

## Surface Mount Type

Series: **TPE** Size : **B**



### Features

- Small size (L 3.5 × W 2.8 × H 1.9 mm)
- Low ESR (15 mΩ)
- RoHS compliance, Halogen free

### Specifications

|                            |   |  |
|----------------------------|---|--|
| Size code                  | B2  |  |
| Category temp. range       | -55 °C to +105 °C   |  |
| Rated volt. range          | 2.0 V.DC to 10 V.DC   |  |
| Category volt. range       | 1.8 V.DC to 8.0 V.DC  |  |
| Rated cap. range           | 47 μF to 470 μF   |  |
| Capacitance tolerance      | ±20 % (120 Hz / +20 °C)   |  |
| Leakage current            | Please see the attached characteristics list                        |  |
| Dissipation factor (tan δ) | Please see the attached characteristics list                        |  |
| Surge voltage              | Rated voltage × 1.15  |  |
| Endurance                  | +105 °C, 1000 h rated voltage applied                               |  |
|                            | Rated temp, +85 °C Products : +85 °C, 1000 h, rated voltage applied |  |
|                            | Capacitance change  | Within ±20 % of the initial value  |
|                            | Dissipation factor (tan δ)  | ≤ 1.5 times of the initial limit   |
| Damp heat (Steady State)   | +60 °C, 90 % to 95 %, 500 h, No-applied voltage                     |  |
|                            | Capacitance change  | Within +50 %, -20 % of the initial value<br>(2R5TPE220MAZB (MAPB, MAFB), 2R5TPE330MAZB, 2TPE330MAFB (MADGB), 2TPE470MAJGB (MAFB), 2TPE330MFB, ETPE330MAFB (MA9GB)) |
|                            |   | Within +40 %, -20 % of the initial value (Except for above model)  |
|                            | Dissipation factor (tan δ)  | ≤ 1.5 times of the initial limit   |
|                            | Leakage current   | ≤ 3 times of the initial limit   |

### Marking

R. capacitance code

Polarity marking(+)

R. voltage code

Lot No.

| R.voltage code |     | Unit : V.DC |      |
|----------------|-----|-------------|------|
| d              | 2.0 | j           | 6.3  |
| e              | 2.5 | k           | 8.0  |
| g              | 4.0 | A           | 10.0 |

| R.capacitance code |     | Unit : μF |     |
|--------------------|-----|-----------|-----|
| S7                 | 47  | J8        | 220 |
| A8                 | 100 | N8        | 330 |
| C8                 | 120 | S8        | 470 |
| E8                 | 150 |           |     |

### Dimensions (not to scale)

| Unit : mm |       |       |       |       |        |
|-----------|-------|-------|-------|-------|--------|
| Size code | L±0.2 | W±0.2 | H±0.1 | S±0.2 | W1±0.1 |
| B2        | 3.5   | 2.8   | 1.9   | 0.8   | 2.2    |

\* Externals of figure are the reference.

## Characteristics list

| Rated voltage (V.DC) | Rated temp. (°C) | Category voltage (V.DC) | Category temp. (°C) | Rated cap. (μF) | Case size (mm) |     |     | Size code | Specifications                           |                             |                     |                       | Standard      |                           | Floor life level   |                    |
|----------------------|------------------|-------------------------|---------------------|-----------------|----------------|-----|-----|-----------|--|-----------------------------|---------------------|-----------------------|---------------|---------------------------|--------------------|--------------------|
|                      |                  |                         |                     |                 | L              | W   | H   |           | Ripple current <sup>*1</sup> (mA r.m.s.) | ESR <sup>*2</sup> (mΩ max.) | tan δ <sup>*3</sup> | LC <sup>*4</sup> (μA) | Part number   | Min. Packaging Q'ty (pcs) | Reflow temp ≤260°C | Reflow temp ≤250°C |
| 2                    | 105              | 2.0                     | 105                 | 330             | 3.5            | 2.8 | 1.9 | B2        | 2000                                     | 15                          | 0.08                | 132.0                 | 2TPE330MFB    | 2000                      | 3                  | 3                  |
|                      | 85               | 1.8                     | 105                 |                 | 3.5            | 2.8 | 1.9 |           | 2000                                     | 15                          | 0.08                | 132.0                 | 2TPE330MAFB   | 2000                      |                    |                    |
|                      | 85               | 1.8                     | 105                 |                 | 3.5            | 2.8 | 1.9 |           | 2000                                     | 13/300kHz                   | 0.10                | 132.0                 | 2TPE330MADGB  | 2000                      |                    |                    |
|                      | 85               | 1.8                     | 105                 | 470             | 3.5            | 2.8 | 1.9 |           | 2300                                     | 15                          | 0.10                | 188.0                 | 2TPE470MAFB   | 2000                      |                    |                    |
|                      | 85               | 1.8                     | 105                 |                 | 3.5            | 2.8 | 1.9 |           | 2300                                     | 11/300kHz                   | 0.08                | 188.0                 | 2TPE470MAJGB  | 2000                      |                    |                    |
|                      | 85               | 2.0                     | 105                 |                 | 3.5            | 2.8 | 1.9 |           | 2000                                     | 15                          | 0.08                | 110.0                 | 2R5TPE220MAFB | 2000                      |                    |                    |
| 2.5                  | 105              | 2.5                     | 105                 | 220             | 3.5            | 2.8 | 1.9 |           | 1800                                     | 15/300kHz                   | 0.08                | 110.0                 | 2R5TPE220MFGB | 2000                      |                    |                    |
|                      | 105              | 2.5                     | 105                 |                 | 3.5            | 2.8 | 1.9 |           | 1700                                     | 21                          | 0.08                | 55.0                  | 2R5TPE220MLB  | 2000                      |                    |                    |
|                      | 85               | 2.0                     | 105                 |                 | 3.5            | 2.8 | 1.9 |           | 1600                                     | 25                          | 0.08                | 55.0                  | 2R5TPE220MAPB | 2000                      |                    |                    |
|                      | 105              | 2.5                     | 105                 |                 | 3.5            | 2.8 | 1.9 |           | 1400                                     | 35                          | 0.08                | 55.0                  | 2R5TPE220MZB  | 2000                      |                    |                    |
|                      | 85               | 2.0                     | 105                 |                 | 3.5            | 2.8 | 1.9 |           | 1400                                     | 35                          | 0.08                | 55.0                  | 2R5TPE220MAZB | 2000                      |                    |                    |
|                      | 85               | 2.0                     | 105                 |                 | 3.5            | 2.8 | 1.9 |           | 1400                                     | 35                          | 0.08                | 82.5                  | 2R5TPE330MAZB | 2000                      |                    |                    |
|                      | 85               | 2.0                     | 105                 | 330             | 3.5            | 2.8 | 1.9 |           | 3200                                     | 9/300kHz                    | 0.08                | 165.0                 | ETPE330MA9GB  | 2000                      |                    |                    |
|                      | 105              | 2.5                     | 105                 |                 | 3.5            | 2.8 | 1.9 |           | 3200                                     | 9/300kHz                    | 0.08                | 165.0                 | ETPE330M9GB   | 2000                      |                    |                    |
|                      | 85               | 2.0                     | 105                 |                 | 3.5            | 2.8 | 1.9 |           | 2700                                     | 15                          | 0.08                | 165.0                 | ETPE330MAFB   | 2000                      |                    |                    |
|                      | 105              | 2.5                     | 105                 |                 | 3.5            | 2.8 | 1.9 |           | 2700                                     | 15                          | 0.08                | 165.0                 | ETPE330MFB    | 2000                      |                    |                    |
| 4                    | 105              | 4.0                     | 105                 | 100             | 3.5            | 2.8 | 1.9 |           | 1400                                     | 35                          | 0.08                | 40.0                  | 4TPE100MZB    | 2000                      |                    |                    |
|                      | 85               | 3.2                     | 105                 | 150             | 3.5            | 2.8 | 1.9 |           | 1400                                     | 35                          | 0.08                | 60.0                  | 4TPE150MAZB   | 2000                      |                    |                    |
|                      | 85               | 3.2                     | 105                 | 220             | 3.5            | 2.8 | 1.9 | 1400      | 35                                       | 0.08                        | 88.0                | 4TPE220MAZB           | 2000          |                           |                    |                    |
| 6.3                  | 105              | 6.3                     | 105                 | 100             | 3.5            | 2.8 | 1.9 | 1600      | 25                                       | 0.08                        | 63.0                | 6TPE100MPB            | 2000          |                           |                    |                    |
|                      | 85               | 5.0                     | 105                 |                 | 3.5            | 2.8 | 1.9 | 1400      | 35                                       | 0.08                        | 63.0                | 6TPE100MAZB           | 2000          |                           |                    |                    |
|                      | 105              | 6.3                     | 105                 |                 | 3.5            | 2.8 | 1.9 | 1400      | 35                                       | 0.08                        | 63.0                | 6TPE100MZB            | 2000          |                           |                    |                    |
|                      | 85               | 5.0                     | 105                 | 120             | 3.5            | 2.8 | 1.9 | 1400      | 35                                       | 0.08                        | 75.6                | 6TPE120MAZB           | 2000          |                           |                    |                    |
|                      | 85               | 5.0                     | 105                 |                 | 3.5            | 2.8 | 1.9 | 1600      | 25                                       | 0.08                        | 94.5                | 6TPE150MAPB           | 2000          |                           |                    |                    |
|                      | 85               | 5.0                     | 105                 | 150             | 3.5            | 2.8 | 1.9 | 1400      | 35                                       | 0.08                        | 94.5                | 6TPE150MAZB           | 2000          |                           |                    |                    |
|                      | 85               | 5.0                     | 105                 |                 | 3.5            | 2.8 | 1.9 | 1400      | 35                                       | 0.10                        | 138.6               | 6TPE220MAZB           | 2000          |                           |                    |                    |
|                      | 85               | 5.0                     | 105                 |                 | 3.5            | 2.8 | 1.9 | 1600      | 25                                       | 0.10                        | 138.6               | 6TPE220MAPB           | 2000          |                           |                    |                    |
| 8                    | 85               | 6.3                     | 105                 | 100             | 3.5            | 2.8 | 1.9 | 1400      | 35                                       | 0.08                        | 80.0                | 8TPE100MAZB           | 2000          |                           |                    |                    |
| 10                   | 85               | 8.0                     | 105                 | 47              | 3.5            | 2.8 | 1.9 | 1400      | 35                                       | 0.08                        | 47.0                | 10TPE47MAZB           | 2000          |                           |                    |                    |

\*1: Ripple current (100 kHz / +45 °C)

\*2: ESR (100 kHz / +20 °C)

\*3: tan δ (120 Hz / +20 °C)

\*4: After 5 minutes

• Please refer to each page in this catalog for "Reflow conditions" and "Taping specifications".

## Surface Mount Type

Series: **TPE** Size : **D**



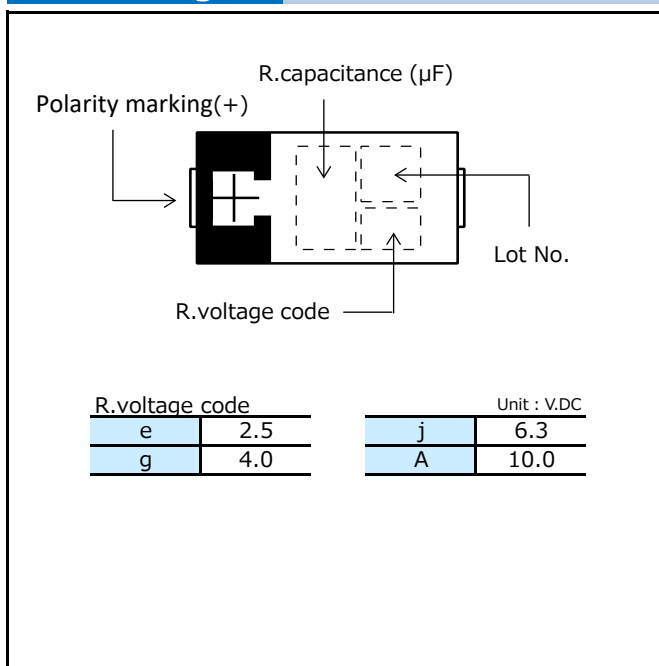
### Features

- Low profile (Height 1.5 mm max.)
- Low ESR (7 mΩ)
- Large capacitance (1500 μF max.)
- RoHS compliance, Halogen free

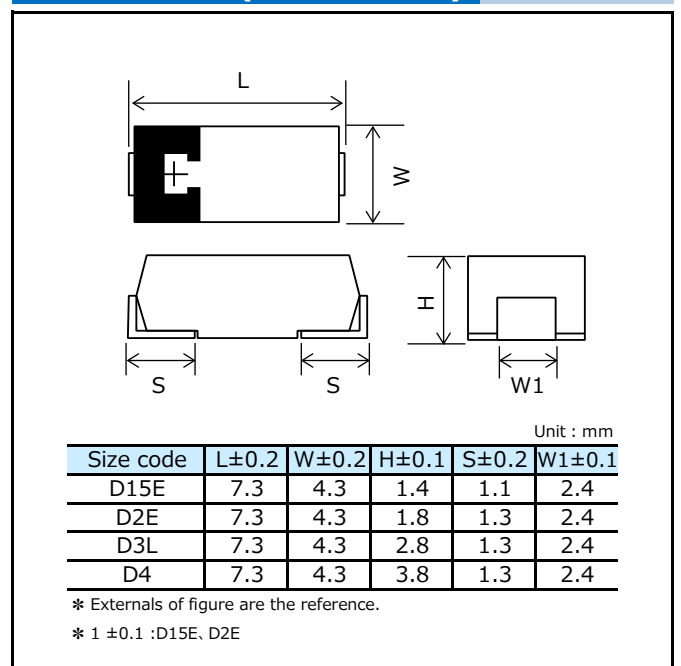
### Specifications

| Size code                  | D15E  | D2E  | D3L              | D4                |
|----------------------------|---|--|------------------|-------------------|
| Category temp. range       | -55 °C to +105 °C   |  |                  |                   |
| Rated volt. range          | 6.3 V.DC  | 2.5 V.DC to 10 V.DC  |                  |                   |
| Category volt. range       | 5.0 V.DC  | 2.5 V.DC to 10 V.DC  |                  |                   |
| Rated cap. range           | 470 μF  | 68 μF to 470 μF  | 220 μF to 680 μF | 330 μF to 1500 μF |
| Capacitance tolerance      | ±20 % (120 Hz / +20 °C)   |  |                  |                   |
| Leakage current            | Please see the attached characteristics list  |  |                  |                   |
| Dissipation factor (tan δ) | Please see the attached characteristics list  |  |                  |                   |
| Surge voltage              | Rated voltage × 1.15  |  |                  |                   |
| Endurance                  | +105 °C, 2000 h rated voltage applied<br>Rated temp, +85 °C Products : +85 °C, 1000 h, rated voltage applied<br>6TPE330MAP, 6TPE470MAZU : +85 °C, 2000 h, |  |                  |                   |
|                            | Capacitance change  | Within ±20 % of the initial value  |                  |                   |
|                            | Dissipation factor (tan δ)  | ≤ 1.5 times of the initial limit   |                  |                   |
|                            | Leakage current   | Within the initial limit   |                  |                   |
| Damp heat (Steady State)   | +60 °C, 90 % to 95 %, 500 h, No-applied voltage   |  |                  |                   |
|                            | Capacitance change  | Within +50 %, -20 % of the initial value<br>(2R5TPE220M (I, F, 9), 2R5TPE330M (I, F, C, 9, 7),<br>2R5TPE470M (I, F, C, 9, 7), 2R5TPE1000MF, 2R5TPE1500M (F, C))<br>Within +40 %, -20 % of the initial value (Except for above model) |                  |                   |
|                            | Dissipation factor (tan δ)  | ≤ 1.5 times of the initial limit   |                  |                   |
|                            | Leakage current   | ≤ 3 times of the initial limit   |                  |                   |

### Marking



### Dimensions (not to scale)



## Characteristics list

| Rated voltage (V.DC) | Rated temp. (°C) | Category voltage (V.DC) | Category temp. (°C) | Rated cap. (μF) | Case size (mm) |     |      | Size code | Specifications                           |                             |                     |                       | Standard    |                           | Floor life level   |                    |  |             |      |
|----------------------|------------------|-------------------------|---------------------|-----------------|----------------|-----|------|-----------|--|-----------------------------|---------------------|-----------------------|-------------|---------------------------|--------------------|--------------------|--|-------------|------|
|                      |                  |                         |                     |                 | L              | W   | H    |           | Ripple current <sup>*1</sup> (mA r.m.s.) | ESR <sup>*2</sup> (mΩ max.) | tan δ <sup>*3</sup> | LC <sup>*4</sup> (μA) | Part number | Min. Packaging Q'ty (pcs) | Reflow temp ≤260°C | Reflow temp ≤250°C |  |             |      |
| 2.5                  | 105              | 2.5                     | 105                 | 220             | 7.3            | 4.3 | 1.8  | D2E       | 3900                                     | 9                           | 0.10                | 55.0                  | 2R5TPE220M9 | 3000                      | 3                  |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 7.3            | 4.3 | 1.8  |           | 3100                                     | 15                          | 0.10                | 55.0                  | 2R5TPE220MF | 3000                      |                    |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 7.3            | 4.3 | 1.8  |           | 2800                                     | 18                          | 0.10                | 55.0                  | 2R5TPE220MI | 3000                      |                    |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 7.3            | 4.3 | 1.8  |           | 2400                                     | 25                          | 0.10                | 55.0                  | 2R5TPE220M  | 3000                      |                    |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 | 330             | 7.3            | 4.3 | 1.8  |           | 4400                                     | 7                           | 0.10                | 82.5                  | 2R5TPE330M7 | 3000                      |                    |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 7.3            | 4.3 | 1.8  |           | 3900                                     | 9                           | 0.10                | 82.5                  | 2R5TPE330M9 | 3000                      |                    |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 7.3            | 4.3 | 1.8  |           | 3500                                     | 12                          | 0.10                | 82.5                  | 2R5TPE330MC | 3000                      |                    |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 7.3            | 4.3 | 1.8  |           | 3100                                     | 15                          | 0.10                | 82.5                  | 2R5TPE330MF | 3000                      |                    |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 | 470             | 7.3            | 4.3 | 1.8  |           | 2800                                     | 18                          | 0.10                | 82.5                  | 2R5TPE330MI | 3000                      |                    |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 7.3            | 4.3 | 1.8  |           | 2400                                     | 25                          | 0.10                | 82.5                  | 2R5TPE330M  | 3000                      |                    |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 7.3            | 4.3 | 1.8  |           | 4400                                     | 7                           | 0.10                | 117.5                 | 2R5TPE470M7 | 3000                      |                    |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 7.3            | 4.3 | 1.8  |           | 3900                                     | 9                           | 0.10                | 117.5                 | 2R5TPE470M9 | 3000                      |                    |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 | 680             | 7.3            | 4.3 | 2.8  |           | D3L                                      | 3500                        | 12                  | 0.10                  | 170.0       | 2R5TPE470MC               | 3000               |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 7.3            | 4.3 | 2.8  |           |  | 3100                        | 15                  | 0.10                  | 170.0       | 2R5TPE470MI               | 3000               |                    |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 1000           | 7.3 | 4.3  |           |  | 3.8                         | 3500                | 12                    | 0.10        | 170.0                     | 2R5TPE680MCL       | 2500               |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 |                | 7.3 | 4.3  |           |  | 3.8                         | 3100                | 15                    | 0.10        | 170.0                     | 2R5TPE680MFL       | 2500               |  |             |      |
|                      | 105              | 2.5                     | 105                 | 1500            | 7.3            | 4.3 | 3.8  |           |  | D4                          | 3900                | 15                    | 0.15        | 250.0                     | 2R5TPE1000MF       | 2000               |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 7.3            | 4.3 | 3.8  |           |  |                             | 4400                | 12                    | 0.15        | 375.0                     | 2R5TPE1500MC       | 2000               |  |             |      |
|                      | 105              | 2.5                     | 105                 | 1500            | 7.3            | 4.3 | 3.8  |           |  | D4                          | 3900                | 15                    | 0.15        | 375.0                     | 2R5TPE1500MF       | 2000               |  |             |      |
|                      | 105              | 2.5                     | 105                 |                 | 7.3            | 4.3 | 3.8  |           |  |                             | 3900                | 15                    | 0.15        | 375.0                     | 2R5TPE1500MF       | 2000               |  |             |      |
| 4                    | 105              | 4.0                     | 105                 | 150             | 7.3            | 4.3 | 1.8  | D2E       |  | 2800                        | 18                  | 0.10                  | 60.0        | 4TPE150MI                 | 3000               | 2a                 |  |             |      |
|                      | 105              | 4.0                     | 105                 | 220             | 7.3            | 4.3 | 1.8  |           |  | 3100                        | 15                  | 0.10                  | 88.0        | 4TPE220MF                 | 3000               |                    |  |             |      |
|                      | 105              | 4.0                     | 105                 |                 | 7.3            | 4.3 | 1.8  |           |  | 2800                        | 18                  | 0.10                  | 88.0        | 4TPE220MI                 | 3000               |                    |  |             |      |
|                      | 105              | 4.0                     | 105                 | 330             | 7.3            | 4.3 | 1.8  |           |  | 2400                        | 25                  | 0.10                  | 88.0        | 4TPE220M                  | 3000               |                    |  |             |      |
|                      | 105              | 4.0                     | 105                 |                 | 7.3            | 4.3 | 1.8  |           |  | 2800                        | 18                  | 0.10                  | 132.0       | 4TPE330MI                 | 3000               |                    |  |             |      |
|                      | 105              | 4.0                     | 105                 | 470             | 7.3            | 4.3 | 2.8  |           |  | D3L                         | 2400                | 25                    | 0.10        | 132.0                     | 4TPE330M           |                    |  | 3000        |      |
|                      | 105              | 4.0                     | 105                 |                 | 7.3            | 4.3 | 2.8  |           |  |                             | 3500                | 12                    | 0.10        | 188.0                     | 4TPE470MCL         |                    |  | 2500        |      |
|                      | 105              | 4.0                     | 105                 |                 | 7.3            | 4.3 | 2.8  |           |  |                             | 3100                | 15                    | 0.10        | 188.0                     | 4TPE470MFL         |                    |  | 2500        |      |
|                      | 105              | 4.0                     | 105                 |                 | 7.3            | 4.3 | 2.8  |           |  |                             | 2800                | 18                    | 0.10        | 188.0                     | 4TPE470MIL         |                    |  | 2500        |      |
|                      | 105              | 4.0                     | 105                 | 100             | 7.3            | 4.3 | 1.8  |           |  | D2E                         | 2400                | 25                    | 0.10        | 188.0                     | 4TPE470ML          |                    |  | 2500        |      |
|                      | 105              | 6.3                     | 105                 |                 | 150            | 7.3 | 4.3  |           |  |                             | 1.8                 | 2800                  | 18          | 0.10                      | 63.0               |                    |  | 6TPE100MI   | 3000 |
|                      | 105              | 6.3                     | 105                 |                 |                | 7.3 | 4.3  |           |  |                             | 1.8                 | 2400                  | 25          | 0.10                      | 63.0               |                    |  | 6TPE100M    | 3000 |
| 105                  | 6.3              | 105                     | 220                 |                 | 7.3            | 4.3 | 1.8  | 3100      | 15                                       |                             | 0.10                | 94.5                  | 6TPE150MF   | 3000                      |                    |                    |  |             |      |
| 105                  | 6.3              | 105                     |                     | 7.3             | 4.3            | 1.8 | 2800 | 18        | 0.10                                     |                             | 94.5                | 6TPE150MI             | 3000        |                           |                    |                    |  |             |      |
| 6.3                  | 105              | 6.3                     | 105                 | 150             | 7.3            | 4.3 | 1.8  | D2E       | 2400                                     |                             | 25                  | 0.10                  | 94.5        | 6TPE150M                  | 3000               | 3                  |  |             |      |
|                      | 105              | 6.3                     | 105                 |                 | 7.3            | 4.3 | 1.8  |           | 2800                                     |                             | 18                  | 0.10                  | 138.6       | 6TPE220MI                 | 3000               |                    |  |             |      |
|                      | 105              | 6.3                     | 105                 |                 | 220            | 7.3 | 4.3  |           | 1.8                                      |                             | 2400                | 25                    | 0.10        | 138.6                     | 6TPE220M           |                    |  | 3000        |      |
|                      | 105              | 6.3                     | 105                 |                 |                | 7.3 | 4.3  |           | 1.8                                      |                             | 2400                | 25                    | 0.10        | 138.6                     | 6TPE220MAP         |                    |  | 3000        |      |
|                      | 85               | 5.0                     | 105                 | 330             | 7.3            | 4.3 | 1.8  | D3L       | 2400                                     |                             | 25                  | 0.10                  | 207.9       | 6TPE330MAP                | 3000               |                    |  |             |      |
|                      | 85               | 5.0                     | 105                 |                 | 7.3            | 4.3 | 2.8  |           | 2400                                     |                             | 25                  | 0.10                  | 207.9       | 6TPE330MAL                | 2500               |                    |  |             |      |
|                      | 85               | 5.0                     | 105                 |                 | 7.3            | 4.3 | 2.8  |           | 3900                                     |                             | 9/500kHz            | 0.10                  | 207.9       | 6TPE330MA9EL              | 2500               |                    |  |             |      |
|                      | 105              | 6.3                     | 105                 |                 | 7.3            | 4.3 | 2.8  |           | 3100                                     | 15                          | 0.10                | 207.9                 | 6TPE330MFL  | 2500                      |                    |                    |  |             |      |
|                      | 105              | 6.3                     | 105                 | 470             | 7.3            | 4.3 | 2.8  | D4        | 2800                                     | 18                          | 0.10                | 207.9                 | 6TPE330MIL  | 2500                      |                    |                    |  |             |      |
|                      | 105              | 6.3                     | 105                 |                 | 7.3            | 4.3 | 2.8  |           | 2400                                     | 25                          | 0.10                | 207.9                 | 6TPE330ML   | 2500                      |                    |                    |  |             |      |
|                      | 85               | 5.0                     | 105                 |                 | 680            | 7.3 | 4.3  |           | 3.8                                      | D4                          | 4400                | 10                    | 0.10        | 207.9                     | 6TPE330MAA         |                    |  | 2000        |      |
|                      | 85               | 5.0                     | 105                 |                 |                | 7.3 | 4.3  |           | 1.4                                      |                             | D15E                | 1700                  | 35          | 0.10                      | 296.1              |                    |  | 6TPE470MAZU | 4000 |
|                      | 105              | 6.3                     | 105                 | 680             | 7.3            | 4.3 | 3.8  | D4        | 3500                                     | 18                          | 0.15                | 296.1                 | 6TPE470MI   | 2000                      |                    |                    |  |             |      |
|                      | 105              | 6.3                     | 105                 |                 | 7.3            | 4.3 | 3.8  |           | 3000                                     | 25                          | 0.15                | 296.1                 | 6TPE470M    | 2000                      |                    |                    |  |             |      |
|                      | 105              | 6.3                     | 105                 |                 | 7.3            | 4.3 | 3.8  |           | 3500                                     | 18                          | 0.15                | 428.4                 | 6TPE680MI   | 2000                      |                    |                    |  |             |      |
|                      | 105              | 6.3                     | 105                 |                 | 7.3            | 4.3 | 3.8  |           | 3000                                     | 25                          | 0.15                | 428.4                 | 6TPE680M    | 2000                      |                    |                    |  |             |      |
| 10                   | 105              | 10.0                    | 105                 | 68              | 7.3            | 4.3 | 1.8  | D2E       | 2400                                     | 25                          | 0.10                | 68.0                  | 10TPE68M    | 3000                      | -                  |                    |  |             |      |
|                      | 105              | 10.0                    | 105                 | 220             | 7.3            | 4.3 | 2.8  | D3L       | 2800                                     | 18                          | 0.10                | 220.0                 | 10TPE220MIL | 2500                      |                    |                    |  |             |      |
|                      | 105              | 10.0                    | 105                 |                 | 7.3            | 4.3 | 2.8  |           | 2400                                     | 25                          | 0.10                | 220.0                 | 10TPE220ML  | 2500                      |                    |                    |  |             |      |
|                      | 105              | 10.0                    | 105                 | 330             | 7.3            | 4.3 | 3.8  | D4        | 3000                                     | 25                          | 0.10                | 330.0                 | 10TPE330M   | 2000                      |                    |                    |  |             |      |

\*1: Ripple current (100 kHz / +45 °C)

\*2: ESR (100 kHz / +20 °C)

\*3: tan δ (120 Hz / +20 °C)

\*4: After 5 minutes

• Please refer to each page in this catalog for "Reflow conditions" and "Taping specifications".

## Guidelines and precautions regarding the technical information and use of our products described in this online catalog.

- If you want to use our products described in this online catalog for applications requiring special qualities or reliability, or for applications where the failure or malfunction of the products may directly jeopardize human life or potentially cause personal injury (e.g. aircraft and aerospace equipment, traffic and transportation equipment, combustion equipment, medical equipment, accident prevention, anti-crime equipment, and/or safety equipment), it is necessary to verify whether the specifications of our products fit to such applications. Please ensure that you will ask and check with our inquiry desk as to whether the specifications of our products fit to such applications use before you use our products.
- The quality and performance of our products as described in this online catalog only apply to our products when used in isolation. Therefore, please ensure you evaluate and verify our products under the specific circumstances in which our products are assembled in your own products and in which our products will actually be used.
- If you use our products in equipment that requires a high degree of reliability, regardless of the application, it is recommended that you set up protection circuits and redundancy circuits in order to ensure safety of your equipment.
- The products and product specifications described in this online catalog are subject to change for improvement without prior notice. Therefore, please be sure to request and confirm the latest product specifications which explain the specifications of our products in detail, before you finalize the design of your applications, purchase, or use our products.
- The technical information in this online catalog provides examples of our products' typical operations and application circuits. We do not guarantee the non-infringement of third party's intellectual property rights and we do not grant any license, right, or interest in our intellectual property.
- If any of our products, product specifications and/or technical information in this online catalog is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially with regard to security and export control, shall be observed.

## <Regarding the Certificate of Compliance with the EU RoHS Directive/REACH Regulations>

- The switchover date for compliance with the RoHS Directive/REACH Regulations varies depending on the part number or series of our products.
- When you use the inventory of our products for which it is unclear whether those products are compliant with the RoHS Directive/REACH Regulation, please select "Sales Inquiry" in the website inquiry form and contact us.

**We do not take any responsibility for the use of our products outside the scope of the specifications, descriptions, guidelines and precautions described in this online catalog.**

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