

BYY53 / BYY54

25A Silicon Power Rectifier Diode

Description

The BYY53/54 are hermetically sealed 25A-diodes, which are available in different reverse voltage classes up to 1500V.

The diodes can be delivered with limited forward voltage and reverse current differences for parallel connecting in rectifier stacks and back-off-diodes

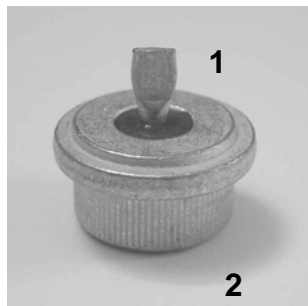
Features

- Forward current 25A
- Reverse voltage 75V – 1500V
- Hermetic press-fit package
- Available in different modifications of the package

Applications

- Power supplies
- Rectifier diode in car generators
- Rectifier bridges/stacks
- Back-off-diodes

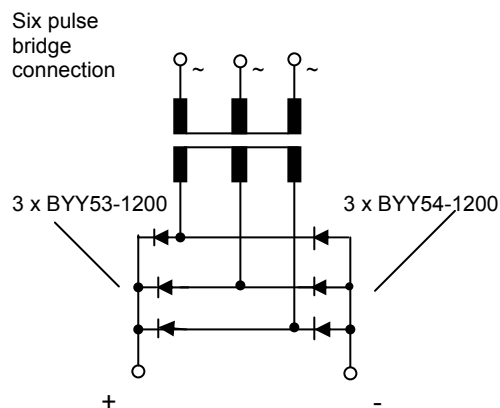
Pinout details



BYY53: 1 – cathode; 2 - anode

BYY54: 1 – anode; 2 - cathode

Typical application circuit

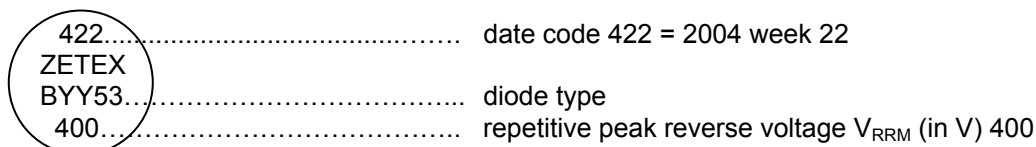


Ordering information

| Device | Quantity per box | Options |
|---------------------------|------------------|---|
| BYY53-75; ...; BYY53-1500 | 500 | The package quantities for the different package modifications are included in "PressFitPackageModifications.pdf" |
| BYY54-75; ...; BYY54-1500 | 500 | |

Device marking

Devices are identified by type. Colour of marking: BYY53- black, BYY54 – red



BYY53 / BYY54

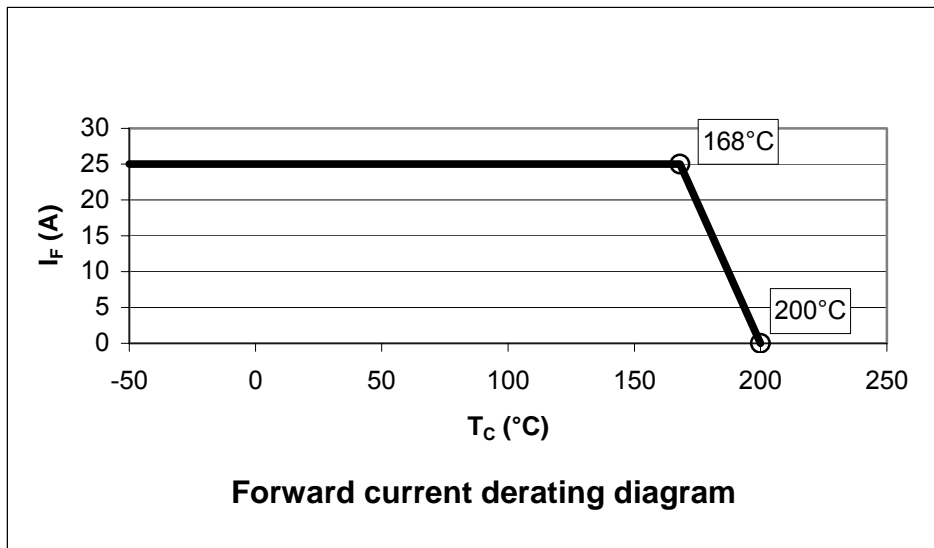
Absolute maximum ratings (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

| Parameter | | Symbol | | Unit | Test condition | |
|-----------------------------------|------------|---------------------------|---------------|----------------------|--|-----------------------------|
| Repetitive peak reverse voltage | BYY53-75 | BYY54-75 | V_{RRM} | 75 | V | $T_c = 150^{\circ}\text{C}$ |
| | BYY53-100 | BYY54-100 | | 100 | | |
| | BYY53-150 | BYY54-150 | | 150 | | |
| | BYY53-200 | BYY54-200 | | 200 | | |
| | BYY53-300 | BYY54-300 | | 300 | | |
| | BYY53-400 | BYY54-400 | | 400 | | |
| | BYY53-500 | BYY54-500 | | 500 | | |
| | BYY53-600 | BYY54-600 | | 600 | | |
| | BYY53-700 | BYY54-700 | | 700 | | |
| | BYY53-800 | BYY54-800 | | 800 | | |
| | BYY53-900 | BYY54-900 | | 900 | | |
| | BYY53-1000 | BYY54-1000 | | 1000 | | |
| | BYY53-1100 | BYY54-1100 | | 1100 | | |
| | BYY53-1200 | BYY54-1200 | | 1200 | | |
| | BYY53-1300 | BYY54-1300 | | 1300 | | |
| BYY53-1400 | BYY54-1400 | 1400 | | | | |
| BYY53-1500 | BYY54-1500 | 1500 | | | | |
| Forward current, arithmetic value | | I_{FAV} | 25 | A | | |
| Surge forward current | | I_{FSM} | 425 | A | half-sine wave, ≤ 10 ms | |
| | | | 350 | | $T_J = 175^{\circ}\text{C}$ half-sine wave, ≤ 10 ms | |
| Maximum rated value | | $\int i^2 dt$ | 900 | A^2s | half-sine wave, ≤ 10 ms | |
| | | | 780 | | $T_J = 175^{\circ}\text{C}$ half-sine wave, ≤ 10 ms | |
| Repetitive peak forward current | | $I_{FRM} = \pi * I_{FAV}$ | 79 | A | $f = >15$ Hz | |
| Effective forward current | | I_{FRMS} | 45 | A | | |
| Junction temperature | | T_{Jmax} | 200 | $^{\circ}\text{C}$ | | |
| Storage temperature range | | T_{stg} | - 50 to + 175 | $^{\circ}\text{C}$ | | |

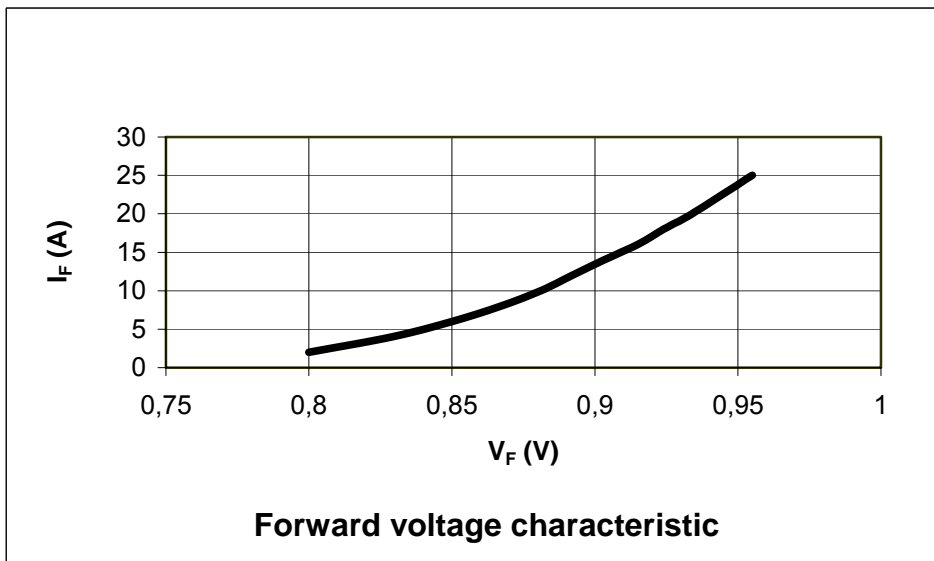
Thermal resistance

| Parameter | Symbol | Value | Unit |
|------------------|-----------------|-------|---------------|
| Junction to case | $R_{\theta JC}$ | 1.2 | $^{\circ}C/W$ |

Thermal characteristics



Electrical characteristics (at $T_{amb} = 25^{\circ}C$ unless otherwise stated)



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BYY53 / BYY54

Electrical characteristics (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

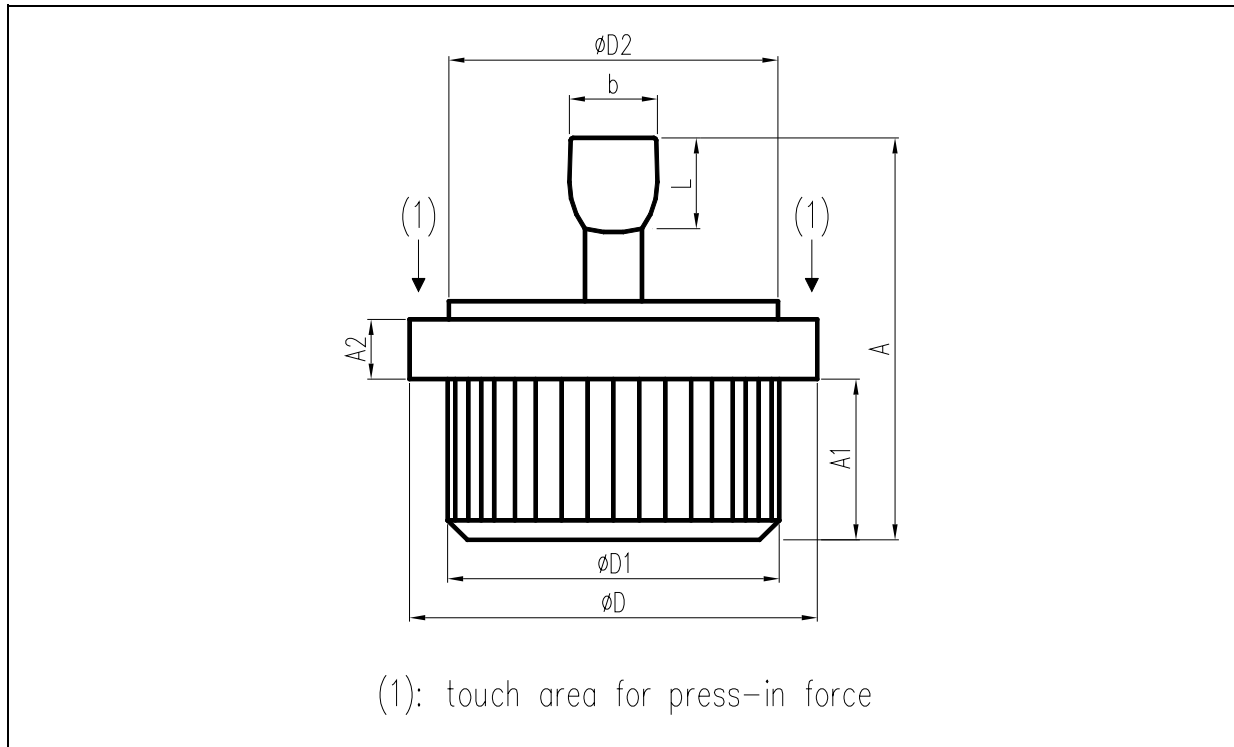
| Parameter | | Symbol | Min. | Typ. | Max. | Unit | Test conditions |
|--|--|------------|------|------|------|------------|--|
| Forward voltage | BYY53-75...1200 BYY54-75...1200 | V_F | - | 0.95 | 1.1 | V | $I_F = 25\text{ A}$, measuring time 10ms (half-sine wave) |
| | BYY53-1300...1500 BYY54-1300...1500 | | - | 1.1 | 1.15 | | |
| Forward voltage (information values) | BYY53-75...1200 BYY54-75...1200 | V_F | - | 0.82 | - | V | $I_F = 20\text{ A}$, measuring time 10ms (half-sine wave), $T_J = 150^{\circ}\text{C}$ |
| | BYY53-1300...1500 BYY54-1300...1500 | | - | 0.85 | - | | |
| | BYY53-75...1200 BYY54-75...1200 | V_F | - | - | 1.20 | V | $I_F = 35\text{ A}$, |
| | BYY53-1300...1500 BYY54-1300...1500 | | - | - | 1.25 | | |
| Reverse current | BYY53-75...150 BYY54-75...150 | I_{RRM} | - | - | 3 | mA | $T_J = 150^{\circ}\text{C}$, at V_{RRM} |
| | BYY53-200...1500 BYY54-200...1500 | | - | - | 1.5 | | |
| | BYY53-75...400 BYY54-75...400 | I_{RRM} | - | - | 0.25 | mA | at V_{RRM} |
| | BYY53-500...1500 BYY54-500...1500 | | - | - | 0.1 | | |
| Threshold voltage (information value) | | $V_{(FO)}$ | - | 0.66 | - | V | $T_J = 175^{\circ}\text{C}$ |
| Slope resistance (information value) | | r_F | - | 5.75 | - | m Ω | $T_J = 175^{\circ}\text{C}$ |

Options: Electrical characteristics for parallel connecting

(at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

| Option | Parameter | Symbol | Min. | Typ. | Max. | Unit | Test conditions |
|--------|---|--------------|------|------|------|------|--|
| 1 | Forward voltage difference in one category of forward voltage | ΔV_F | - | - | 0.05 | V | $I_F = 25\text{ A}$, measuring time 10ms (half-sine wave) |
| 2 | Reverse current in one category of forward voltage (only for BYY53-300...1500 and BYY54-300...1500) | I_R | - | - | 0.01 | mA | at V_{RRM} |

Packaging details



Package dimensions

Dimensions in millimeters are control dimensions, dimensions in inches are approximate

| DIM | Millimeters | | | Inches | | |
|-----|-------------|-------|-------|--------|-------|-------|
| | MIN | TYP | MAX | MIN | TYP | MAX |
| A | 15,00 | 15,50 | 16,00 | 0,591 | 0,610 | 0,630 |
| A1 | 5,90 | 6,10 | 6,30 | 0,232 | 0,240 | 0,248 |
| A2 | 2,10 | 2,30 | 2,50 | 0,083 | 0,091 | 0,098 |
| b | 3,10 | 3,40 | 3,70 | 0,122 | 0,134 | 0,146 |
| D | 15,50 | 15,70 | 15,90 | 0,610 | 0,618 | 0,626 |
| D1 | 12,75 | 12,80 | 12,85 | 0,502 | 0,504 | 0,506 |
| D2 | 12,30 | 12,50 | 12,70 | 0,484 | 0,492 | 0,500 |
| L | 3,00 | 3,50 | 4,00 | 0,118 | 0,138 | 0,157 |

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