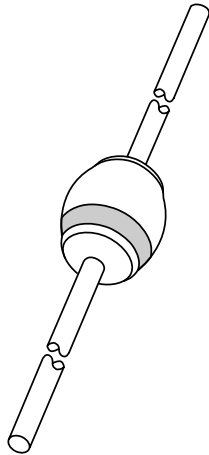


DATA SHEET



BY558; BY578 Damper diodes

Product specification
File under Discrete Semiconductors, SC01

1998 Jun 25

Damper diodes

BY558; BY578

FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Also available with preformed leads for easy insertion
- Designed to withstand transients up to 1700 V.

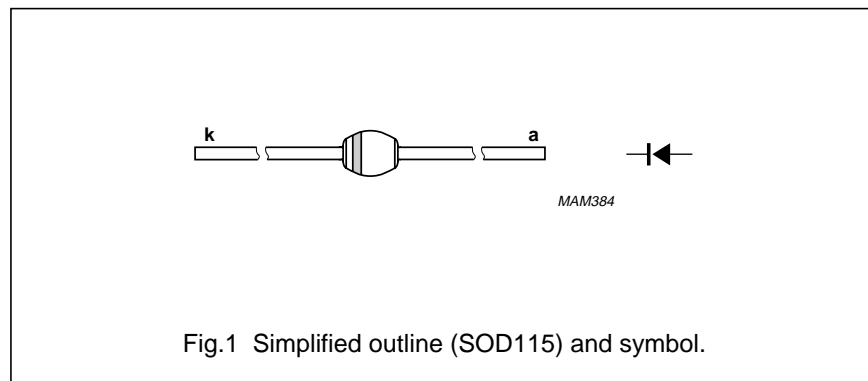
APPLICATIONS

- For use in multi-sync monitor horizontal deflection circuits

DESCRIPTION

Rugged glass package, using a high temperature alloyed construction.

This package is hermetically sealed and fatigue free as coefficients of expansion of all used parts are matched.



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|--------------------|---|---|------|------|------|
| V _{RSM} | non-repetitive peak reverse voltage BY558 BY578 | | – | 1500 | V |
| | | | – | 1700 | V |
| V _{RRM} | repetitive peak reverse voltage BY558 BY578 | | – | 1500 | V |
| | | | – | 1700 | V |
| V _R | continuous reverse voltage | | – | 1400 | V |
| I _{F(AV)} | average forward current | T _{tp} = 65 °C; see Fig.2; PCB mounting; averaged over any 20 ms period; see Fig.4 | – | 2.5 | A |
| I _{FRM} | repetitive peak forward current | | – | 12 | A |
| I _{FSM} | non-repetitive peak forward current | t = 10 ms half sine wave; T _j = T _{jmax} prior to surge; V _R = V _{RRMmax} | – | 80 | A |
| T _{stg} | storage temperature | | –65 | +175 | °C |
| T _j | junction temperature | | –65 | +150 | °C |

Damper diodes

BY558; BY578

ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ °C}$ unless otherwise specified.

| SYMBOL | PARAMETER | CONDITIONS | TYP. | MAX. | UNIT |
|-----------|--------------------------|---|------|------|---------------|
| V_F | forward voltage | $I_F = 5\text{ A}$; $T_j = T_{j\text{ max}}$; see Fig.3 | – | 1.3 | V |
| | | $I_F = 5\text{ A}$; see Fig.3 | – | 1.7 | V |
| I_R | reverse current | $V_R = V_{RRM\text{ max}}$; $T_j = 150\text{ °C}$ | – | 175 | μA |
| t_{rr} | reverse recovery time | when switched from $I_F = 0.5\text{ A}$ to $I_R = 1\text{ A}$; measured at $I_R = 0.25\text{ A}$; see Fig.6 | – | 250 | ns |
| V_{FRM} | forward recovery voltage | $I_F = 5\text{ A}$; $di_F/dt = 50\text{ A}/\mu\text{s}$; see Fig.5 | 15 | 20 | V |
| t_{fr} | forward recovery time | $I_F = 5\text{ A}$; $di_F/dt = 50\text{ A}/\mu\text{s}$; $V_F = 5\text{ V}$; see Fig.5 | 260 | 350 | ns |
| | | $I_F = 5\text{ A}$; $di_F/dt = 50\text{ A}/\mu\text{s}$; $V_F = 2\text{ V}$; see Fig.5 | 700 | – | ns |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|-----------------------|---|---------------------|-------|------|
| $R_{th\ j\text{-tp}}$ | thermal resistance from junction to tie-point | lead length = 10 mm | 20 | K/W |
| $R_{th\ j\text{-a}}$ | thermal resistance from junction to ambient | note 1 | 70 | K/W |

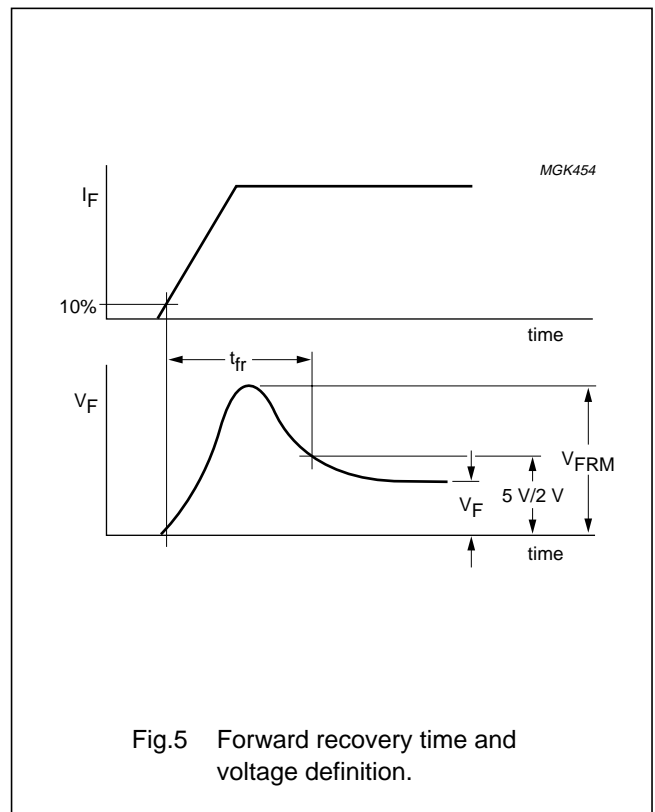
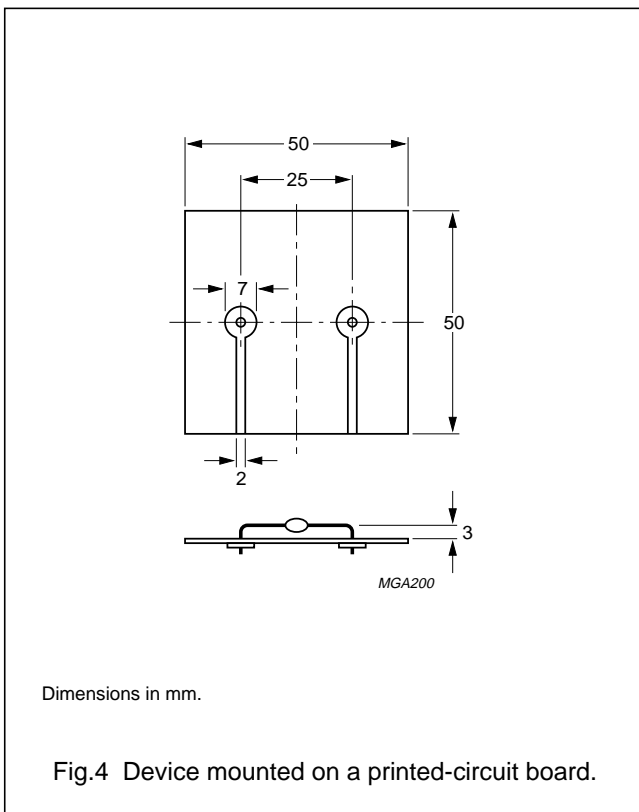
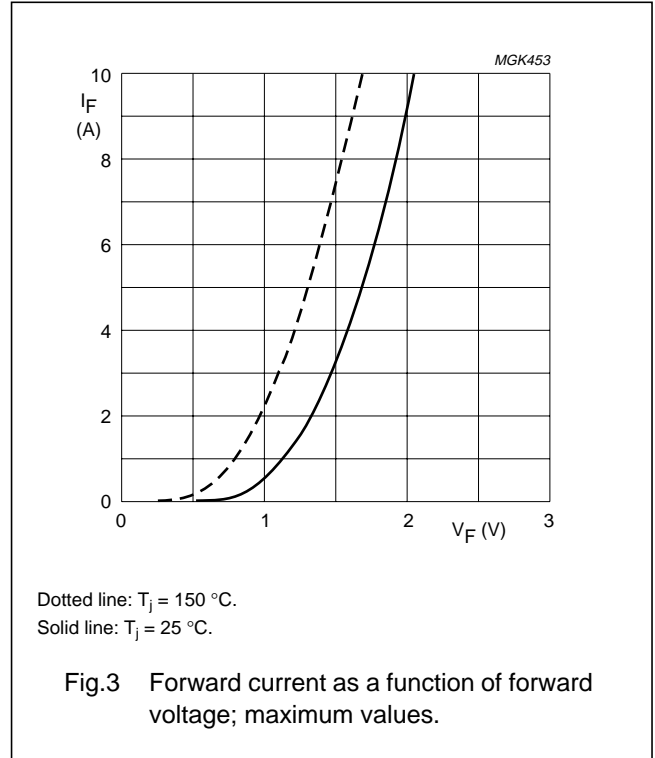
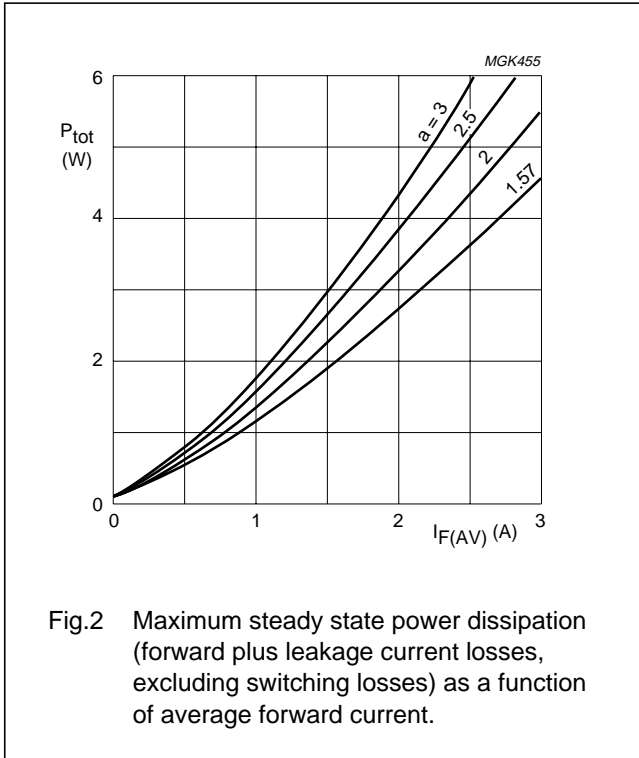
Note

1. Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer $\geq 40\ \mu\text{m}$, see Fig.4. For more information please refer to the 'General Part of Handbook SC01'.

Damper diodes

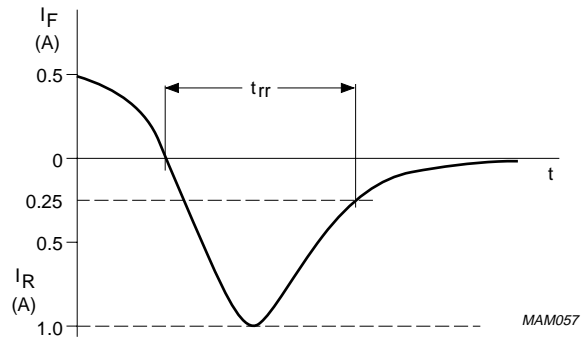
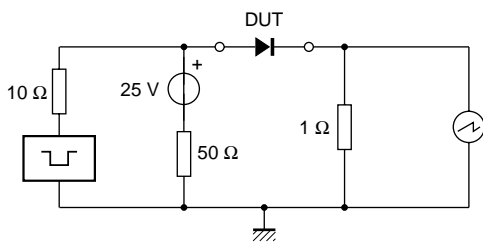
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GRAPHICAL DATA



Damper diodes

BY558; BY578



Input impedance oscilloscope: 1 MΩ, 22 pF; $t_r \leq 7$ ns.
Source impedance: 50 Ω; $t_r \leq 15$ ns.

Fig.6 Test circuit and reverse recovery time waveform and definition.

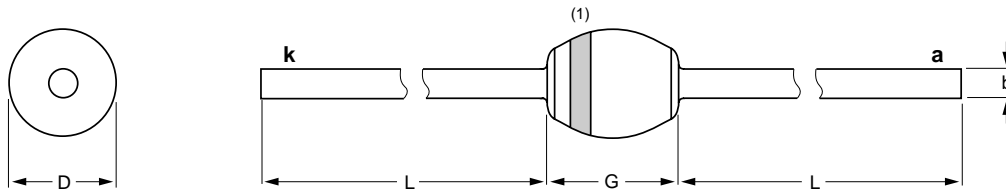
Damper diodes

BY558; BY578

PACKAGE OUTLINE

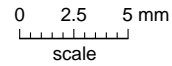
Hermetically sealed glass package; axial leaded; 2 leads

SOD115



DIMENSIONS (mm are the original dimensions)

| UNIT | b max. | D max. | G max. | L min. |
|------|-----------|-----------|-----------|-----------|
| mm | 1.35 | 5.5 | 6.0 | 27 |



Note

1. The marking band indicates the cathode.

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|--------------------|------------|-------|------|--|------------------------|------------|
| | IEC | JEDEC | EIAJ | | | |
| SOD115 | | | | | | 97-10-14 |

Damper diodes
BY558; BY578

DEFINITIONS

| | |
|---|---|
| Data Sheet Status | |
| Objective specification | This data sheet contains target or goal specifications for product development. |
| Preliminary specification | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification | This data sheet contains final product specifications. |
| Limiting values | |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability. | |
| Application information | |
| Where application information is given, it is advisory and does not form part of the specification. | |

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