONS[mm]



| | | | | | | | |
|-----|------------|-----|-----|-----|------|-----|-----|
| ØD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
| Ød | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| ØD' | ØD+0.5max. | | | | | | |
| L' | L+2max. | | | | | | |

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

| Rated Voltage(V) | Freq.(Hz) | | | | |
|------------------|---------------|------|------|------|------|
| | Cap.(μF) | 120 | 1k | 10k | 100k |
| 6.3~100 | Cap.<100 | 0.40 | 0.68 | 0.78 | 1.00 |
| | 100≤Cap.<220 | 0.50 | 0.76 | 0.87 | 1.00 |
| | 220≤Cap.<1000 | 0.70 | 0.85 | 0.90 | 1.00 |
| | 1000≤Cap. | 0.85 | 0.95 | 0.98 | 1.00 |
| 160~450 | Cap.<100 | 0.40 | 0.70 | 0.90 | 1.00 |
| | Cap.≥100 | 0.44 | 0.74 | 0.91 | 1.00 |

The endurance of capacitors is shortened with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

GH series

■ STANDARD RATINGS

| WV (V _{dc}) | Cap (μF) | Size ΦDxL(mm) | tanδ | Rated ripple current (mArms/105°C, 100kHz) |
|-----------------------|----------|---------------|------|--|
| 6.3(0J) | 150 | 5*11 | 0.30 | 91 |
| | 330 | 6.3*11 | 0.30 | 151 |
| | 680 | 8*12 | 0.30 | 228 |
| | 820 | 10*12.5 | 0.30 | 256 |
| | 1000 | 8*16 | 0.30 | 272 |
| | 1200 | 8*20 | 0.30 | 386 |
| | | 10*16 | 0.30 | 386 |
| | 1500 | 10*20 | 0.30 | 513 |
| | 1800 | 12.5*16 | 0.30 | 513 |
| | 2200 | 10*25 | 0.32 | 580 |
| | | 10*30 | 0.32 | 630 |
| | 2700 | 16*15 | 0.32 | 630 |
| | | 12.5*20 | 0.34 | 665 |
| | 3300 | 12.5*25 | 0.34 | 807 |
| | | 18*15 | 0.34 | 807 |
| | 4700 | 12.5*30 | 0.36 | 902 |
| | | 12.5*35 | 0.38 | 1034 |
| | 5600 | 16*20 | 0.38 | 1034 |
| | | 12.5*40 | 0.40 | 1190 |
| | 6800 | 16*25 | 0.40 | 1190 |
| 18*20 | | 0.40 | 1190 | |
| 8200 | 16*30 | 0.44 | 1400 | |
| 10000 | 16*35 | 0.48 | 1600 | |
| | 18*25 | 0.48 | 1600 | |
| 12000 | 16*40 | 0.52 | 1850 | |
| | 18*30 | 0.52 | 1850 | |
| 15000 | 18*35 | 0.58 | 1850 | |
| 18000 | 18*40 | 0.64 | 2000 | |
| 10(1A) | 100 | 5*11 | 0.24 | 91 |
| | 220 | 6.3*11 | 0.24 | 151 |
| | 470 | 8*12 | 0.24 | 228 |
| | 680 | 8*16 | 0.24 | 256 |
| | | 10*12.5 | 0.24 | 272 |
| | 1000 | 8*20 | 0.24 | 400 |
| | | 10*16 | 0.24 | 430 |
| | 1200 | 10*20 | 0.24 | 513 |
| | | 10*25 | 0.24 | 580 |
| | 1500 | 12.5*16 | 0.24 | 580 |
| | | 10*30 | 0.26 | 630 |
| | 2200 | 12.5*20 | 0.26 | 681 |
| | | 16*15 | 0.26 | 681 |
| | 2700 | 18*15 | 0.26 | 807 |
| | | 12.5*25 | 0.28 | 807 |
| | 3300 | 12.5*30 | 0.28 | 902 |
| | | 16*20 | 0.28 | 902 |
| | 4700 | 16*25 | 0.30 | 1116 |
| | | 12.5*40 | 0.32 | 1190 |
| | 5600 | 16*25 | 0.32 | 1190 |
| 18*20 | | 0.32 | 1190 | |
| 6800 | 16*30 | 0.34 | 1400 | |
| | 18*25 | 0.34 | 1400 | |
| 8200 | 16*35 | 0.38 | 1600 | |
| | 18*30 | 0.38 | 1600 | |
| 10000 | 16*40 | 0.42 | 1850 | |
| | 18*35 | 0.42 | 1850 | |
| 12000 | 18*40 | 0.46 | 2000 | |

| WV (V _{dc}) | Cap (μF) | Size ΦDxL(mm) | tanδ | Rated ripple current (mArms/105°C, 100kHz) |
|-----------------------|----------|---------------|------|--|
| 16(1C) | 56 | 5*11 | 0.20 | 100 |
| | 120 | 6.3*11 | 0.20 | 118 |
| | 330 | 8*12 | 0.20 | 205 |
| | | 8*16 | 0.20 | 256 |
| | 470 | 10*12.5 | 0.20 | 272 |
| | | 8*20 | 0.20 | 386 |
| | 680 | 10*16 | 0.20 | 386 |
| | | 10*20 | 0.20 | 513 |
| | 1000 | 12.5*16 | 0.20 | 513 |
| | | 10*25 | 0.20 | 580 |
| | 1200 | 10*30 | 0.20 | 630 |
| | | 12.5*20 | 0.20 | 665 |
| | 1500 | 16*15 | 0.20 | 665 |
| | | 12.5*25 | 0.22 | 807 |
| | 2200 | 18*15 | 0.22 | 807 |
| | | 12.5*30 | 0.22 | 902 |
| | 2700 | 16*20 | 0.22 | 902 |
| | | 12.5*35 | 0.24 | 1034 |
| | 3300 | 12.5*40 | 0.24 | 1190 |
| | | 16*25 | 0.24 | 1190 |
| 3900 | 18*20 | 0.24 | 1190 | |
| | 16*30 | 0.26 | 1400 | |
| 4700 | 18*25 | 0.26 | 1400 | |
| | 16*35 | 0.28 | 1600 | |
| 5600 | 18*30 | 0.28 | 1600 | |
| | 16*40 | 0.30 | 1850 | |
| 6800 | 16*40 | 0.30 | 1850 | |
| 8200 | 18*35 | 0.34 | 1850 | |
| 10000 | 18*40 | 0.38 | 2000 | |
| 25(1E) | 47 | 5*11 | 0.18 | 124 |
| | 100 | 6.3*11 | 0.18 | 138 |
| | 220 | 8*12 | 0.18 | 205 |
| | | 8*16 | 0.18 | 225 |
| | 330 | 10*12.5 | 0.18 | 245 |
| | | 8*20 | 0.18 | 320 |
| | 470 | 10*16 | 0.18 | 340 |
| | | 10*20 | 0.18 | 345 |
| | 680 | 12.5*16 | 0.18 | 345 |
| | | 10*25 | 0.18 | 450 |
| | 820 | 10*30 | 0.18 | 540 |
| | | 12.5*20 | 0.18 | 540 |
| | 1000 | 16*15 | 0.18 | 540 |
| | | 18*15 | 0.18 | 560 |
| | 1200 | 12.5*25 | 0.18 | 665 |
| | | 12.5*30 | 0.18 | 790 |
| | 1500 | 16*20 | 0.18 | 800 |
| | | 12.5*35 | 0.20 | 860 |
| | 1800 | 18*20 | 0.20 | 880 |
| | | 12.5*40 | 0.20 | 960 |
| 2200 | 16*25 | 0.20 | 980 | |
| | 16*30 | 0.22 | 1190 | |
| 2700 | 18*25 | 0.22 | 1190 | |
| | 16*35 | 0.22 | 1400 | |
| 3300 | 18*30 | 0.22 | 1400 | |
| | 16*40 | 0.24 | 1600 | |
| 3900 | 18*35 | 0.24 | 1600 | |
| | 18*40 | 0.26 | 1850 | |
| 4700 | 16*40 | 0.24 | 1600 | |
| 5600 | 18*40 | 0.26 | 1850 | |

Radial Type

GH series

■ STANDARD RATINGS

| WV (V _{dc}) | Cap (μF) | Size ΦDxL(mm) | tanδ | Rated ripple current (mA _{rms} /105°C,100kHz) |
|-----------------------|----------|---------------|------|--|
| 35(1V) | 33 | 5*11 | 0.16 | 90 |
| | 56 | 6.3*11 | 0.16 | 110 |
| | 150 | 8*12 | 0.16 | 180 |
| | 220 | 8*16 | 0.16 | 240 |
| | | 10*12.5 | 0.16 | 252 |
| | 270 | 8*20 | 0.16 | 280 |
| | 330 | 10*16 | 0.16 | 312 |
| | 470 | 10*20 | 0.16 | 386 |
| | | 12.5*16 | 0.16 | 394 |
| | 560 | 10*25 | 0.16 | 450 |
| | 680 | 10*30 | 0.16 | 496 |
| | | 12.5*20 | 0.16 | 520 |
| | 1000 | 16*15 | 0.16 | 520 |
| | | 12.5*25 | 0.16 | 810 |
| | 1200 | 18*15 | 0.16 | 810 |
| | | 12.5*30 | 0.16 | 860 |
| | 1500 | 16*25 | 0.16 | 880 |
| | | 12.5*35 | 0.16 | 880 |
| | 1800 | 12.5*40 | 0.16 | 960 |
| | | 16*20 | 0.16 | 900 |
| 2200 | 18*20 | 0.16 | 960 | |
| | 16*30 | 0.18 | 1190 | |
| 2700 | 18*25 | 0.18 | 1190 | |
| | 16*35 | 0.18 | 1400 | |
| 3300 | 18*30 | 0.18 | 1400 | |
| | 16*40 | 0.20 | 1600 | |
| 3900 | 18*35 | 0.20 | 1600 | |
| | 18*40 | 0.20 | 1850 | |
| 50(1H) | 22 | 5*11 | 0.14 | 84 |
| | 56 | 6.3*11 | 0.14 | 146 |
| | 100 | 8*12 | 0.14 | 152 |
| | 120 | 8*16 | 0.14 | 180 |
| | 150 | 10*12.5 | 0.14 | 215 |
| | 180 | 8*20 | 0.14 | 246 |
| | 220 | 10*16 | 0.14 | 291 |
| | 270 | 10*20 | 0.14 | 330 |
| | | 12.5*16 | 0.14 | 330 |
| | 330 | 10*25 | 0.14 | 386 |
| | 470 | 10*30 | 0.14 | 460 |
| | | 12.5*20 | 0.14 | 475 |
| | 560 | 16*15 | 0.14 | 475 |
| | | 12.5*25 | 0.14 | 520 |
| | 680 | 18*15 | 0.14 | 520 |
| | | 12.5*30 | 0.14 | 665 |
| | 820 | 12.5*35 | 0.14 | 800 |
| | | 16*20 | 0.14 | 800 |
| | 1000 | 12.5*40 | 0.14 | 880 |
| | | 16*25 | 0.14 | 880 |
| 1200 | 18*20 | 0.14 | 880 | |
| | 16*30 | 0.14 | 1190 | |
| 1500 | 18*25 | 0.14 | 1190 | |
| | 16*35 | 0.14 | 1400 | |
| 1800 | 16*40 | 0.14 | 1600 | |
| | 18*30 | 0.14 | 1600 | |
| 2200 | 18*35 | 0.16 | 1800 | |
| 2700 | 18*40 | 0.16 | 1850 | |

| WV (V _{dc}) | Cap (μF) | Size ΦDxL(mm) | tanδ | Rated ripple current (mA _{rms} /105°C,100kHz) |
|-----------------------|----------|---------------|------|--|
| 63(1J) | 15 | 5*11 | 0.12 | 62 |
| | 33 | 6.3*11 | 0.12 | 126 |
| | 56 | 8*12 | 0.12 | 198 |
| | 82 | 8*16 | 0.12 | 246 |
| | | 10*12.5 | 0.12 | 252 |
| | 120 | 8*20 | 0.12 | 300 |
| | | 10*16 | 0.12 | 310 |
| | 180 | 10*20 | 0.12 | 386 |
| | | 12.5*16 | 0.12 | 394 |
| | 220 | 10*25 | 0.12 | 450 |
| | 270 | 12.5*20 | 0.12 | 520 |
| | 330 | 12.5*25 | 0.12 | 665 |
| | 470 | 12.5*30 | 0.12 | 790 |
| | | 16*20 | 0.12 | 800 |
| | 560 | 12.5*35 | 0.12 | 860 |
| | | 16*25 | 0.12 | 880 |
| | 680 | 12.5*40 | 0.12 | 960 |
| | | 18*20 | 0.12 | 980 |
| | 820 | 16*30 | 0.12 | 1190 |
| | | 18*25 | 0.12 | 1190 |
| 1000 | 16*35 | 0.12 | 1400 | |
| | 18*30 | 0.12 | 1400 | |
| 1200 | 16*40 | 0.12 | 1600 | |
| | 18*35 | 0.12 | 1600 | |
| 1500 | 18*40 | 0.12 | 1850 | |
| 100(1K) | 6.8 | 5*11 | 0.10 | 62 |
| | 15 | 6.3*11 | 0.10 | 126 |
| | 27 | 8*12 | 0.10 | 198 |
| | 39 | 8*16 | 0.10 | 246 |
| | 47 | 10*12.5 | 0.10 | 252 |
| | 56 | 8*20 | 0.10 | 300 |
| | 68 | 10*16 | 0.10 | 330 |
| | 82 | 10*20 | 0.10 | 386 |
| | | 12.5*16 | 0.10 | 394 |
| | 100 | 10*25 | 0.10 | 450 |
| | 120 | 12.5*20 | 0.10 | 520 |
| | 180 | 12.5*25 | 0.10 | 665 |
| | 220 | 16*20 | 0.10 | 800 |
| | | 12.5*30 | 0.10 | 790 |
| | 270 | 12.5*35 | 0.10 | 860 |
| | | 16*25 | 0.10 | 880 |
| | 330 | 18*20 | 0.10 | 980 |
| | | 12.5*40 | 0.10 | 960 |
| | 390 | 16*30 | 0.10 | 1190 |
| | | 18*25 | 0.10 | 1190 |
| 470 | 16*35 | 0.10 | 1400 | |
| | 18*30 | 0.10 | 1400 | |
| 560 | 16*40 | 0.10 | 1600 | |
| 680 | 18*35 | 0.10 | 1600 | |
| 820 | 18*40 | 0.10 | 1850 | |

GH series

■ STANDARD RATINGS

| WV (V _{dc}) | Cap (μF) | Size ΦDxL(mm) | tanδ | Rated ripple current (mArms/105°C,100kHz) |
|-----------------------|----------|---------------|------|---|
| 160(2C) | 10 | 8*12 | 0.15 | 320 |
| | 12 | 10*12 | 0.15 | 375 |
| | 15 | 10*16 | 0.15 | 438 |
| | 22 | 10*16 | 0.15 | 500 |
| | 33 | 10*20 | 0.15 | 663 |
| | 39 | 10*20 | 0.15 | 688 |
| | 47 | 10*20 | 0.15 | 750 |
| | | 12.5*20 | 0.15 | 788 |
| | 56 | 12.5*20 | 0.15 | 950 |
| | 68 | 12.5*20 | 0.15 | 1195 |
| | | 12.5*20 | 0.15 | 1275 |
| | 82 | 16*20 | 0.15 | 1313 |
| | | 12.5*25 | 0.15 | 1432 |
| | 100 | 16*20 | 0.15 | 1443 |
| | | 16*20 | 0.15 | 1750 |
| | 150 | 16*25 | 0.15 | 1795 |
| | 16*25 | 0.15 | 2318 | |
| 220 | 18*25 | 0.15 | 2375 | |
| 330 | 18*30 | 0.15 | 2959 | |
| 200(2D) | 10 | 10*16 | 0.15 | 290 |
| | 12 | 10*16 | 0.15 | 300 |
| | 15 | 10*16 | 0.15 | 413 |
| | 22 | 10*20 | 0.15 | 513 |
| | 33 | 10*20 | 0.15 | 638 |
| | | 12.5*20 | 0.15 | 663 |
| | 39 | 12.5*20 | 0.15 | 795 |
| | 47 | 12.5*20 | 0.15 | 980 |
| | | 12.5*20 | 0.15 | 1188 |
| | 68 | 12.5*25 | 0.15 | 1238 |
| | 82 | 16*20 | 0.15 | 1385 |
| | | 16*20 | 0.15 | 1436 |
| | 100 | 16*25 | 0.15 | 1489 |
| | | 16*25 | 0.15 | 1920 |
| | 150 | 16*30 | 0.15 | 1966 |
| | | 18*25 | 0.15 | 1977 |
| 220 | 18*25 | 0.15 | 2386 | |
| | 18*30 | 0.15 | 2455 | |
| 330 | 18*35 | 0.15 | 2795 | |
| | 18*40 | 0.15 | 2864 | |
| 250(2E) | 4.7 | 8*12 | 0.15 | 175 |
| | 5.6 | 10*12 | 0.15 | 213 |
| | 6.8 | 10*12 | 0.15 | 275 |
| | 10 | 10*20 | 0.15 | 350 |
| | 22 | 10*20 | 0.15 | 513 |
| | 33 | 12.5*20 | 0.15 | 763 |
| | 39 | 12.5*20 | 0.15 | 813 |
| | 47 | 12.5*20 | 0.15 | 950 |
| | | 12.5*25 | 0.15 | 1013 |
| | 68 | 16*20 | 0.15 | 1295 |
| | | 16*20 | 0.15 | 1375 |
| | 82 | 16*30 | 0.15 | 1425 |
| | | 16*25 | 0.15 | 1545 |
| | 100 | 18*25 | 0.15 | 1591 |
| | 150 | 18*25 | 0.15 | 1968 |
| | 220 | 18*31 | 0.15 | 2341 |
| | 18*40 | 0.15 | 2591 | |

| WV (V _{dc}) | Cap (μF) | Size ΦDxL(mm) | tanδ | Rated ripple current (mArms/105°C,100kHz) |
|-----------------------|----------|---------------|------|---|
| 350(2V) | 4.7 | 8*12 | 0.20 | 163 |
| | 5.6 | 10*12 | 0.20 | 225 |
| | 6.8 | 10*12 | 0.20 | 265 |
| | 10 | 10*16 | 0.20 | 313 |
| | 22 | 12.5*20 | 0.20 | 563 |
| | 33 | 16*20 | 0.20 | 885 |
| | 39 | 16*20 | 0.20 | 963 |
| | 47 | 16*20 | 0.20 | 1075 |
| | | 16*25 | 0.20 | 1113 |
| | | 16*25 | 0.20 | 1413 |
| | 68 | 18*20 | 0.20 | 1375 |
| | | 18*25 | 0.20 | 1425 |
| | 82 | 18*25 | 0.20 | 1520 |
| | 100 | 18*25 | 0.20 | 1591 |
| | | 18*30 | 0.20 | 1648 |
| | 120 | 18*30 | 0.20 | 1877 |
| 150 | 18*35 | 0.20 | 2045 | |
| 400(2G) | 1 | 8*12 | 0.20 | 75 |
| | 2.2 | 8*12 | 0.20 | 113 |
| | 3.3 | 10*12 | 0.20 | 200 |
| | 4.7 | 10*12 | 0.20 | 238 |
| | 6.8 | 10*12 | 0.20 | 255 |
| | 10 | 10*16 | 0.20 | 325 |
| | 15 | 12.5*20 | 0.20 | 463 |
| | 22 | 12.5*20 | 0.20 | 613 |
| | | 12.5*25 | 0.20 | 638 |
| | 33 | 16*20 | 0.20 | 870 |
| | 39 | 16*25 | 0.20 | 1013 |
| | | 16*25 | 0.20 | 1150 |
| | 47 | 18*20 | 0.20 | 1138 |
| | | 16*30 | 0.20 | 1200 |
| | 56 | 10*50 | 0.20 | 1300 |
| | 68 | 12.5*40 | 0.20 | 1500 |
| | 18*25 | 0.20 | 1475 | |
| | 12.5*45 | 0.20 | 1563 | |
| 82 | 18*25 | 0.20 | 1525 | |
| | 18*30 | 0.20 | 1575 | |
| | 12.5*50 | 0.20 | 1795 | |
| 100 | 18*31 | 0.20 | 1739 | |
| | 18*35 | 0.20 | 1784 | |
| 120 | 18*35 | 0.20 | 1932 | |
| 150 | 18*40 | 0.20 | 2080 | |
| 450(2W) | 6.8 | 10*16 | 0.20 | 240 |
| | 10 | 10*20 | 0.20 | 313 |
| | 15 | 12.5*20 | 0.20 | 500 |
| | 22 | 16*20 | 0.20 | 638 |
| | | 10*40 | 0.20 | 888 |
| | 33 | 16*25 | 0.20 | 945 |
| | | 18*20 | 0.20 | 938 |
| | 39 | 10*45 | 0.20 | 1038 |
| | | 18*25 | 0.20 | 1013 |
| | 47 | 12.5*40 | 0.20 | 1263 |
| | | 18*25 | 0.20 | 1240 |
| | 56 | 12.5*40 | 0.20 | 1375 |
| | 68 | 18*30 | 0.20 | 1525 |
| | 82 | 12.5*50 | 0.20 | 1825 |
| | | 18*35 | 0.20 | 1800 |
| | 100 | 18*40 | 0.20 | 1830 |

Radial Type

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