

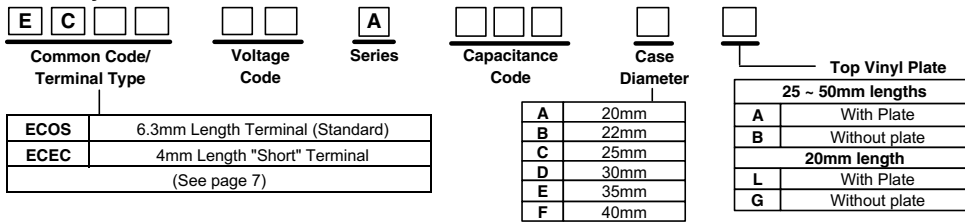
TS-HA Series two terminal snap-in

- 3000 hour* life at 105°C with high ripple current capability
- Wide range of case sizes including 20mm, low profile lengths
- **NEW:** 40mm diameter sizes through 100WV.
- Can vent construction



| | | |
|---|--|--------------------------------|
| Rated Working Voltage: | 10 ~ 250 VDC | 385 ~ 450 VDC |
| Operating Temperature: | -40 ~ +105°C | -25 ~ +105°C |
| Nominal Capacitance: | 68 ~ 68000µF (±20% tolerance) | 33 ~ 470µF (±20% tolerance) |
| Dissipation Factor: (120 Hz, +20°C) | Working Voltage [V]: | 10 16 25 35 50 63 80 100 - 450 |
| | Max. D.F. (%): | 55 45 35 30 25 20 17 15 |
| For capacitance values > 33000µF, add the value of: $\frac{(\text{rated cap. } [\mu\text{F}] - 33000)}{1000}$ | | |
| Endurance: | 3000 hours* at +105°C with maximum specified ripple current (see page 4) *2000 hours for 20mm diameter or 20mm length sizes | |

Part Number System



Ripple Current
Multipliers:
Page 7

TS-HA Standard Ratings

| Cap. (µF) | Size (mm) D x L | Max 105°C R.C. (A _{rms}) | | 20°C ESR (Ω, max.) | | Panasonic Part Number |
|-------------------------------------|--------------------|------------------------------------|------------|--------------------|-------|--------------------------|
| | | 120Hz | 10k~100kHz | 120Hz | 20kHz | |
| 10 VDC Working, 13 VDC Surge | | | | | | |
| 6800 | 20 x 25 | 1.30 | 1.50 | 0.110 | 0.093 | ECOS1AA682AA |
| 8200 | 20 x 30 | 1.60 | 1.84 | 0.091 | 0.077 | ECOS1AA822AA |
| 10000 | 20 x 30 | 1.80 | 2.07 | 0.075 | 0.063 | ECOS1AA103AA |
| 12000 | 20 x 35 | 2.20 | 2.53 | 0.062 | 0.053 | ECOS1AA123AA |
| 15000 | 20 x 40 | 2.30 | 2.65 | 0.053 | 0.045 | ECOS1AA153AA |
| 4700 | 22 x 25 | 0.85 | 0.98 | 0.159 | 0.135 | ECOS1AA472BA |
| 6800 | 22 x 25 | 1.30 | 1.50 | 0.110 | 0.093 | ECOS1AA682BA |
| 10000 | 22 x 25 | 1.80 | 2.07 | 0.075 | 0.063 | ECOS1AA103BA |
| 12000 | 22 x 30 | 2.20 | 2.53 | 0.062 | 0.053 | ECOS1AA123BA |
| 15000 | 22 x 35 | 2.30 | 2.65 | 0.053 | 0.045 | ECOS1AA153BA |
| 18000 | 22 x 40 | 2.40 | 2.76 | 0.044 | 0.038 | ECOS1AA183BA |
| 22000 | 22 x 45 | 2.60 | 2.99 | 0.038 | 0.032 | ECOS1AA223BA |
| 27000 | 22 x 50 | 3.10 | 3.57 | 0.033 | 0.028 | ECOS1AA273BA |
| 15000 | 25 x 25 | 2.30 | 2.65 | 0.053 | 0.045 | ECOS1AA153CA |
| 18000 | 25 x 30 | 2.40 | 2.76 | 0.044 | 0.038 | ECOS1AA183CA |
| 22000 | 25 x 35 | 2.60 | 2.99 | 0.038 | 0.032 | ECOS1AA223CA |
| 27000 | 25 x 40 | 3.10 | 3.57 | 0.033 | 0.028 | ECOS1AA273CA |
| 33000 | 25 x 45 | 3.40 | 3.91 | 0.027 | 0.023 | ECOS1AA333CA |
| 39000 | 25 x 50 | 3.70 | 4.26 | 0.025 | 0.021 | ECOS1AA393CA |
| 22000 | 30 x 25 | 2.60 | 2.99 | 0.038 | 0.032 | ECOS1AA223DA |
| 27000 | 30 x 30 | 3.10 | 3.57 | 0.033 | 0.028 | ECOS1AA273DA |
| 33000 | 30 x 35 | 3.40 | 3.91 | 0.027 | 0.023 | ECOS1AA333DA |
| 39000 | 30 x 40 | 3.70 | 4.26 | 0.025 | 0.021 | ECOS1AA393DA |
| 47000 | 30 x 45 | 4.20 | 4.83 | 0.023 | 0.020 | ECOS1AA473DA |
| 56000 | 30 x 50 | 5.00 | 5.75 | 0.022 | 0.019 | ECOS1AA563DA |
| 27000 | 35 x 25 | 3.10 | 3.57 | 0.033 | 0.028 | ECOS1AA273EA |
| 33000 | 35 x 30 | 3.40 | 3.91 | 0.027 | 0.023 | ECOS1AA333EA |
| 39000 | 35 x 30 | 3.70 | 4.26 | 0.025 | 0.021 | ECOS1AA393EA |
| 47000 | 35 x 35 | 4.20 | 4.83 | 0.023 | 0.020 | ECOS1AA473EA |
| 56000 | 35 x 40 | 5.00 | 5.75 | 0.022 | 0.021 | ECOS1AA563EA |
| 68000 | 35 x 50 | 5.50 | 6.33 | 0.021 | 0.020 | ECOS1AA683EA |
| 62000 | 40 x 40 | 5.42 | 6.23 | 0.023 | 0.022 | ECOS1AA623FA |
| 82000 | 40 x 50 | 7.36 | 8.46 | 0.018 | 0.017 | ECOS1AA823FA |
| 16 VDC Working, 20 VDC Surge | | | | | | |
| 6800 | 20 x 30 | 2.20 | 2.53 | 0.085 | 0.068 | ECOS1CA682AA |
| 8200 | 20 x 35 | 2.40 | 2.76 | 0.071 | 0.057 | ECOS1CA822AA |
| 10000 | 20 x 40 | 2.60 | 2.99 | 0.066 | 0.053 | ECOS1CA103AA |
| 3300 | 22 x 20 | 1.30 | 1.50 | 0.216 | 0.173 | ECOS1CA332BL |
| 3300 | 22 x 25 | 1.30 | 1.50 | 0.176 | 0.141 | ECOS1CA332BA |
| 4700 | 22 x 25 | 1.52 | 1.75 | 0.123 | 0.099 | ECOS1CA472BA |
| 6800 | 22 x 25 | 2.20 | 2.53 | 0.085 | 0.068 | ECOS1CA682BA |
| 8200 | 22 x 30 | 2.40 | 2.76 | 0.071 | 0.057 | ECOS1CA822BA |
| 10000 | 22 x 30 | 2.60 | 2.99 | 0.066 | 0.053 | ECOS1CA103BA |
| 12000 | 22 x 35 | 2.90 | 3.34 | 0.055 | 0.044 | ECOS1CA123BA |
| 15000 | 22 x 40 | 3.20 | 3.68 | 0.046 | 0.037 | ECOS1CA153BA |
| 18000 | 22 x 45 | 3.50 | 4.03 | 0.040 | 0.034 | ECOS1CA183BA |
| 4700 | 25 x 20 | 1.60 | 1.84 | 0.152 | 0.121 | ECOS1CA472CL |
| 10000 | 25 x 25 | 2.60 | 2.99 | 0.066 | 0.053 | ECOS1CA103CA |
| 12000 | 25 x 30 | 2.90 | 3.34 | 0.055 | 0.044 | ECOS1CA123CA |
| 15000 | 25 x 35 | 3.20 | 3.68 | 0.046 | 0.037 | ECOS1CA153CA |
| 18000 | 25 x 40 | 3.50 | 4.03 | 0.040 | 0.034 | ECOS1CA183CA |
| 22000 | 25 x 45 | 3.80 | 4.37 | 0.033 | 0.028 | ECOS1CA223CA |
| 27000 | 25 x 50 | 4.20 | 4.83 | 0.028 | 0.025 | ECOS1CA273CA |
| 6800 | 30 x 20 | 1.80 | 2.07 | 0.105 | 0.084 | ECOS1CA682DL |
| 12000 | 30 x 25 | 2.90 | 3.34 | 0.055 | 0.044 | ECOS1CA123DA |
| 15000 | 30 x 30 | 3.20 | 3.68 | 0.046 | 0.037 | ECOS1CA153DA |
| 18000 | 30 x 30 | 3.50 | 4.03 | 0.040 | 0.034 | ECOS1CA183DA |
| 22000 | 30 x 35 | 3.80 | 4.37 | 0.033 | 0.028 | ECOS1CA223DA |
| 27000 | 30 x 40 | 4.20 | 4.83 | 0.028 | 0.025 | ECOS1CA273DA |
| 33000 | 30 x 45 | 4.70 | 5.41 | 0.023 | 0.020 | ECOS1CA333DA |
| 39000 | 30 x 50 | 5.10 | 5.87 | 0.022 | 0.020 | ECOS1CA393DA |
| 10000 | 35 x 20 | 2.40 | 2.76 | 0.071 | 0.057 | ECOS1CA103EL |
| 18000 | 35 x 25 | 3.50 | 4.03 | 0.040 | 0.034 | ECOS1CA183EA |
| 22000 | 35 x 30 | 3.80 | 4.37 | 0.033 | 0.028 | ECOS1CA223EA |
| 27000 | 35 x 30 | 4.20 | 4.83 | 0.028 | 0.025 | ECOS1CA273EA |
| 33000 | 35 x 35 | 4.70 | 5.41 | 0.023 | 0.020 | ECOS1CA333EA |
| 39000 | 35 x 40 | 5.10 | 5.87 | 0.022 | 0.020 | ECOS1CA393EA |
| 47000 | 35 x 45 | 5.50 | 6.33 | 0.020 | 0.018 | ECOS1CA473EA |
| 56000 | 35 x 50 | 6.00 | 6.90 | 0.019 | 0.017 | ECOS1CA563EA |
| 47000 | 40 x 40 | 5.50 | 6.33 | 0.020 | 0.018 | ECOS1CA473FA |
| 68000 | 40 x 50 | 7.29 | 8.38 | 0.015 | 0.014 | ECOS1CA683FA |

TS-HA Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|-------------------------------------|--------------------|------------------------------|------------|-----------------------------|-------|--------------------------|-------------------------------------|--------------------|------------------------------|------------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10k~100kHz | 120Hz | 20kHz | | | | 120Hz | 10k~100kHz | 120Hz | 20kHz | |
| 25 VDC Working, 32 VDC Surge | | | | | | | 35 VDC Working, 44 VDC Surge | | | | | | |
| 4700 | 20 x 30 | 2.00 | 2.30 | 0.106 | 0.079 | ECOS1EA472AA | 3300 | 20 x 30 | 1.90 | 2.19 | 0.121 | 0.090 | ECOS1VA332AA |
| 5600 | 20 x 35 | 2.20 | 2.53 | 0.089 | 0.067 | ECOS1EA562AA | 3900 | 20 x 35 | 2.00 | 2.30 | 0.111 | 0.083 | ECOS1VA392AA |
| 6800 | 20 x 40 | 2.40 | 2.76 | 0.073 | 0.055 | ECOS1EA682AA | 4700 | 20 x 40 | 2.20 | 2.53 | 0.088 | 0.066 | ECOS1VA472AA |
| 2200 | 22 x 20 | 1.30 | 1.50 | 0.241 | 0.181 | ECOS1EA222BL | 1500 | 22 x 20 | 1.10 | 1.27 | 0.287 | 0.216 | ECOS1VA152BL |
| 2200 | 22 x 25 | 1.30 | 1.50 | 0.241 | 0.181 | ECOS1EA222BA | 1500 | 22 x 25 | 1.10 | 1.27 | 0.287 | 0.216 | ECOS1VA152BA |
| 3300 | 22 x 25 | 1.62 | 1.86 | 0.161 | 0.121 | ECOS1EA332BA | 2200 | 22 x 25 | 1.48 | 1.70 | 0.196 | 0.147 | ECOS1VA222BA |
| 4700 | 22 x 25 | 2.00 | 2.30 | 0.106 | 0.079 | ECOS1EA472BA | 3300 | 22 x 25 | 1.90 | 2.19 | 0.121 | 0.090 | ECOS1VA332BA |
| 5600 | 22 x 30 | 2.20 | 2.53 | 0.089 | 0.067 | ECOS1EA562BA | 3900 | 22 x 30 | 2.00 | 2.30 | 0.111 | 0.083 | ECOS1VA392BA |
| 6800 | 22 x 30 | 2.40 | 2.76 | 0.073 | 0.055 | ECOS1EA682BA | 4700 | 22 x 35 | 2.20 | 2.53 | 0.088 | 0.066 | ECOS1VA472BA |
| 8200 | 22 x 35 | 2.70 | 3.11 | 0.061 | 0.045 | ECOS1EA822BA | 5600 | 22 x 35 | 2.40 | 2.76 | 0.074 | 0.056 | ECOS1VA562BA |
| 10000 | 22 x 40 | 3.00 | 3.45 | 0.051 | 0.039 | ECOS1EA103BA | 6800 | 22 x 40 | 2.60 | 2.99 | 0.061 | 0.046 | ECOS1VA682BA |
| 12000 | 22 x 45 | 3.20 | 3.68 | 0.044 | 0.033 | ECOS1EA123BA | 8200 | 22 x 50 | 2.90 | 3.34 | 0.051 | 0.038 | ECOS1VA822BA |
| 3300 | 25 x 20 | 1.60 | 1.84 | 0.161 | 0.121 | ECOS1EA332CL | 2200 | 25 x 20 | 1.40 | 1.61 | 0.196 | 0.147 | ECOS1VA222CL |
| 6800 | 25 x 25 | 2.40 | 2.76 | 0.073 | 0.055 | ECOS1EA682CA | 4700 | 25 x 25 | 2.20 | 2.53 | 0.088 | 0.066 | ECOS1VA472CA |
| 8200 | 25 x 30 | 2.70 | 3.11 | 0.061 | 0.045 | ECOS1EA822CA | 5600 | 25 x 30 | 2.40 | 2.76 | 0.074 | 0.056 | ECOS1VA562CA |
| 10000 | 25 x 35 | 3.00 | 3.45 | 0.051 | 0.039 | ECOS1EA103CA | 6800 | 25 x 35 | 2.60 | 2.99 | 0.061 | 0.046 | ECOS1VA682CA |
| 12000 | 25 x 40 | 3.20 | 3.68 | 0.044 | 0.035 | ECOS1EA123CA | 8200 | 25 x 40 | 2.90 | 3.34 | 0.051 | 0.038 | ECOS1VA822CA |
| 15000 | 25 x 45 | 3.60 | 4.14 | 0.036 | 0.031 | ECOS1EA153CA | 10000 | 25 x 45 | 3.20 | 3.68 | 0.041 | 0.031 | ECOS1VA103CA |
| 18000 | 25 x 50 | 3.90 | 4.49 | 0.030 | 0.027 | ECOS1EA183CA | 12000 | 25 x 50 | 3.50 | 4.03 | 0.035 | 0.026 | ECOS1VA123CA |
| 4700 | 30 x 20 | 1.80 | 2.07 | 0.113 | 0.085 | ECOS1EA472DL | 3300 | 30 x 20 | 1.70 | 1.96 | 0.131 | 0.098 | ECOS1VA332DL |
| 8200 | 30 x 25 | 2.70 | 3.11 | 0.061 | 0.045 | ECOS1EA822DA | 5600 | 30 x 25 | 2.40 | 2.76 | 0.074 | 0.056 | ECOS1VA562DA |
| 10000 | 30 x 30 | 3.00 | 3.45 | 0.051 | 0.039 | ECOS1EA103DA | 6800 | 30 x 30 | 2.60 | 2.99 | 0.061 | 0.046 | ECOS1VA682DA |
| 12000 | 30 x 30 | 3.20 | 3.68 | 0.044 | 0.035 | ECOS1EA123DA | 8200 | 30 x 30 | 2.90 | 3.34 | 0.051 | 0.038 | ECOS1VA822DA |
| 15000 | 30 x 35 | 3.60 | 4.14 | 0.036 | 0.031 | ECOS1EA153DA | 10000 | 30 x 35 | 3.20 | 3.68 | 0.041 | 0.031 | ECOS1VA103DA |
| 18000 | 30 x 40 | 3.90 | 4.49 | 0.030 | 0.027 | ECOS1EA183DA | 12000 | 30 x 40 | 3.50 | 4.03 | 0.035 | 0.026 | ECOS1VA123DA |
| 22000 | 30 x 45 | 4.30 | 4.95 | 0.025 | 0.022 | ECOS1EA223DA | 15000 | 30 x 45 | 3.90 | 4.49 | 0.030 | 0.022 | ECOS1VA153DA |
| 6800 | 35 x 20 | 2.30 | 2.65 | 0.080 | 0.060 | ECOS1EA682EL | 4700 | 35 x 20 | 2.00 | 2.30 | 0.095 | 0.071 | ECOS1VA472EL |
| 12000 | 35 x 25 | 3.20 | 3.68 | 0.044 | 0.035 | ECOS1EA123EA | 8200 | 35 x 25 | 2.90 | 3.34 | 0.051 | 0.038 | ECOS1VA822EA |
| 15000 | 35 x 30 | 3.60 | 4.14 | 0.036 | 0.031 | ECOS1EA153EA | 10000 | 35 x 30 | 3.20 | 3.68 | 0.041 | 0.031 | ECOS1VA103EA |
| 18000 | 35 x 35 | 3.90 | 4.49 | 0.030 | 0.027 | ECOS1EA183EA | 12000 | 35 x 30 | 3.50 | 4.03 | 0.035 | 0.026 | ECOS1VA123EA |
| 22000 | 35 x 35 | 4.30 | 4.95 | 0.025 | 0.022 | ECOS1EA223EA | 15000 | 35 x 35 | 3.90 | 4.49 | 0.030 | 0.022 | ECOS1VA153EA |
| 27000 | 35 x 45 | 4.80 | 5.52 | 0.021 | 0.019 | ECOS1EA273EA | 18000 | 35 x 40 | 4.30 | 4.95 | 0.028 | 0.021 | ECOS1VA183EA |
| 33000 | 35 x 50 | 5.50 | 6.33 | 0.018 | 0.016 | ECOS1EA333EA | 22000 | 35 x 50 | 5.00 | 5.75 | 0.023 | 0.017 | ECOS1VA223EA |
| 33000 | 40 x 40 | 5.50 | 6.33 | 0.018 | 0.016 | ECOS1EA333FA | 22000 | 40 x 40 | 5.00 | 5.75 | 0.023 | 0.017 | ECOS1VA223FA |
| 47000 | 40 x 50 | 6.47 | 7.44 | 0.015 | 0.014 | ECOS1EA473FA | 27000 | 40 x 50 | 5.44 | 6.26 | 0.020 | 0.015 | ECOS1VA273FA |
| 50 VDC Working, 63 VDC Surge | | | | | | | 63 VDC Working, 79 VDC Surge | | | | | | |
| 1800 | 20 x 30 | 1.50 | 1.73 | 0.129 | 0.097 | ECOS1HA182AA | 1200 | 20 x 30 | 1.40 | 1.61 | 0.235 | 0.176 | ECOS1JA122AA |
| 2200 | 20 x 35 | 1.70 | 1.96 | 0.105 | 0.079 | ECOS1HA222AA | 1500 | 20 x 35 | 1.50 | 1.73 | 0.188 | 0.141 | ECOS1JA152AA |
| 2700 | 20 x 40 | 1.80 | 2.07 | 0.086 | 0.064 | ECOS1HA272AA | 1800 | 20 x 40 | 1.70 | 1.96 | 0.157 | 0.117 | ECOS1JA182AA |
| 1000 | 22 x 20 | 0.90 | 1.04 | 0.265 | 0.199 | ECOS1HA102BL | 680 | 22 x 20 | 0.90 | 1.04 | 0.463 | 0.347 | ECOS1JA681BL |
| 1000 | 22 x 25 | 0.90 | 1.04 | 0.232 | 0.174 | ECOS1HA102BA | 680 | 22 x 25 | 0.90 | 1.04 | 0.414 | 0.311 | ECOS1JA681BA |
| 1500 | 22 x 25 | 1.25 | 1.44 | 0.155 | 0.116 | ECOS1HA152BA | 1000 | 22 x 25 | 1.17 | 1.35 | 0.282 | 0.211 | ECOS1JA102BA |
| 1800 | 22 x 25 | 1.50 | 1.73 | 0.129 | 0.097 | ECOS1HA182BA | 1200 | 22 x 25 | 1.40 | 1.61 | 0.235 | 0.176 | ECOS1JA122BA |
| 2200 | 22 x 30 | 1.70 | 1.96 | 0.105 | 0.079 | ECOS1HA222BA | 1500 | 22 x 30 | 1.50 | 1.73 | 0.188 | 0.141 | ECOS1JA152BA |
| 2700 | 22 x 30 | 1.80 | 2.07 | 0.086 | 0.064 | ECOS1HA272BA | 1800 | 22 x 30 | 1.70 | 1.96 | 0.157 | 0.117 | ECOS1JA182BA |
| 3300 | 22 x 35 | 2.00 | 2.30 | 0.070 | 0.053 | ECOS1HA332BA | 2200 | 22 x 35 | 2.00 | 2.30 | 0.128 | 0.096 | ECOS1JA222BA |
| 3900 | 22 x 40 | 2.20 | 2.53 | 0.064 | 0.048 | ECOS1HA392BA | 2700 | 22 x 40 | 2.20 | 2.53 | 0.104 | 0.078 | ECOS1JA272BA |
| 4700 | 22 x 45 | 2.50 | 2.88 | 0.053 | 0.040 | ECOS1HA472BA | 3300 | 22 x 50 | 2.50 | 2.88 | 0.090 | 0.068 | ECOS1JA332BA |
| 5600 | 22 x 50 | 2.80 | 3.22 | 0.050 | 0.038 | ECOS1HA562BA | 1000 | 25 x 20 | 1.20 | 1.38 | 0.315 | 0.236 | ECOS1JA102CL |
| 1500 | 25 x 20 | 1.20 | 1.38 | 0.177 | 0.133 | ECOS1HA152CL | 1800 | 25 x 25 | 1.70 | 1.96 | 0.157 | 0.117 | ECOS1JA182CA |
| 2700 | 25 x 25 | 1.80 | 2.07 | 0.086 | 0.064 | ECOS1HA272CA | 2200 | 25 x 30 | 2.00 | 2.30 | 0.128 | 0.096 | ECOS1JA222CA |
| 3300 | 25 x 30 | 2.00 | 2.30 | 0.070 | 0.053 | ECOS1HA332CA | 2700 | 25 x 35 | 2.20 | 2.53 | 0.104 | 0.078 | ECOS1JA272CA |
| 3900 | 25 x 35 | 2.20 | 2.53 | 0.064 | 0.048 | ECOS1HA392CA | 3300 | 25 x 40 | 2.50 | 2.88 | 0.090 | 0.068 | ECOS1JA332CA |
| 4700 | 25 x 40 | 2.50 | 2.88 | 0.053 | 0.040 | ECOS1HA472CA | 3900 | 25 x 45 | 2.70 | 3.11 | 0.077 | 0.057 | ECOS1JA392CA |
| 5600 | 25 x 40 | 2.80 | 3.22 | 0.050 | 0.038 | ECOS1HA562CA | 4700 | 25 x 50 | 3.00 | 3.45 | 0.063 | 0.048 | ECOS1JA472CA |
| 6800 | 25 x 50 | 3.30 | 3.80 | 0.046 | 0.035 | ECOS1HA682CA | 1500 | 30 x 20 | 1.30 | 1.50 | 0.210 | 0.157 | ECOS1JA152DL |
| 2200 | 30 x 20 | 1.40 | 1.61 | 0.121 | 0.090 | ECOS1HA222DL | 2700 | 30 x 25 | 2.20 | 2.53 | 0.104 | 0.078 | ECOS1JA272DA |
| 3900 | 30 x 25 | 2.20 | 2.53 | 0.064 | 0.048 | ECOS1HA392DA | 3300 | 30 x 30 | 2.50 | 2.88 | 0.090 | 0.068 | ECOS1JA332DA |
| 4700 | 30 x 30 | 2.50 | 2.88 | 0.053 | 0.040 | ECOS1HA472DA | 3900 | 30 x 35 | 2.70 | 3.11 | 0.077 | 0.057 | ECOS1JA392DA |
| 5600 | 30 x 35 | 2.80 | 3.22 | 0.050 | 0.038 | ECOS1HA562DA | 4700 | 30 x 40 | 3.00 | 3.45 | 0.063 | 0.048 | ECOS1JA472DA |
| 6800 | 30 x 40 | 3.30 | 3.80 | 0.046 | 0.035 | ECOS1HA682DA | 5600 | 30 x 45 | 3.30 | 3.80 | 0.053 | 0.040 | ECOS1JA562DA |
| 8200 | 30 x 45 | 3.60 | 4.14 | 0.038 | 0.029 | ECOS1HA822DA | 6800 | 30 x 50 | 3.60 | 4.14 | 0.049 | 0.037 | ECOS1JA682DA |
| 10000 | 30 x 50 | 4.00 | 4.60 | 0.033 | 0.025 | ECOS1HA103DA | 2200 | 35 x 20 | 1.50 | 1.73 | 0.143 | 0.107 | ECOS1JA222EL |
| 3300 | 35 x 20 | 1.70 | 1.96 | 0.085 | 0.064 | ECOS1HA332EL | 3300 | 35 x 25 | 2.50 | 2.88 | 0.090 | 0.068 | ECOS1JA332EA |
| 4700 | 35 x 25 | 2.50 | 2.88 | 0.053 | 0.040 | ECOS1HA472EA | 3900 | 35 x 30 | 2.70 | 3.11 | 0.077 | 0.057 | ECOS1JA392EA |
| 5600 | 35 x 30 | 2.80 | 3.22 | 0.050 | 0.038 | ECOS1HA562EA | 4700 | 35 x 30 | 3.00 | 3.45 | 0.063 | 0.048 | ECOS1JA472EA |
| 6800 | 35 x 30 | 3.30 | 3.80 | 0.046 | 0.035 | ECOS1HA682EA | 5600 | 35 x 35 | 3.30 | 3.80 | 0.053 | 0.040 | ECOS1JA562EA |
| 8200 | 35 x 35 | 3.60 | 4.14 | 0.038 | 0.029 | ECOS1HA822EA | 6800 | 35 x 40 | 3.60 | 4.14 | 0.049 | 0.037 | ECOS1JA682EA |
| 10000 | 35 x 40 | 4.00 | 4.60 | 0.033 | 0.025 | ECOS1HA103EA | 8200 | 35 x 45 | 3.90 | 4.49 | 0.040 | 0.030 | ECOS1JA822EA |
| 12000 | 35 x 45 | 4.50 | 5.18 | 0.028 | 0.022 | ECOS1HA123EA | 10000 | 35 x 50 | 4.40 | 5.06 | 0.033 | 0.028 | ECOS1JA103EA |
| 15000 | 35 x 50 | 4.80 | 5.52 | 0.022 | 0.018 | ECOS1HA153EA | 12000 | 40 x 40 | 4.52 | 5.20 | 0.030 | 0.026 | ECOS1JA123FA |
| 15000 | 40 x 40 | 4.80 | 5.52 | 0.022 | 0.018 | ECOS1HA153FA | 15000 | 40 x 50 | 4.80 | 5.52 | 0.027 | 0.023 | ECOS1JA153FA |
| 22000 | 40 x 50 | 5.15 | 5.92 | 0.016 | 0.013 | ECOS1HA223FA | | | | | | | |

TS-HA Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|---------------------------------------|--------------------|------------------------------|------------|-----------------------------|-------|--------------------------|---------------------------------------|--------------------|------------------------------|-------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10k~100kHz | 120Hz | 20kHz | | | | 120Hz | 20kHz | | | |
| 80 VDC Working, 100 VDC Surge | | | | | | | 100 VDC Working, 125 VDC Surge | | | | | | |
| 820 | 20 x 30 | 1.20 | 1.38 | 0.222 | 0.145 | ECOS1KA821AA | 560 | 20 x 30 | 1.10 | 1.65 | 0.296 | 0.178 | ECOS2AA561AA |
| 1000 | 20 x 35 | 1.30 | 1.50 | 0.182 | 0.119 | ECOS1KA102AA | 820 | 20 x 35 | 1.40 | 2.10 | 0.202 | 0.121 | ECOS2AA821AA |
| 1200 | 20 x 40 | 1.50 | 1.73 | 0.166 | 0.116 | ECOS1KA122AA | 1000 | 20 x 40 | 1.70 | 2.55 | 0.182 | 0.109 | ECOS2AA102AA |
| 470 | 22 x 20 | 0.80 | 0.92 | 0.459 | 0.298 | ECOS1KA471BL | 330 | 22 x 20 | 0.80 | 1.20 | 0.653 | 0.392 | ECOS2AA331BL |
| 470 | 22 x 25 | 0.80 | 0.92 | 0.388 | 0.272 | ECOS1KA471BA | 330 | 22 x 25 | 0.80 | 1.20 | 0.553 | 0.332 | ECOS2AA331BA |
| 680 | 22 x 25 | 1.00 | 1.15 | 0.268 | 0.188 | ECOS1KA681BA | 470 | 22 x 25 | 0.92 | 1.38 | 0.388 | 0.233 | ECOS2AA471BA |
| 820 | 22 x 25 | 1.20 | 1.38 | 0.222 | 0.145 | ECOS1KA821BA | 560 | 22 x 25 | 1.10 | 1.65 | 0.296 | 0.178 | ECOS2AA561BA |
| 1000 | 22 x 30 | 1.30 | 1.50 | 0.182 | 0.119 | ECOS1KA102BA | 820 | 22 x 30 | 1.40 | 2.10 | 0.202 | 0.121 | ECOS2AA821BA |
| 1200 | 22 x 30 | 1.50 | 1.73 | 0.166 | 0.116 | ECOS1KA122BA | 1000 | 22 x 35 | 1.70 | 2.55 | 0.182 | 0.109 | ECOS2AA102BA |
| 1500 | 22 x 35 | 1.70 | 1.96 | 0.133 | 0.093 | ECOS1KA152BA | 1200 | 22 x 40 | 1.80 | 2.70 | 0.152 | 0.091 | ECOS2AA122BA |
| 1800 | 22 x 40 | 1.80 | 2.07 | 0.111 | 0.077 | ECOS1KA182BA | 1500 | 22 x 45 | 2.10 | 3.15 | 0.122 | 0.073 | ECOS2AA152BA |
| 2200 | 22 x 45 | 2.10 | 2.42 | 0.090 | 0.063 | ECOS1KA222BA | 470 | 25 x 20 | 1.00 | 1.50 | 0.459 | 0.275 | ECOS2AA471CL |
| 680 | 25 x 20 | 1.00 | 1.15 | 0.317 | 0.206 | ECOS1KA681CL | 820 | 25 x 25 | 1.40 | 2.10 | 0.202 | 0.121 | ECOS2AA821CA |
| 1000 | 25 x 25 | 1.30 | 1.50 | 0.182 | 0.119 | ECOS1KA102CA | 1000 | 25 x 30 | 1.70 | 2.55 | 0.182 | 0.109 | ECOS2AA102CA |
| 1200 | 25 x 25 | 1.50 | 1.73 | 0.166 | 0.116 | ECOS1KA122CA | 1200 | 25 x 35 | 1.80 | 2.70 | 0.152 | 0.091 | ECOS2AA122CA |
| 1500 | 25 x 30 | 1.70 | 1.96 | 0.133 | 0.093 | ECOS1KA152CA | 1500 | 25 x 40 | 2.10 | 3.15 | 0.122 | 0.079 | ECOS2AA152CA |
| 1800 | 25 x 35 | 1.80 | 2.07 | 0.111 | 0.077 | ECOS1KA182CA | 1800 | 25 x 45 | 2.30 | 3.45 | 0.111 | 0.072 | ECOS2AA182CA |
| 2200 | 25 x 35 | 2.10 | 2.42 | 0.090 | 0.063 | ECOS1KA222CA | 2200 | 25 x 50 | 2.60 | 3.90 | 0.090 | 0.059 | ECOS2AA222CA |
| 2700 | 25 x 45 | 2.40 | 2.76 | 0.074 | 0.055 | ECOS1KA272CA | 680 | 30 x 20 | 1.10 | 1.65 | 0.317 | 0.190 | ECOS2AA681DL |
| 3300 | 25 x 50 | 2.60 | 2.99 | 0.065 | 0.049 | ECOS1KA332CA | 1200 | 30 x 25 | 1.80 | 2.70 | 0.152 | 0.091 | ECOS2AA122DA |
| 1000 | 30 x 20 | 1.20 | 1.38 | 0.216 | 0.140 | ECOS1KA102DL | 1500 | 30 x 30 | 2.10 | 3.15 | 0.122 | 0.079 | ECOS2AA152DA |
| 1800 | 30 x 25 | 1.80 | 2.07 | 0.111 | 0.077 | ECOS1KA182DA | 1800 | 30 x 35 | 2.30 | 3.45 | 0.111 | 0.072 | ECOS2AA182DA |
| 2200 | 30 x 30 | 2.10 | 2.42 | 0.090 | 0.063 | ECOS1KA222DA | 2200 | 30 x 40 | 2.60 | 3.90 | 0.090 | 0.059 | ECOS2AA222DA |
| 2700 | 30 x 35 | 2.40 | 2.76 | 0.074 | 0.055 | ECOS1KA272DA | 2700 | 30 x 45 | 2.90 | 4.35 | 0.080 | 0.052 | ECOS2AA272DA |
| 3300 | 30 x 40 | 2.60 | 2.99 | 0.065 | 0.049 | ECOS1KA332DA | 3300 | 30 x 50 | 3.20 | 4.80 | 0.075 | 0.053 | ECOS2AA332DA |
| 3900 | 30 x 45 | 3.00 | 3.45 | 0.060 | 0.045 | ECOS1KA392DA | 1000 | 35 x 20 | 1.20 | 1.80 | 0.216 | 0.129 | ECOS2AA102EL |
| 4700 | 30 x 50 | 3.30 | 3.80 | 0.049 | 0.037 | ECOS1KA472DA | 1500 | 35 x 25 | 2.10 | 3.15 | 0.122 | 0.079 | ECOS2AA152EA |
| 1500 | 35 x 20 | 1.40 | 1.61 | 0.155 | 0.108 | ECOS1KA152EL | 1800 | 35 x 30 | 2.30 | 3.45 | 0.111 | 0.072 | ECOS2AA182EA |
| 2200 | 35 x 25 | 2.10 | 2.42 | 0.090 | 0.063 | ECOS1KA222EA | 2200 | 35 x 30 | 2.60 | 3.90 | 0.090 | 0.059 | ECOS2AA222EA |
| 2700 | 35 x 30 | 2.40 | 2.76 | 0.074 | 0.055 | ECOS1KA272EA | 2700 | 35 x 35 | 2.90 | 4.35 | 0.080 | 0.052 | ECOS2AA272EA |
| 3300 | 35 x 30 | 2.60 | 2.99 | 0.065 | 0.049 | ECOS1KA332EA | 3300 | 35 x 40 | 3.20 | 4.80 | 0.075 | 0.053 | ECOS2AA332EA |
| 3900 | 35 x 35 | 3.00 | 3.45 | 0.060 | 0.045 | ECOS1KA392EA | 3900 | 35 x 45 | 3.60 | 5.40 | 0.064 | 0.045 | ECOS2AA392EA |
| 4700 | 35 x 40 | 3.30 | 3.80 | 0.049 | 0.037 | ECOS1KA472EA | 4700 | 35 x 50 | 3.80 | 5.70 | 0.053 | 0.040 | ECOS2AA472EA |
| 5600 | 35 x 45 | 3.70 | 4.26 | 0.050 | 0.038 | ECOS1KA562EA | 4700 | 40 x 40 | 3.80 | 5.70 | 0.053 | 0.040 | ECOS2AA472FA |
| 6800 | 35 x 50 | 3.90 | 4.49 | 0.041 | 0.031 | ECOS1KA682EA | 6800 | 40 x 50 | 4.57 | 6.86 | 0.037 | 0.027 | ECOS2AA682FA |
| 6800 | 40 x 40 | 3.90 | 4.49 | 0.041 | 0.031 | ECOS1KA682FA | | | | | | | |
| 8200 | 40 x 50 | 4.29 | 4.93 | 0.036 | 0.027 | ECOS1KA822FA | | | | | | | |
| 160 VDC Working, 200 VDC Surge | | | | | | | 200 VDC Working, 250 VDC Surge | | | | | | |
| 220 | 20 x 25 | 1.00 | 1.40 | 0.829 | 0.373 | ECOS2CA221AA | 220 | 20 x 30 | 1.00 | 1.40 | 0.754 | 0.339 | ECOS2DA221AA |
| 270 | 20 x 30 | 1.10 | 1.54 | 0.675 | 0.304 | ECOS2CA271AA | 270 | 20 x 35 | 1.10 | 1.54 | 0.614 | 0.276 | ECOS2DA271AA |
| 330 | 20 x 35 | 1.20 | 1.68 | 0.653 | 0.294 | ECOS2CA331AA | 330 | 20 x 40 | 1.20 | 1.68 | 0.502 | 0.226 | ECOS2DA331AA |
| 390 | 20 x 40 | 1.30 | 1.82 | 0.468 | 0.210 | ECOS2CA391AA | 100 | 22 x 20 | 0.50 | 0.70 | 1.989 | 0.895 | ECOS2DA101BL |
| 150 | 22 x 20 | 0.55 | 0.77 | 1.437 | 0.647 | ECOS2CA151BL | 100 | 22 x 25 | 0.50 | 0.70 | 1.658 | 0.746 | ECOS2DA101BA |
| 150 | 22 x 25 | 0.61 | 0.85 | 1.216 | 0.547 | ECOS2CA151BA | 150 | 22 x 25 | 0.68 | 0.95 | 1.105 | 0.497 | ECOS2DA151BA |
| 220 | 22 x 25 | 0.90 | 1.26 | 0.829 | 0.373 | ECOS2CA221BA | 220 | 22 x 25 | 1.00 | 1.40 | 0.754 | 0.339 | ECOS2DA221BA |
| 270 | 22 x 25 | 1.10 | 1.54 | 0.675 | 0.304 | ECOS2CA271BA | 270 | 22 x 30 | 1.10 | 1.54 | 0.614 | 0.276 | ECOS2DA271BA |
| 330 | 22 x 30 | 1.20 | 1.68 | 0.553 | 0.249 | ECOS2CA331BA | 330 | 22 x 30 | 1.20 | 1.68 | 0.502 | 0.226 | ECOS2DA331BA |
| 390 | 22 x 30 | 1.30 | 1.82 | 0.553 | 0.249 | ECOS2CA391BA | 390 | 22 x 35 | 1.30 | 1.82 | 0.425 | 0.191 | ECOS2DA391BA |
| 470 | 22 x 35 | 1.40 | 1.96 | 0.529 | 0.238 | ECOS2CA471BA | 470 | 22 x 40 | 1.40 | 1.96 | 0.353 | 0.159 | ECOS2DA471BA |
| 560 | 22 x 40 | 1.50 | 2.10 | 0.385 | 0.173 | ECOS2CA561BA | 560 | 22 x 45 | 1.50 | 2.10 | 0.296 | 0.133 | ECOS2DA561BA |
| 680 | 22 x 45 | 1.70 | 2.38 | 0.317 | 0.143 | ECOS2CA681BA | 150 | 25 x 20 | 0.65 | 0.91 | 1.326 | 0.597 | ECOS2DA151CL |
| 220 | 25 x 20 | 0.75 | 1.05 | 0.980 | 0.441 | ECOS2CA221CL | 270 | 25 x 25 | 1.10 | 1.54 | 0.614 | 0.276 | ECOS2DA271CA |
| 390 | 25 x 25 | 1.30 | 1.82 | 0.553 | 0.249 | ECOS2CA391CA | 330 | 25 x 25 | 1.20 | 1.68 | 0.502 | 0.226 | ECOS2DA331CA |
| 470 | 25 x 30 | 1.40 | 1.96 | 0.459 | 0.206 | ECOS2CA471CA | 390 | 25 x 30 | 1.30 | 1.82 | 0.425 | 0.191 | ECOS2DA391CA |
| 560 | 25 x 30 | 1.50 | 2.10 | 0.385 | 0.173 | ECOS2CA561CA | 470 | 25 x 35 | 1.40 | 1.96 | 0.353 | 0.159 | ECOS2DA471CA |
| 680 | 25 x 35 | 1.70 | 2.38 | 0.317 | 0.143 | ECOS2CA681CA | 560 | 25 x 35 | 1.50 | 2.10 | 0.296 | 0.133 | ECOS2DA561CA |
| 820 | 25 x 40 | 2.00 | 2.80 | 0.263 | 0.118 | ECOS2CA821CA | 680 | 25 x 40 | 1.70 | 2.38 | 0.244 | 0.110 | ECOS2DA681CA |
| 1000 | 25 x 45 | 2.20 | 3.08 | 0.216 | 0.108 | ECOS2CA102CA | 820 | 25 x 50 | 2.00 | 2.80 | 0.222 | 0.111 | ECOS2DA821CA |
| 1200 | 25 x 50 | 2.30 | 3.22 | 0.180 | 0.090 | ECOS2CA122CA | 220 | 30 x 20 | 0.87 | 1.22 | 0.904 | 0.407 | ECOS2DA221DL |
| 330 | 30 x 20 | 1.00 | 1.40 | 0.553 | 0.249 | ECOS2CA331DL | 390 | 30 x 25 | 1.30 | 1.82 | 0.425 | 0.191 | ECOS2DA391DA |
| 560 | 30 x 25 | 1.50 | 2.10 | 0.385 | 0.173 | ECOS2CA561DA | 470 | 30 x 25 | 1.40 | 1.96 | 0.353 | 0.159 | ECOS2DA471DA |
| 680 | 30 x 30 | 1.70 | 2.38 | 0.317 | 0.143 | ECOS2CA681DA | 560 | 30 x 30 | 1.50 | 2.10 | 0.296 | 0.133 | ECOS2DA561DA |
| 820 | 30 x 30 | 2.00 | 2.80 | 0.263 | 0.118 | ECOS2CA821DA | 680 | 30 x 30 | 1.70 | 2.38 | 0.244 | 0.110 | ECOS2DA681DA |
| 1000 | 30 x 35 | 2.20 | 3.08 | 0.216 | 0.108 | ECOS2CA102DA | 820 | 30 x 35 | 2.00 | 2.80 | 0.222 | 0.111 | ECOS2DA821DA |
| 1200 | 30 x 40 | 2.30 | 3.22 | 0.180 | 0.090 | ECOS2CA122DA | 1000 | 30 x 45 | 2.20 | 3.08 | 0.199 | 0.099 | ECOS2DA102DA |
| 1500 | 30 x 45 | 2.50 | 3.50 | 0.166 | 0.083 | ECOS2CA152DA | 1200 | 30 x 50 | 2.30 | 3.22 | 0.166 | 0.083 | ECOS2DA122DA |
| 1800 | 30 x 50 | 2.70 | 3.78 | 0.138 | 0.083 | ECOS2CA182DA | 330 | 35 x 20 | 1.10 | 1.54 | 0.603 | 0.271 | ECOS2DA331EL |
| 470 | 35 x 20 | 1.15 | 1.61 | 0.459 | 0.206 | ECOS2CA471EL | 820 | 35 x 30 | 2.00 | 2.80 | 0.222 | 0.111 | ECOS2DA821EA |
| 1500 | 35 x 35 | 2.50 | 3.50 | 0.166 | 0.083 | ECOS2CA152EA | 1000 | 35 x 35 | 2.20 | 3.08 | 0.199 | 0.099 | ECOS2DA102EA |
| 1800 | 35 x 40 | 2.70 | 3.78 | 0.138 | 0.069 | ECOS2CA182EA | 1200 | 35 x 40 | 2.30 | 3.22 | 0.166 | 0.083 | ECOS2DA122EA |
| 2200 | 35 x 50 | 2.90 | 4.06 | 0.113 | 0.057 | ECOS2CA222EA | 1500 | 35 x 50 | 2.50 | 3.50 | 0.144 | 0.072 | ECOS2DA152EA |

TS-HA Standard Ratings (continued)

| Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number | Cap. (μ F) | Size (mm) D x L | Max 105°C R.C. (A_{rms}) | | 20°C ESR (Ω , max.) | | Panasonic Part Number |
|---------------------------------------|--------------------|------------------------------|------------|-----------------------------|-------|--------------------------|---------------------------------------|--------------------|------------------------------|------------|-----------------------------|-------|--------------------------|
| | | 120Hz | 10k~100kHz | 120Hz | 20kHz | | | | 120Hz | 10k~100kHz | 120Hz | 20kHz | |
| 250 VDC Working, 300 VDC Surge | | | | | | | 385 VDC Working, 435 VDC Surge | | | | | | |
| 180 | 20 x 35 | 0.90 | 1.26 | 0.921 | 0.461 | ECOS2EA181AA | 56 | 20 x 30 | 0.51 | 0.71 | 2.368 | 0.829 | ECOS2TA560AA |
| 220 | 20 x 40 | 1.00 | 1.40 | 0.754 | 0.377 | ECOS2EA221AA | 68 | 20 x 35 | 0.56 | 0.78 | 1.950 | 0.683 | ECOS2TA680AA |
| 68 | 22 x 20 | 0.40 | 0.56 | 2.926 | 1.463 | ECOS2EA680BL | 82 | 20 x 40 | 0.64 | 0.90 | 1.617 | 0.566 | ECOS2TA820AA |
| 68 | 22 x 25 | 0.40 | 0.56 | 2.438 | 1.219 | ECOS2EA680BA | 33 | 22 x 20 | 0.20 | 0.28 | 5.024 | 1.758 | ECOS2TA330BL |
| 100 | 22 x 25 | 0.55 | 0.77 | 1.658 | 0.829 | ECOS2EA101BA | 56 | 22 x 25 | 0.51 | 0.71 | 2.368 | 0.829 | ECOS2TA560BA |
| 150 | 22 x 25 | 0.75 | 1.05 | 1.105 | 0.553 | ECOS2EA151BA | 68 | 22 x 30 | 0.56 | 0.78 | 1.950 | 0.683 | ECOS2TA680BA |
| 180 | 22 x 30 | 0.90 | 1.26 | 0.921 | 0.461 | ECOS2EA181BA | 82 | 22 x 35 | 0.64 | 0.90 | 1.617 | 0.566 | ECOS2TA820BA |
| 220 | 22 x 30 | 1.00 | 1.40 | 0.754 | 0.377 | ECOS2EA221BA | 100 | 22 x 35 | 0.69 | 0.97 | 1.326 | 0.464 | ECOS2TA101BA |
| 270 | 22 x 35 | 1.10 | 1.54 | 0.614 | 0.307 | ECOS2EA271BA | 120 | 22 x 35 | 0.75 | 1.05 | 1.105 | 0.387 | ECOS2TA121BA |
| 330 | 22 x 40 | 1.20 | 1.68 | 0.502 | 0.251 | ECOS2EA331BA | 150 | 22 x 50 | 0.82 | 1.15 | 0.884 | 0.309 | ECOS2TA151BA |
| 390 | 22 x 45 | 1.30 | 1.82 | 0.425 | 0.213 | ECOS2EA391BA | 47 | 25 x 20 | 0.25 | 0.35 | 3.527 | 1.235 | ECOS2TA470CL |
| 100 | 25 x 20 | 0.50 | 0.70 | 1.989 | 0.995 | ECOS2EA101CL | 68 | 25 x 25 | 0.56 | 0.78 | 1.950 | 0.683 | ECOS2TA680CA |
| 180 | 25 x 25 | 0.90 | 1.26 | 0.921 | 0.461 | ECOS2EA181CA | 82 | 25 x 25 | 0.64 | 0.90 | 1.617 | 0.566 | ECOS2TA820CA |
| 220 | 25 x 25 | 1.00 | 1.40 | 0.754 | 0.377 | ECOS2EA221CA | 100 | 25 x 30 | 0.69 | 0.97 | 1.326 | 0.464 | ECOS2TA101CA |
| 270 | 25 x 30 | 1.10 | 1.54 | 0.614 | 0.307 | ECOS2EA271CA | 120 | 25 x 30 | 0.75 | 1.05 | 1.105 | 0.387 | ECOS2TA121CA |
| 330 | 25 x 35 | 1.20 | 1.68 | 0.502 | 0.251 | ECOS2EA331CA | 150 | 25 x 40 | 0.82 | 1.15 | 0.884 | 0.309 | ECOS2TA151CA |
| 390 | 25 x 35 | 1.30 | 1.82 | 0.425 | 0.213 | ECOS2EA391CA | 180 | 25 x 45 | 0.95 | 1.33 | 0.737 | 0.258 | ECOS2TA181CA |
| 470 | 25 x 45 | 1.40 | 1.96 | 0.353 | 0.176 | ECOS2EA471CA | 220 | 25 x 50 | 1.10 | 1.54 | 0.603 | 0.211 | ECOS2TA221CA |
| 560 | 25 x 50 | 1.50 | 2.10 | 0.296 | 0.148 | ECOS2EA561CA | 68 | 30 x 20 | 0.35 | 0.49 | 2.438 | 0.853 | ECOS2TA680DL |
| 150 | 30 x 20 | 0.65 | 0.91 | 1.326 | 0.663 | ECOS2EA151DL | 150 | 30 x 30 | 0.82 | 1.15 | 0.884 | 0.309 | ECOS2TA151DA |
| 270 | 30 x 25 | 1.10 | 1.54 | 0.614 | 0.307 | ECOS2EA271DA | 180 | 30 x 35 | 0.95 | 1.33 | 0.737 | 0.258 | ECOS2TA181DA |
| 330 | 30 x 25 | 1.20 | 1.68 | 0.502 | 0.251 | ECOS2EA331DA | 220 | 30 x 40 | 1.10 | 1.54 | 0.603 | 0.211 | ECOS2TA221DA |
| 390 | 30 x 30 | 1.30 | 1.82 | 0.425 | 0.213 | ECOS2EA391DA | 270 | 30 x 45 | 1.20 | 1.68 | 0.491 | 0.172 | ECOS2TA271DA |
| 470 | 30 x 35 | 1.40 | 1.96 | 0.353 | 0.176 | ECOS2EA471DA | 330 | 30 x 50 | 1.35 | 1.89 | 0.402 | 0.161 | ECOS2TA331DA |
| 560 | 30 x 35 | 1.50 | 2.10 | 0.296 | 0.148 | ECOS2EA561DA | 100 | 35 x 20 | 0.47 | 0.66 | 1.658 | 0.580 | ECOS2TA101EL |
| 680 | 30 x 45 | 1.70 | 2.38 | 0.244 | 0.122 | ECOS2EA681DA | 180 | 35 x 25 | 0.95 | 1.33 | 0.737 | 0.258 | ECOS2TA181EA |
| 820 | 30 x 50 | 2.00 | 2.80 | 0.202 | 0.101 | ECOS2EA821DA | 220 | 35 x 30 | 1.10 | 1.54 | 0.603 | 0.211 | ECOS2TA221EA |
| 220 | 35 x 20 | 0.87 | 1.22 | 0.904 | 0.452 | ECOS2EA221EL | 270 | 35 x 35 | 1.20 | 1.68 | 0.491 | 0.172 | ECOS2TA271EA |
| 470 | 35 x 30 | 1.40 | 1.96 | 0.353 | 0.176 | ECOS2EA471EA | 330 | 35 x 40 | 1.35 | 1.89 | 0.402 | 0.161 | ECOS2TA331EA |
| 560 | 35 x 30 | 1.50 | 2.10 | 0.296 | 0.148 | ECOS2EA561EA | 390 | 35 x 45 | 1.55 | 2.17 | 0.340 | 0.136 | ECOS2TA391EA |
| 680 | 35 x 35 | 1.70 | 2.38 | 0.244 | 0.122 | ECOS2EA681EA | 470 | 35 x 50 | 1.75 | 2.45 | 0.282 | 0.127 | ECOS2TA471EA |
| 820 | 35 x 40 | 2.00 | 2.80 | 0.202 | 0.101 | ECOS2EA821EA | | | | | | | |
| 1000 | 35 x 45 | 2.20 | 3.08 | 0.199 | 0.099 | ECOS2EA102EA | | | | | | | |
| 1200 | 35 x 50 | 2.30 | 3.22 | 0.166 | 0.083 | ECOS2EA122EA | | | | | | | |
| 400 VDC Working, 450 VDC Surge | | | | | | | 450 VDC Working, 500 VDC Surge | | | | | | |
| 56 | 20 x 30 | 0.51 | 0.71 | 2.368 | 0.829 | ECOS2GA560AA | 56 | 22 x 25 | 0.40 | 0.56 | 2.368 | 0.947 | ECOS2WA560BA |
| 68 | 20 x 35 | 0.56 | 0.78 | 1.950 | 0.683 | ECOS2GA680AA | 68 | 22 x 30 | 0.50 | 0.70 | 1.950 | 0.780 | ECOS2WA680BA |
| 82 | 20 x 40 | 0.64 | 0.90 | 1.617 | 0.566 | ECOS2GA820AA | 82 | 22 x 35 | 0.56 | 0.78 | 1.617 | 0.647 | ECOS2WA820BA |
| 33 | 22 x 20 | 0.20 | 0.28 | 5.024 | 1.758 | ECOS2GA330BL | 100 | 22 x 40 | 0.64 | 0.90 | 1.326 | 0.531 | ECOS2WA101BA |
| 33 | 22 x 25 | 0.30 | 0.42 | 4.521 | 1.582 | ECOS2GA330BA | 120 | 22 x 45 | 0.72 | 1.01 | 1.105 | 0.442 | ECOS2WA121BA |
| 47 | 22 x 25 | 0.43 | 0.60 | 2.822 | 0.988 | ECOS2GA470BA | 150 | 22 x 50 | 0.79 | 1.11 | 0.884 | 0.354 | ECOS2WA151BA |
| 56 | 22 x 25 | 0.51 | 0.71 | 2.368 | 0.829 | ECOS2GA560BA | 68 | 25 x 25 | 0.50 | 0.70 | 1.950 | 0.780 | ECOS2WA680CA |
| 68 | 22 x 30 | 0.56 | 0.78 | 1.950 | 0.683 | ECOS2GA680BA | 100 | 25 x 30 | 0.64 | 0.90 | 1.326 | 0.531 | ECOS2WA101CA |
| 82 | 22 x 35 | 0.64 | 0.90 | 1.617 | 0.566 | ECOS2GA820BA | 120 | 25 x 35 | 0.72 | 1.01 | 1.105 | 0.442 | ECOS2WA121CA |
| 100 | 22 x 35 | 0.69 | 0.97 | 1.326 | 0.464 | ECOS2GA101BA | 150 | 25 x 40 | 0.79 | 1.11 | 0.884 | 0.354 | ECOS2WA151CA |
| 120 | 22 x 40 | 0.75 | 1.05 | 1.105 | 0.387 | ECOS2GA121BA | 180 | 25 x 45 | 0.87 | 1.22 | 0.737 | 0.295 | ECOS2WA181CA |
| 150 | 22 x 50 | 0.82 | 1.15 | 0.884 | 0.309 | ECOS2GA151BA | 220 | 25 x 50 | 1.00 | 1.40 | 0.678 | 0.271 | ECOS2WA221CA |
| 47 | 25 x 20 | 0.25 | 0.35 | 3.527 | 1.235 | ECOS2GA470CL | 100 | 30 x 25 | 0.64 | 0.90 | 1.326 | 0.531 | ECOS2WA101DA |
| 68 | 25 x 25 | 0.56 | 0.78 | 1.950 | 0.683 | ECOS2GA680CA | 150 | 30 x 30 | 0.79 | 1.11 | 0.884 | 0.354 | ECOS2WA151DA |
| 82 | 25 x 25 | 0.64 | 0.90 | 1.617 | 0.566 | ECOS2GA820CA | 180 | 30 x 35 | 0.87 | 1.22 | 0.737 | 0.295 | ECOS2WA181DA |
| 100 | 25 x 30 | 0.69 | 0.97 | 1.326 | 0.464 | ECOS2GA101CA | 220 | 30 x 40 | 1.00 | 1.40 | 0.678 | 0.271 | ECOS2WA221DA |
| 120 | 25 x 35 | 0.75 | 1.05 | 1.105 | 0.387 | ECOS2GA121CA | 270 | 30 x 45 | 1.17 | 1.64 | 0.614 | 0.246 | ECOS2WA271DA |
| 150 | 25 x 40 | 0.82 | 1.15 | 0.884 | 0.309 | ECOS2GA151CA | 330 | 30 x 50 | 1.38 | 1.93 | 0.502 | 0.201 | ECOS2WA331DA |
| 180 | 25 x 45 | 0.95 | 1.33 | 0.737 | 0.258 | ECOS2GA181CA | 150 | 35 x 25 | 0.79 | 1.11 | 0.884 | 0.354 | ECOS2WA151EA |
| 220 | 25 x 50 | 1.10 | 1.54 | 0.603 | 0.211 | ECOS2GA221CA | 220 | 35 x 30 | 1.00 | 1.40 | 0.678 | 0.271 | ECOS2WA221EA |
| 68 | 30 x 20 | 0.35 | 0.49 | 2.438 | 0.853 | ECOS2GA680DL | 270 | 35 x 35 | 1.17 | 1.64 | 0.614 | 0.246 | ECOS2WA271EA |
| 120 | 30 x 25 | 0.75 | 1.05 | 1.105 | 0.387 | ECOS2GA121DA | 330 | 35 x 40 | 1.38 | 1.93 | 0.502 | 0.201 | ECOS2WA331EA |
| 150 | 30 x 30 | 0.82 | 1.15 | 0.884 | 0.309 | ECOS2GA151DA | 390 | 35 x 50 | 1.55 | 2.17 | 0.425 | 0.170 | ECOS2WA391EA |
| 180 | 30 x 35 | 0.95 | 1.33 | 0.737 | 0.258 | ECOS2GA181DA | | | | | | | |
| 220 | 30 x 40 | 1.10 | 1.54 | 0.603 | 0.211 | ECOS2GA221DA | | | | | | | |
| 270 | 30 x 45 | 1.20 | 1.68 | 0.491 | 0.172 | ECOS2GA271DA | | | | | | | |
| 330 | 30 x 50 | 1.35 | 1.89 | 0.402 | 0.161 | ECOS2GA331DA | | | | | | | |
| 100 | 35 x 20 | 0.47 | 0.66 | 1.658 | 0.580 | ECOS2GA101EL | | | | | | | |
| 180 | 35 x 25 | 0.95 | 1.33 | 0.737 | 0.258 | ECOS2GA181EA | | | | | | | |
| 220 | 35 x 30 | 1.10 | 1.54 | 0.603 | 0.211 | ECOS2GA221EA | | | | | | | |
| 270 | 35 x 35 | 1.20 | 1.68 | 0.491 | 0.172 | ECOS2GA271EA | | | | | | | |
| 330 | 35 x 40 | 1.35 | 1.89 | 0.402 | 0.161 | ECOS2GA331EA | | | | | | | |
| 390 | 35 x 45 | 1.55 | 2.17 | 0.340 | 0.136 | ECOS2GA391EA | | | | | | | |
| 470 | 35 x 50 | 1.75 | 2.45 | 0.282 | 0.127 | ECOS2GA471EA | | | | | | | |