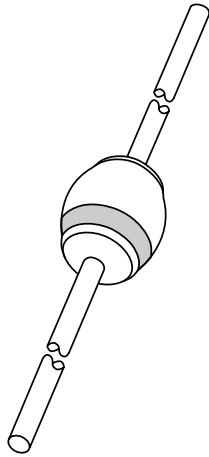


DATA SHEET



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.

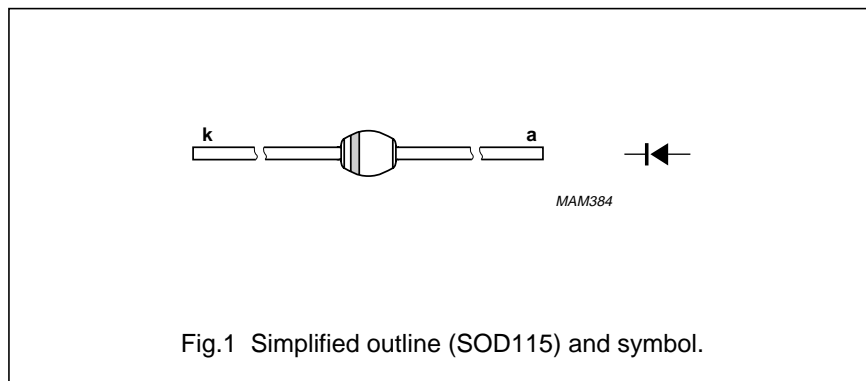
APPLICATIONS

- 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		–	1500	V
	BY558		–	1700	V
V _{RRM}	repetitive peak reverse voltage		–	1500	V
	BY558		–	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

BY558; BY578

GRAPHICAL DATA

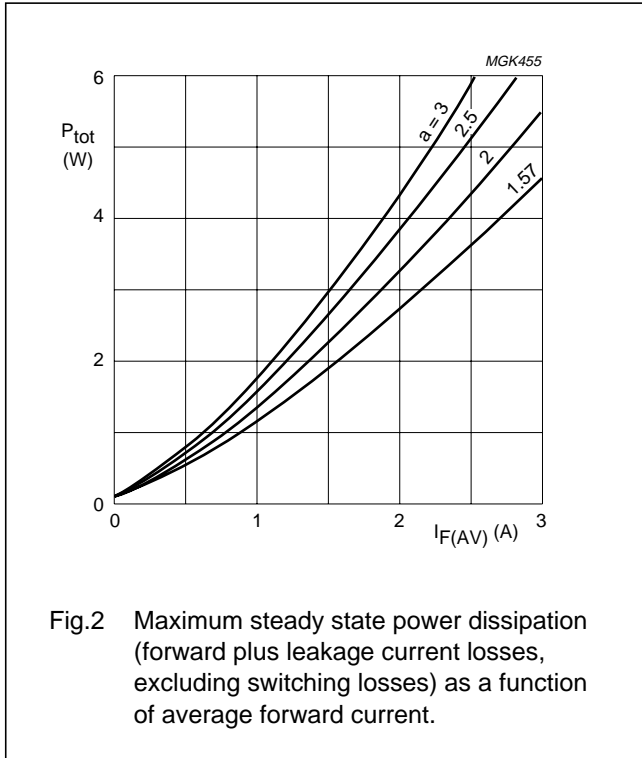
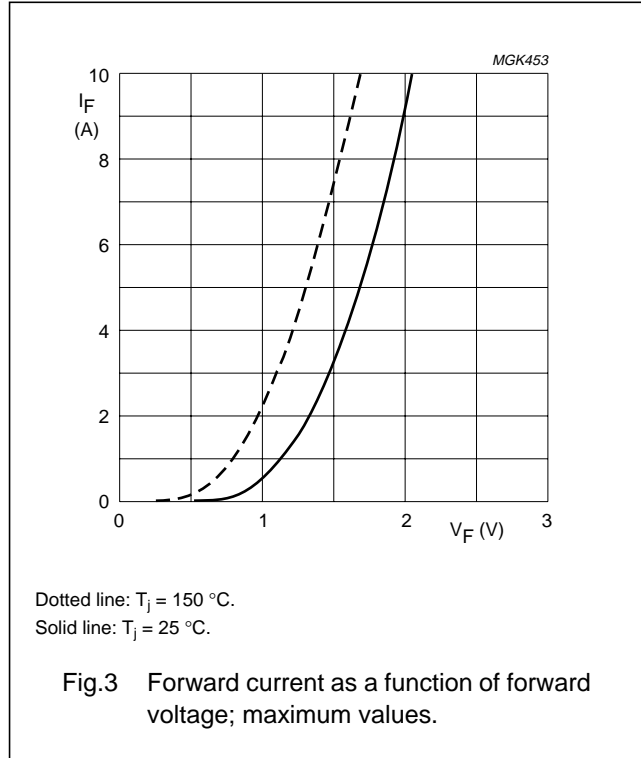
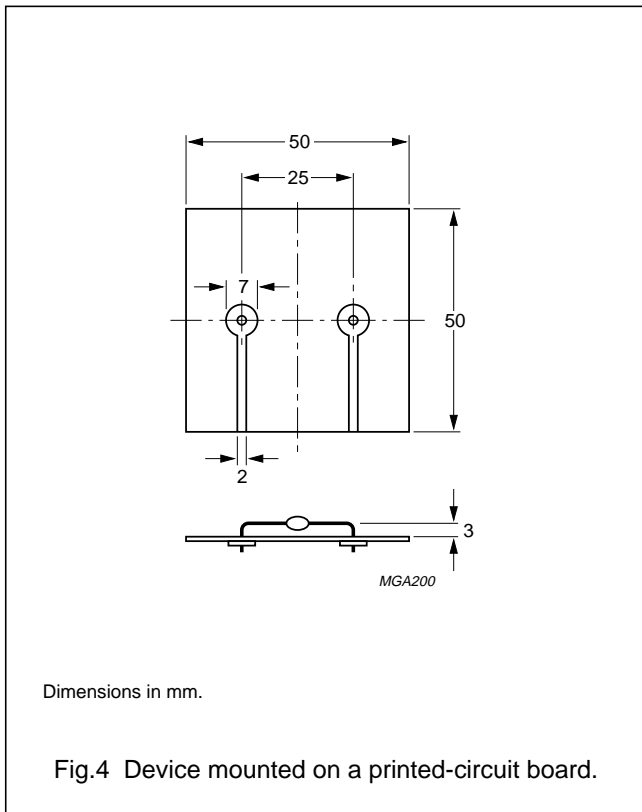


Fig.2 Maximum steady state power dissipation (forward plus leakage current losses, excluding switching losses) as a function of average forward current.



Dotted line: $T_j = 150^\circ\text{C}$.
Solid line: $T_j = 25^\circ\text{C}$.

Fig.3 Forward current as a function of forward voltage; maximum values.



Dimensions in mm.

Fig.4 Device mounted on a printed-circuit board.

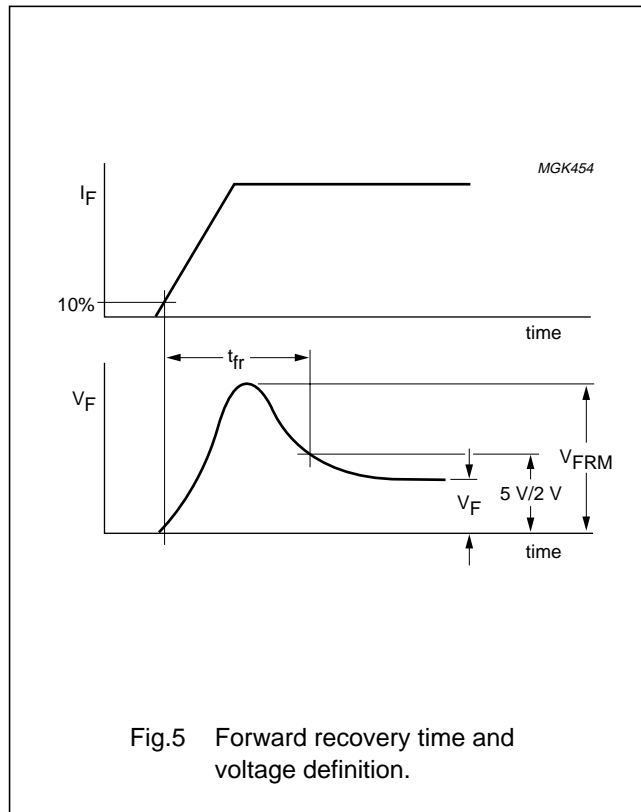
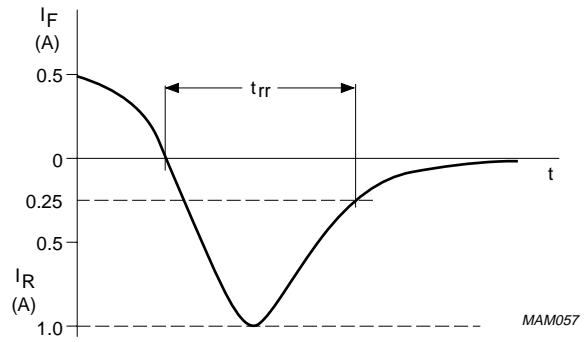
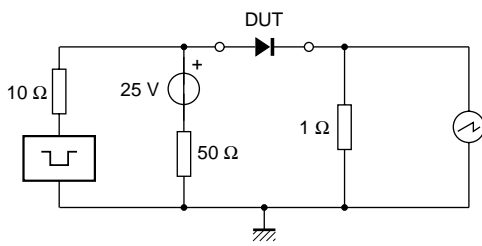


Fig.5 Forward recovery time and voltage definition.

Damper diodes

BY558; BY578



Input impedance oscilloscope: 1 M Ω , 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.

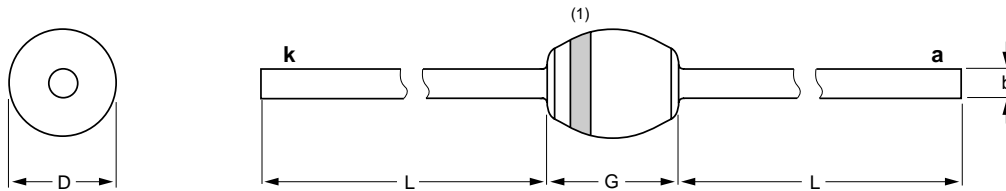
Damper diodes

BY558; BY578

PACKAGE OUTLINE

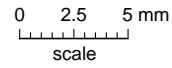
Hermetically sealed glass package; axial leaded; 2 leads

SOD115



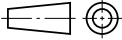
DIMENSIONS (mm are the original dimensions)

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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