

GXE Series

- For automobile modules and other high temperature applications
- Downsize, long life, low impedance and better low temperature characteristics
- Endurance with ripple current : 2,000 to 5,000 hours at 125°C
- Solvent resistant type except 63 to 450V (see PRECAUTIONS AND GUIDELINES)
- RoHS2 Compliant
- AEC-Q200 compliant : Please contact Chemi-Con for more details, test data, information.



◆ SPECIFICATIONS

| Items | Characteristics | | | | | | | | | | |
|---|--|---|------|------|------|------------------------------|--------------------------------------|------|------|-------------|-------------|
| Category Temperature Range | -40 to +125°C (10 to 250V _{dc}) -25 to +125°C (350 to 450V _{dc}) | | | | | | | | | | |
| Rated Voltage Range | 10 to 450V _{dc} | | | | | | | | | | |
| Capacitance Tolerance | ±20% (M) (at 20°C, 120Hz) | | | | | | | | | | |
| Leakage Current | 10 to 100V _{dc} | | | | | 160 to 450V _{dc} | | | | | |
| | I=0.03CV or 4μA, whichever is greater. | | | | | CV≤1,000 I=0.1CV+40 | | | | | |
| | | | | | | CV>1,000 I=0.04CV+100 | | | | | |
| | Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C, 1 minute) | | | | | | | | | | |
| Dissipation Factor (tan δ) | Rated voltage (V _{dc}) | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V | 160 to 250V | 350 to 450V |
| | tan δ (Max.) | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 | 0.10 | 0.08 | 0.08 | 0.20 | 0.24 |
| | 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}) | 10V | 16V | 25V | 35V | 50V | 63V | 80V | 100V | 160 to 250V | 350 to 450V |
| | Z(-25°C)/Z(+20°C) | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 6 |
| | Z(-40°C)/Z(+20°C) | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 6 | — |
| | (at 120Hz) | | | | | | | | | | |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified time at 125°C. | | | | | | | | | | |
| | | 10 to 100V _{dc} | | | | | 160 to 450V _{dc} | | | | |
| | Time | φ8 : 2,000hours φ10 : 3,000hours φ12.5 & φ16 : 5,000hours | | | | | 2,000hours | | | | |
| | Capacitance change | ≤ ±30% of the initial value | | | | | ≤ ±20% of the initial value | | | | |
| | D.F. (tan δ) | ≤300% of the initial specified value | | | | | ≤200% of the initial specified value | | | | |
| Leakage current | ≤The initial specified value | | | | | ≤The initial specified value | | | | | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours (500 hours for 350 to 450V _{dc}) at 125°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | | | | | | | | | |
| | | 10 to 100V _{dc} | | | | | 160 to 450V _{dc} | | | | |
| | Capacitance change | ≤ ±30% of the initial value | | | | | ≤ ±20% of the initial value | | | | |
| | D.F. (tan δ) | ≤300% of the initial specified value | | | | | ≤200% of the initial specified value | | | | |
| | Leakage current | ≤The initial specified value | | | | | ≤500% of the initial specified value | | | | |

◆ DIMENSIONS [mm]

● Terminal Code : E



◆ PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆STANDARD RATINGS

□ is not solvent resistant.

| WV (V _{dc}) | Cap (μF) | Case size φD×L(mm) | Impedance (Ω max./20°C, 100kHz) | Rated ripple current (mA rms/125°C, Note1) | Part No. | WV (V _{dc}) | Cap (μF) | Case size φD×L(mm) | Impedance (Ω max./20°C, 100kHz) | Rated ripple current (mA rms/125°C, Note1) | Part No. |
|-----------------------|----------|--------------------|---------------------------------|--|--------------------|-----------------------|----------|--------------------|---------------------------------|--|--------------------|
| 10 | 220 | 8×12 | 0.32 | 340 | EGXE100E□□221MH12D | 80 | 47 | 10×12.5 | 0.80 | 480 | EGXE800E□□470MJC5S |
| | 330 | 10×12.5 | 0.15 | 620 | EGXE100E□□331MJC5S | | 100 | 10×20 | 0.39 | 790 | EGXE800E□□101MJ20S |
| | 470 | 10×12.5 | 0.15 | 620 | EGXE100E□□471MJC5S | | 220 | 12.5×25 | 0.18 | 1,240 | EGXE800E□□221MK25S |
| | 1,000 | 10×20 | 0.075 | 950 | EGXE100E□□102MJ20S | | 330 | 12.5×30 | 0.16 | 1,390 | EGXE800E□□331MK30S |
| | 2,200 | 12.5×25 | 0.040 | 1,350 | EGXE100E□□222MK25S | | 470 | 16×25 | 0.11 | 1,500 | EGXE800E□□471ML25S |
| | 3,300 | 16×25 | 0.031 | 1,620 | EGXE100E□□332ML25S | | 100 | 4.7 | 8×12 | 2.0 | 130 |
| 4,700 | 16×31.5 | 0.025 | 1,860 | EGXE100E□□472MLN3S | 10 | 8×12 | | 1.5 | 150 | EGXE101E□□100MH12D | |
| 16 | 100 | 8×12 | 0.32 | 340 | EGXE160E□□101MH12D | 22 | | 10×12.5 | 0.80 | 480 | EGXE101E□□220MJC5S |
| | 220 | 10×12.5 | 0.15 | 620 | EGXE160E□□221MJC5S | 33 | | 10×12.5 | 0.80 | 480 | EGXE101E□□330MJC5S |
| | 330 | 10×12.5 | 0.15 | 620 | EGXE160E□□331MJC5S | 47 | | 10×16 | 0.55 | 630 | EGXE101E□□470MJ16S |
| | 470 | 10×16 | 0.094 | 790 | EGXE160E□□471MJ16S | 100 | | 12.5×20 | 0.25 | 990 | EGXE101E□□100MK20S |
| | 1,000 | 12.5×20 | 0.058 | 1,080 | EGXE160E□□102MK20S | 220 | 16×25 | 0.11 | 1,500 | EGXE101E□□221ML25S | |
| | 2,200 | 16×25 | 0.031 | 1,620 | EGXE160E□□222ML25S | 330 | 16×31.5 | 0.079 | 1,790 | EGXE101E□□331MLN3S | |
| 25 | 3,300 | 16×31.5 | 0.025 | 1,860 | EGXE160E□□332MLN3S | 160 | 22 | 10×20 | — | 115 | EGXE161E□□220MJ20S |
| | 100 | 8×12 | 0.32 | 340 | EGXE250E□□101MH12D | | 33 | 10×25 | — | 154 | EGXE161E□□330MH12D |
| | 220 | 10×12.5 | 0.15 | 620 | EGXE250E□□221MJC5S | | 47 | 12.5×20 | — | 187 | EGXE161E□□470MK20S |
| | 330 | 10×16 | 0.094 | 790 | EGXE250E□□331MJ16S | | 68 | 12.5×25 | — | 245 | EGXE161E□□680MK25S |
| | 470 | 10×20 | 0.075 | 950 | EGXE250E□□471MJ20S | | 100 | 16×25 | — | 329 | EGXE161E□□101ML25S |
| | 1,000 | 12.5×25 | 0.040 | 1,350 | EGXE250E□□102MK25S | | 150 | 16×31.5 | — | 434 | EGXE161E□□151MLN3S |
| 35 | 2,200 | 16×31.5 | 0.025 | 1,860 | EGXE250E□□222MLN3S | 200 | 10 | 10×20 | — | 78 | EGXE201E□□100MJ20S |
| | 100 | 8×12 | 0.32 | 340 | EGXE350E□□101MH12D | | 22 | 10×25 | — | 126 | EGXE201E□□220MJ25S |
| | 100 | 10×12.5 | 0.15 | 620 | EGXE350E□□101MJC5S | | 33 | 12.5×20 | — | 157 | EGXE201E□□330MK20S |
| | 220 | 10×16 | 0.094 | 790 | EGXE350E□□221MJ16S | | 47 | 12.5×25 | — | 204 | EGXE201E□□470MK25S |
| | 330 | 10×20 | 0.075 | 950 | EGXE350E□□331MJ20S | | 68 | 16×20 | — | 250 | EGXE201E□□680ML20S |
| | 470 | 12.5×20 | 0.058 | 1,080 | EGXE350E□□471MK20S | | 100 | 16×25 | — | 329 | EGXE201E□□101ML25S |
| 50 | 1,000 | 16×25 | 0.031 | 1,620 | EGXE350E□□102ML25S | 250 | 10 | 10×20 | — | 78 | EGXE251E□□100MJ20S |
| | 10 | 8×12 | 0.75 | 180 | EGXE500E□□100MH12D | | 22 | 12.5×20 | — | 128 | EGXE251E□□220MK20S |
| | 22 | 8×12 | 0.50 | 250 | EGXE500E□□220MH12D | | 33 | 12.5×25 | — | 171 | EGXE251E□□330MK25S |
| | 33 | 8×12 | 0.50 | 280 | EGXE500E□□330MH12D | | 47 | 16×25 | — | 225 | EGXE251E□□470ML25S |
| | 47 | 8×12 | 0.50 | 280 | EGXE500E□□470MH12D | | 68 | 16×31.5 | — | 292 | EGXE251E□□680MLN3S |
| | 100 | 10×12.5 | 0.20 | 520 | EGXE500E□□101MJC5S | | 350 | 4.7 | 10×20 | — | 53 |
| 220 | 10×20 | 0.098 | 880 | EGXE500E□□221MJ20S | 10 | 10×25 | | — | 85 | EGXE351E□□100MJ25S | |
| 330 | 12.5×20 | 0.081 | 990 | EGXE500E□□331MK20S | 22 | 12.5×25 | | — | 139 | EGXE351E□□220MK25S | |
| 470 | 12.5×25 | 0.059 | 1,150 | EGXE500E□□471MK25S | 33 | 16×25 | | — | 189 | EGXE351E□□330ML25S | |
| 1,000 | 16×31.5 | 0.032 | 1,590 | EGXE500E□□102MLN3S | 47 | 16×31.5 | | — | 243 | EGXE351E□□470MLN3S | |
| 63 | 33 | 8×12 | 1.5 | 150 | EGXE630E□□330MH12D | 400 | | 4.7 | 10×20 | — | 53 |
| | 47 | 10×12.5 | 0.59 | 530 | EGXE630E□□470MJC5S | | 10 | 10×25 | — | 86 | EGXE401E□□100MJ25S |
| | 100 | 10×16 | 0.41 | 690 | EGXE630E□□101MJ16S | | 22 | 12.5×30 | — | 142 | EGXE401E□□220MK30S |
| | 220 | 12.5×20 | 0.16 | 1,050 | EGXE630E□□221MK20S | | 33 | 16×25 | — | 189 | EGXE401E□□330ML25S |
| | 330 | 12.5×25 | 0.12 | 1,290 | EGXE630E□□331MK25S | | 47 | 16×31.5 | — | 243 | EGXE401E□□470MLN3S |
| | 470 | 12.5×30 | 0.097 | 1,460 | EGXE630E□□471MK30S | | 450 | 4.7 | 10×25 | — | 58 |
| 1,000 | 16×31.5 | 0.059 | 1,850 | EGXE630E□□102MLN3S | 10 | 12.5×20 | | — | 86 | EGXE451E□□100MK20S | |
| 22 | 8×12 | 1.5 | 150 | EGXE800E□□220MH12D | 22 | 16×25 | | — | 154 | EGXE451E□□220ML25S | |
| 80 | 33 | 10×12.5 | 0.80 | 480 | EGXE800E□□330MJC5S | 33 | 16×31.5 | — | 203 | EGXE451E□□330MLN3S | |

□ : Enter the appropriate lead forming or taping code.

(Note1) Ripple current frequency
10 to 100V = 100kHz
160 to 450V = 120Hz

◆RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

(10 to 100V_{dc})

| Capacitance(μF) | Frequency(Hz) | 120 | 1k | 10k | 100k |
|-----------------|---------------|------|------|------|------|
| 4.7 to 100 | | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 to 470 | | 0.50 | 0.85 | 0.94 | 1.00 |
| 1,000 | | 0.60 | 0.87 | 0.95 | 1.00 |
| 2,200 to 3,300 | | 0.75 | 0.90 | 0.95 | 1.00 |
| 4,700 | | 0.85 | 0.95 | 0.98 | 1.00 |

(160 to 450V_{dc})

| Capacitance(μF) | Frequency(Hz) | 50 | 120 | 300 | 1k | 10k | 100k |
|-----------------|---------------|------|------|------|------|------|------|
| 4.7 to 33 | | 0.75 | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 |
| 47 to 150 | | 0.80 | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 |

The endurance of capacitors is reduced 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.