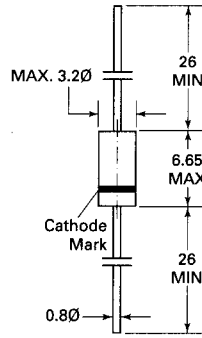


# BA157...BA159 FAST SILICON RECTIFIERS

## FEATURES

- \* Low forward voltage
- \* High current capability
- \* Low leakage current
- \* High surge capability
- \* Low cost



## VOLTAGE RANGE

400 to 1000 Volts

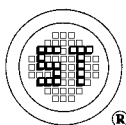
## CURRENT

1.0 Amperes

Dimensions in mm

## Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

|  | Symbol                    | Value           | Unit |
|--|---------------------------|-----------------|------|
| Repetitive Peak Reverse Voltage  | <b>BA157</b><br>$V_{RRM}$ | 400             | V    |
|  | <b>BA158</b><br>$V_{RRM}$ | 600             | V    |
|  | <b>BA159</b><br>$V_{RRM}$ | 1000            | V    |
| Average Rectified Current at $T_{amb} = 50\text{ }^\circ\text{C}$  | $I_o$                     | 1 <sup>1)</sup> | A    |
| Surge Forward Current, Half Cycle 50Hz, starting from $T_j = 25\text{ }^\circ\text{C}$                   | $I_{FSM}$                 | 35              | A    |
| Junction Temperature   | $T_j$                     | 125°            | °C   |
| Operating and Storage Temperature Range  | $T_{amb}, T_s$            | -65 to + 125°   | °C   |
| <sup>1)</sup> Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case. |                           |                 |      |



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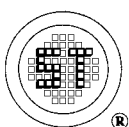
# BA157...BA159

## FAST SILICON RECTIFIERS

### Characteristics

|   | Symbol   | Min.                     | Typ. | Max.             | Unit          |    |
|---|--|--------------------------|------|------------------|---------------|----|
| Forward Voltage<br>at $I_F = 1 \text{ A}$ , $T_j = 25 \text{ }^\circ\text{C}$ | $V_F$  | -                        | -    | 1.3              | V             |    |
| Leakage Current<br>at $V_{RRM}$ , $T_{amb} = 25 \text{ }^\circ\text{C}$       | $I_R$  | -                        | -    | 5                | $\mu\text{A}$ |    |
| Capacitance<br>at $f = 1 \text{ MHz}$ , $V_R = 4\text{V}$                     | <b>BA157</b><br>$C_{tot}$  | -                        | 15   | -                | pF            |    |
|   | <b>BA158</b><br>$C_{tot}$  | -                        | 15   | -                | pF            |    |
|   | <b>BA159</b><br>$C_{tot}$  | -                        | 15   | -                | pF            |    |
| Reverse Recovery Time   | $I_F = 10 \text{ mA}$ , $I_R = 10 \text{ mA}$<br>$I_{RR} = 1.0 \text{ mA}$ | <b>BA157</b><br>$t_{rr}$ | -    | -                | 300           | ns |
|   |  | <b>BA158</b><br>$t_{rr}$ | -    | -                | 300           | ns |
|   |  | <b>BA159</b><br>$t_{rr}$ | -    | -                | 500           | ns |
|   | $I_F = 0.5 \text{ A}$ , $I_R = 1\text{A}$<br>$I_{RR} = 0.25 \text{ A}$     | <b>BA157</b><br>$t_{rr}$ | -    | -                | 150           | ns |
|   |  | <b>BA158</b><br>$t_{rr}$ | -    | -                | 150           | ns |
|   |  | <b>BA159</b><br>$t_{rr}$ | -    | -                | 250           | ns |
| Thermal Resistance<br>Junction to Ambient Air                                 | $R_{thA}$  | -                        | -    | 25 <sup>1)</sup> | K/W           |    |

<sup>1)</sup> Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



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FIG. 1 - FORWARD CURRENT DERATING CURVE

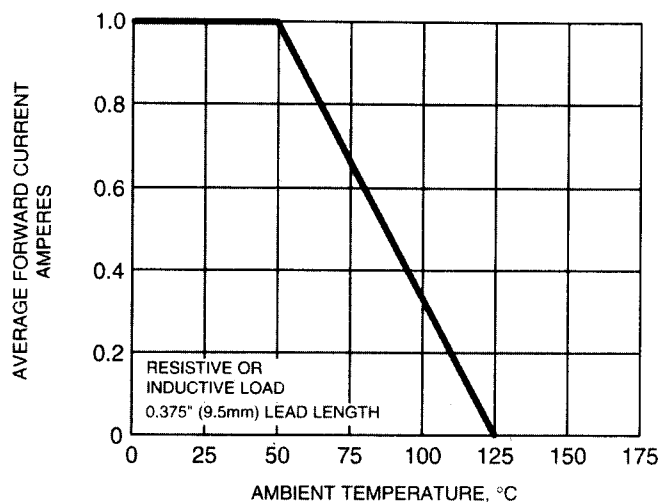


FIG. 2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

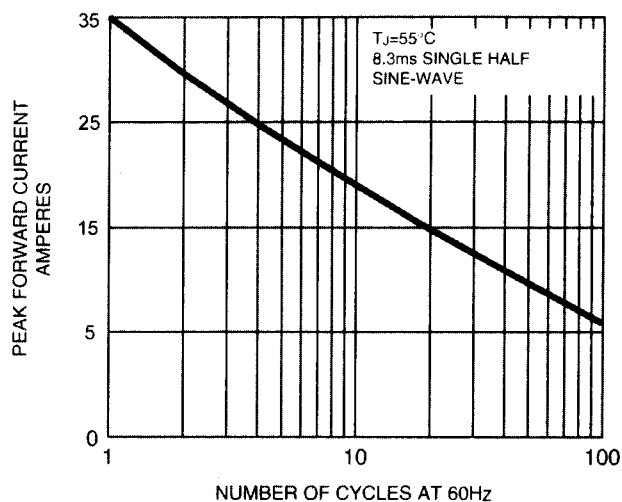
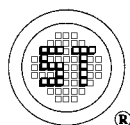
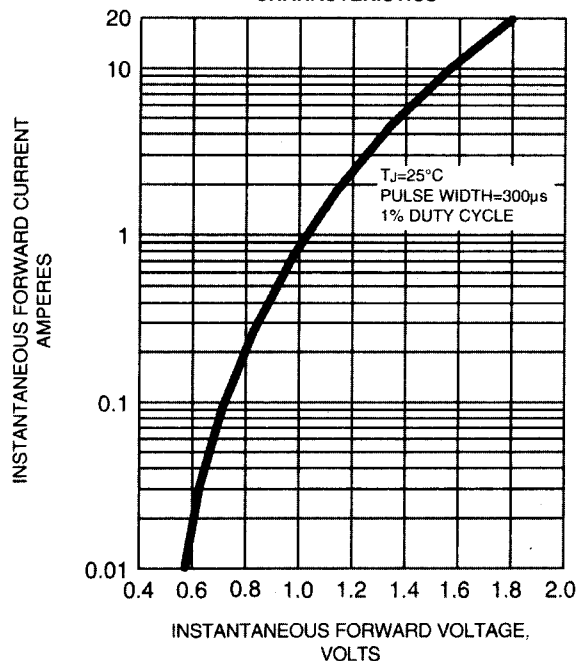


FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



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FIG. 4 - TYPICAL REVERSE CHARACTERISTICS

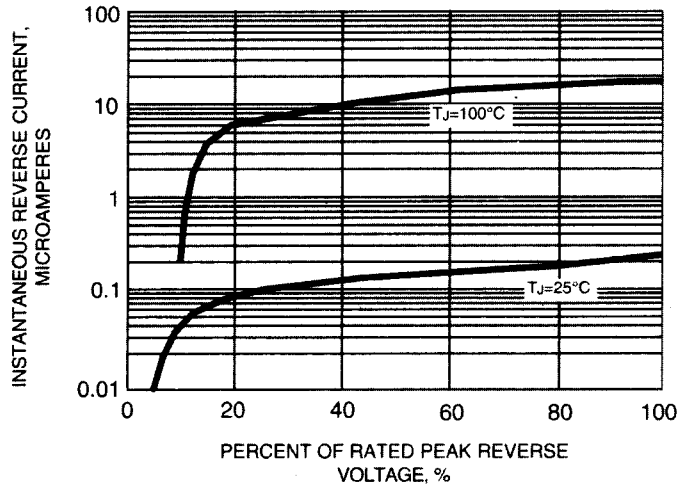


FIG. 5 - TYPICAL JUNCTION CAPACITANCE

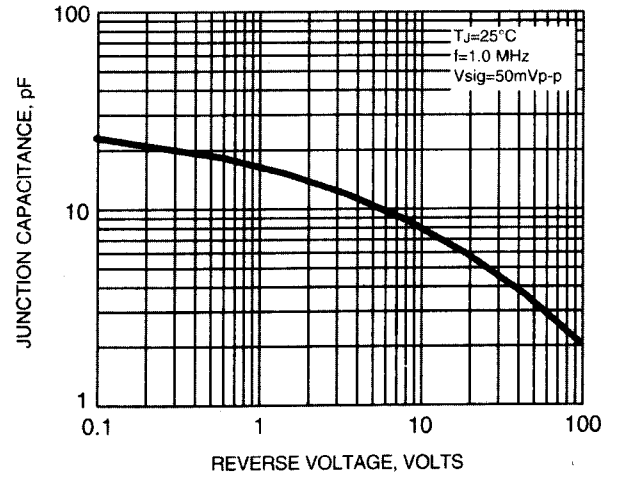
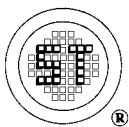
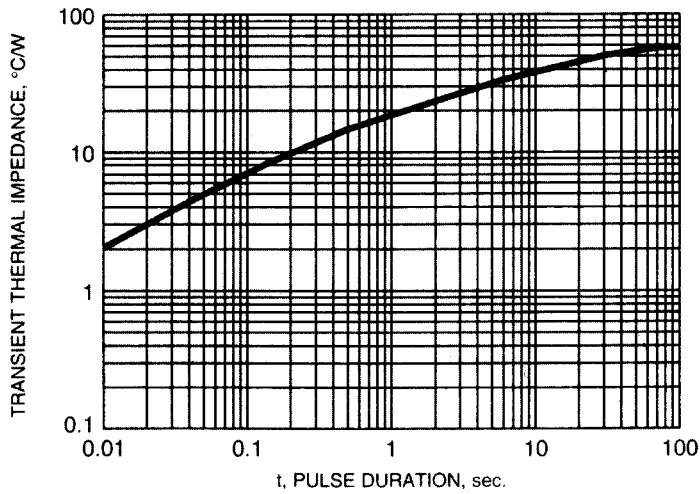


FIG. 6 - TYPICAL TRANSIENT THERMAL IMPEDANCE



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