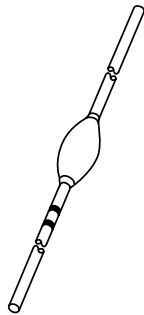


DATA SHEET



BY715 to BY724

**Very fast high-voltage soft-recovery
rectifiers**

Product specification

2001 Sep 24

Very fast high-voltage soft-recovery rectifiers

BY715 to BY724

FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Soft-recovery switching characteristics
- Compact construction.

APPLICATIONS

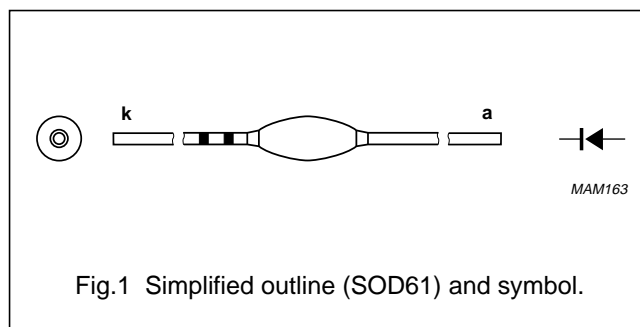
- For high-voltage rectification up to 75 kHz
- High-voltage applications for:
 - Multipliers
 - Slot-wound diode-split-transformers.

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.

The package is designed to be used in an insulating medium such as resin, oil or SF6 gas.



MARKING

Table 1 Cathode band colour codes

TYPE NUMBER	PACKAGE CODE	OUTER BAND	INNER BAND
BY715	SOD61E	green	brown
BY716	SOD61E	red	brown
BY717	SOD61E	green	red
BY718	SOD61E	blue	red
BY719	SOD61E	yellow	red
BY720	SOD61G	red	green
BY721	SOD61G	blue	green
BY722	SOD61K	red	blue
BY723	SOD61K	green	blue
BY724	SOD61K	yellow	blue

Very fast high-voltage soft-recovery rectifiers

BY715 to BY724

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{RSM}	non-repetitive peak voltage				
	BY715		–	5	kV
	BY716		–	6	kV
	BY717		–	10	kV
	BY718		–	12	kV
	BY719		–	14	kV
	BY720		–	17	kV
	BY721		–	19	kV
	BY722		–	22	kV
	BY723		–	24	kV
BY724		–	30	kV	
V _{RRM}	repetitive peak reverse voltage				
	BY715		–	5	kV
	BY716		–	6	kV
	BY717		–	10	kV
	BY718		–	12	kV
	BY719		–	14	kV
	BY720		–	17	kV
	BY721		–	19	kV
	BY722		–	22	kV
	BY723		–	24	kV
BY724		–	30	kV	
V _{RW}	working reverse voltage				
	BY715		–	4	kV
	BY716		–	5	kV
	BY717		–	9	kV
	BY718		–	10	kV
	BY719		–	12	kV
	BY720		–	14	kV
	BY721		–	16	kV
	BY722		–	18	kV
	BY723		–	20	kV
BY724		–	24	kV	

Very fast high-voltage soft-recovery rectifiers

BY715 to BY724

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{F(AV)}$	average forward current	averaged over any 20 ms period; see Figs 2, 3, 4 and 5			
	BY715		–	20	mA
	BY716		–	20	mA
	BY717		–	4	mA
	BY718		–	4	mA
	BY719		–	4	mA
	BY720		–	3	mA
	BY721		–	3	mA
	BY722		–	3	mA
	BY723		–	3	mA
BY724		–	3	mA	
I_{FRM}	repetitive peak forward current		–	500	mA
T_{stg}	storage temperature		–65	+120	°C
T_j	junction temperature		–65	+120	°C

Very fast high-voltage soft-recovery rectifiers

BY715 to BY724

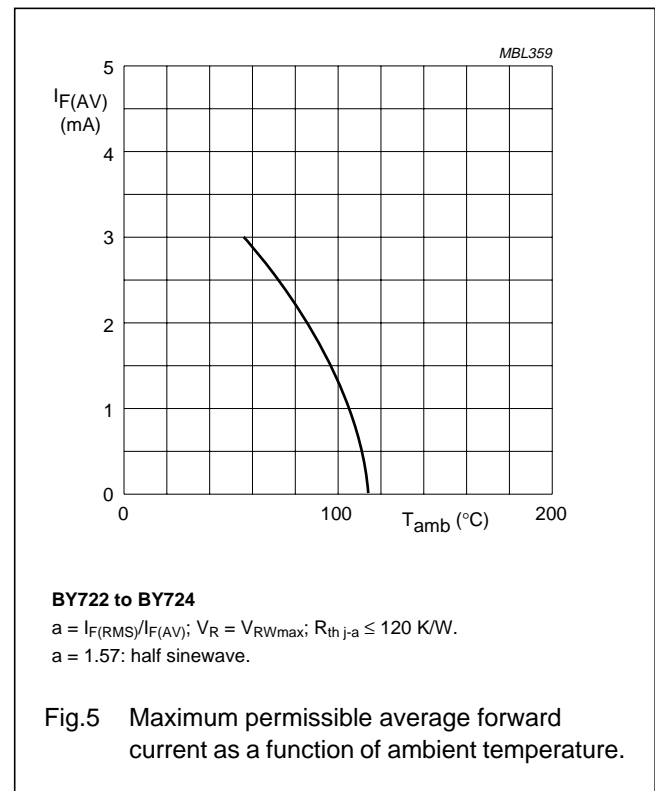
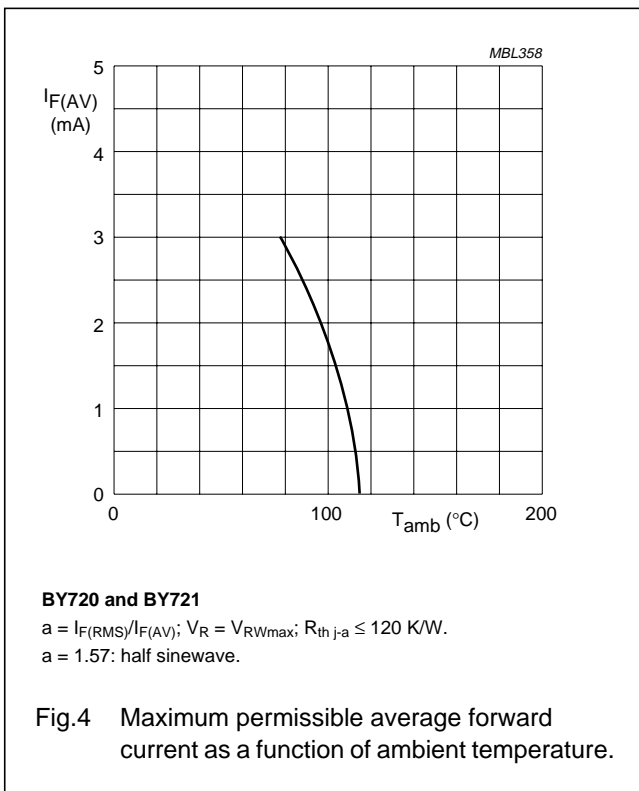
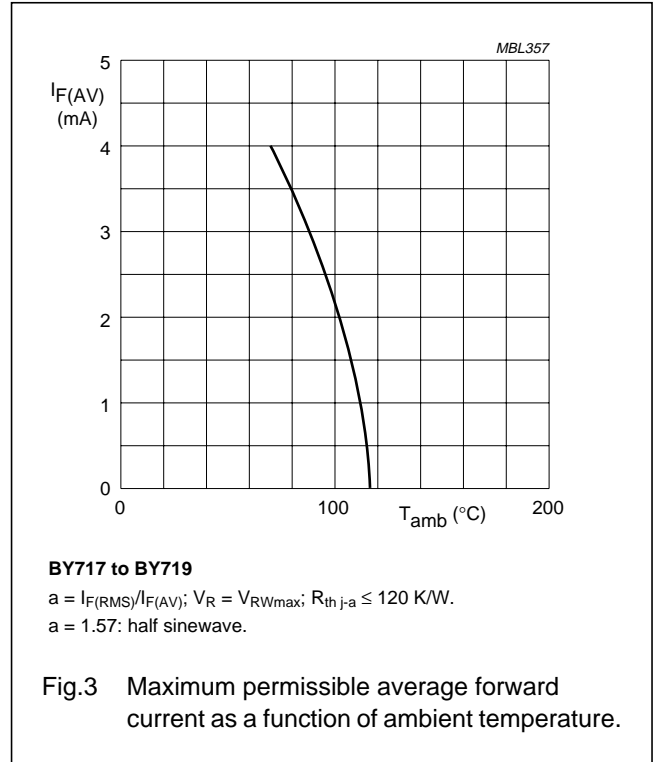
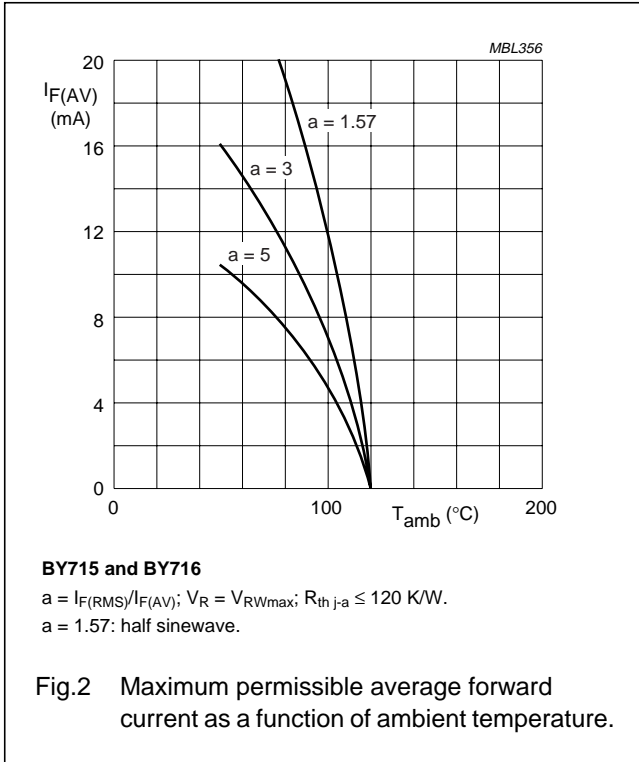
ELECTRICAL CHARACTERISTICS $T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage	$I_F = 100\text{ mA}$; $T_j = T_{j\text{ max}}$; see Figs 6, 7 and 8				
	BY715		–	–	28	V
	BY716		–	–	28	V
	BY717		–	–	69	V
	BY718		–	–	69	V
	BY719		–	–	69	V
	BY720		–	–	92	V
V_F	forward voltage	$I_F = 50\text{ mA}$; $T_j = T_{j\text{ max}}$; see Fig.9				
	BY722		–	–	88	V
	BY723		–	–	88	V
	BY724	–	–	88	V	
I_R	reverse current	$V_R = V_{RW\text{ max}}$; $T_j = 120\text{ °C}$	–	–	3	μA
Q_r	recovery charge	when switched from $I_F = 100\text{ mA}$ to $V_R \geq 100\text{ V}$ and $dI_F/dt = -200\text{ mA}/\mu\text{s}$; see Fig.11	–	–	0.4	nC
t_f	fall time	when switched from $I_F = 100\text{ mA}$ to $V_R \geq 100\text{ V}$ and $dI_F/dt = -200\text{ mA}/\mu\text{s}$; see Fig.11	40	–	–	ns
t_{rr}	reverse recovery time	when switched from $I_F = 100\text{ mA}$ to $V_R \geq 100\text{ V}$ and $dI_F/dt = -200\text{ mA}/\mu\text{s}$; see Fig.11	–	100	–	ns

Very fast high-voltage soft-recovery rectifiers

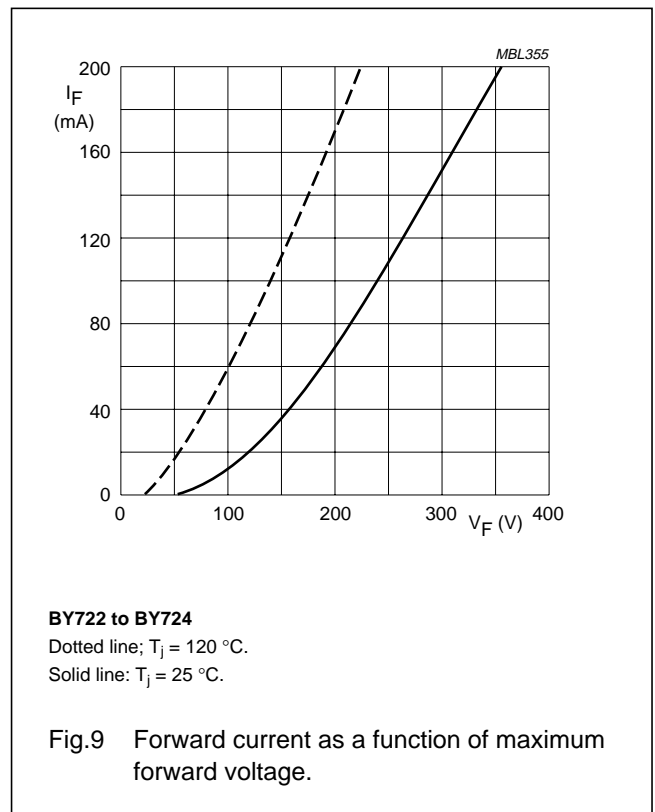
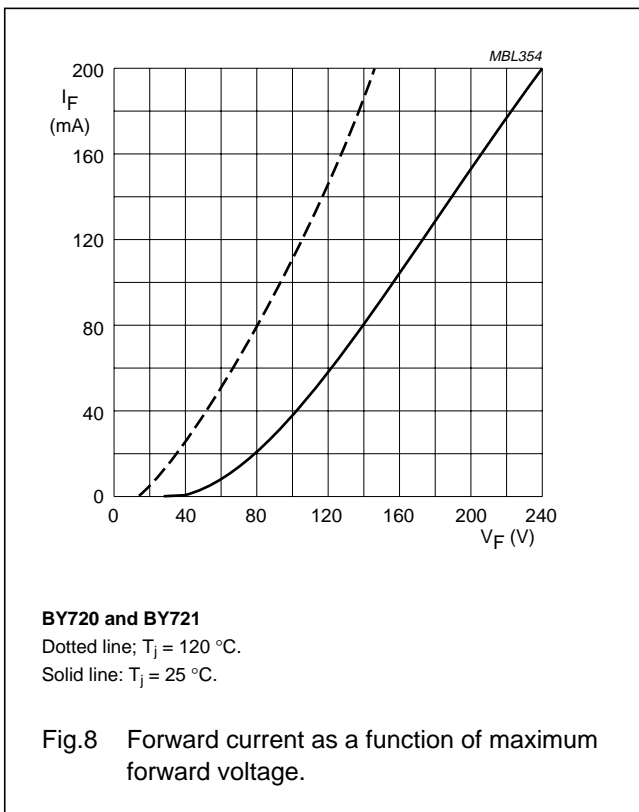
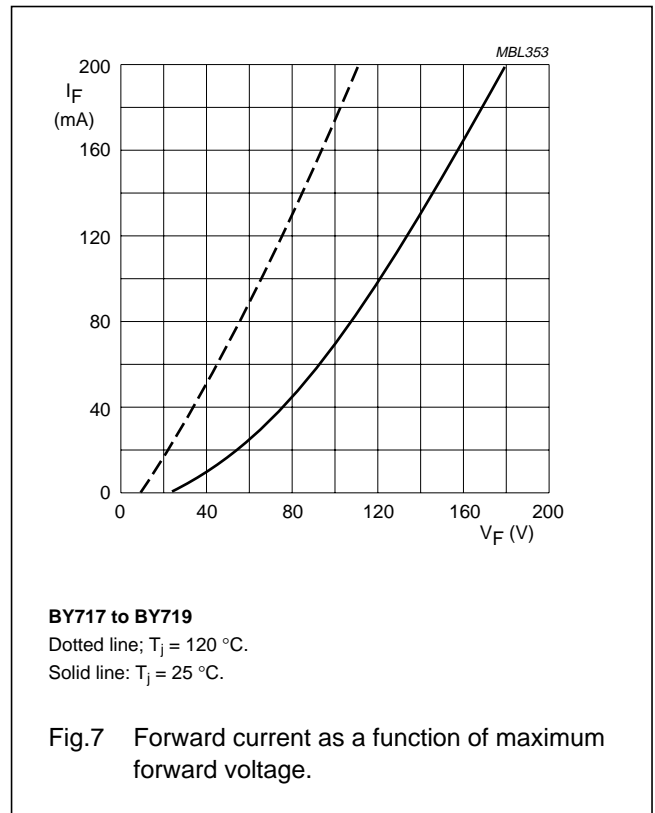
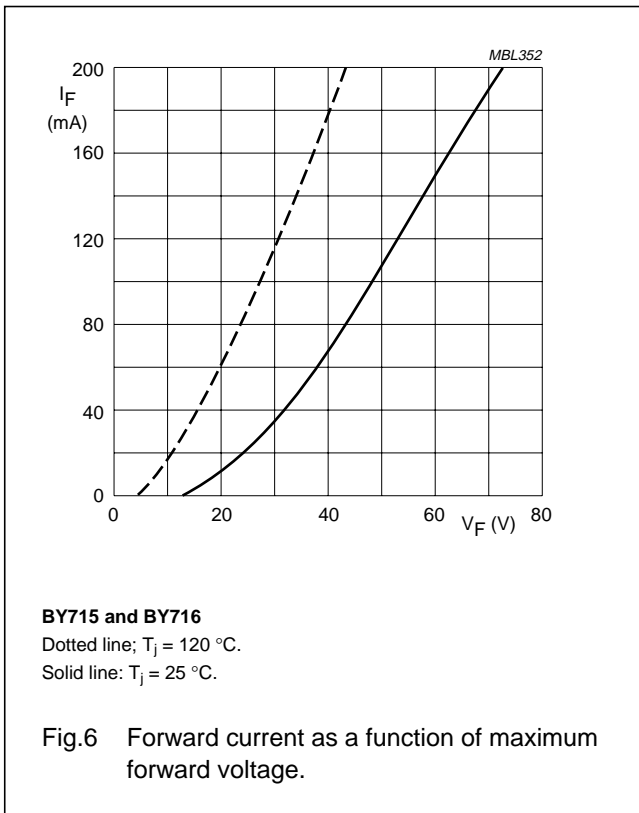
BY715 to BY724

GRAPHICAL DATA



Very fast high-voltage soft-recovery rectifiers

BY715 to BY724



Very fast high-voltage soft-recovery rectifiers

BY715 to BY724

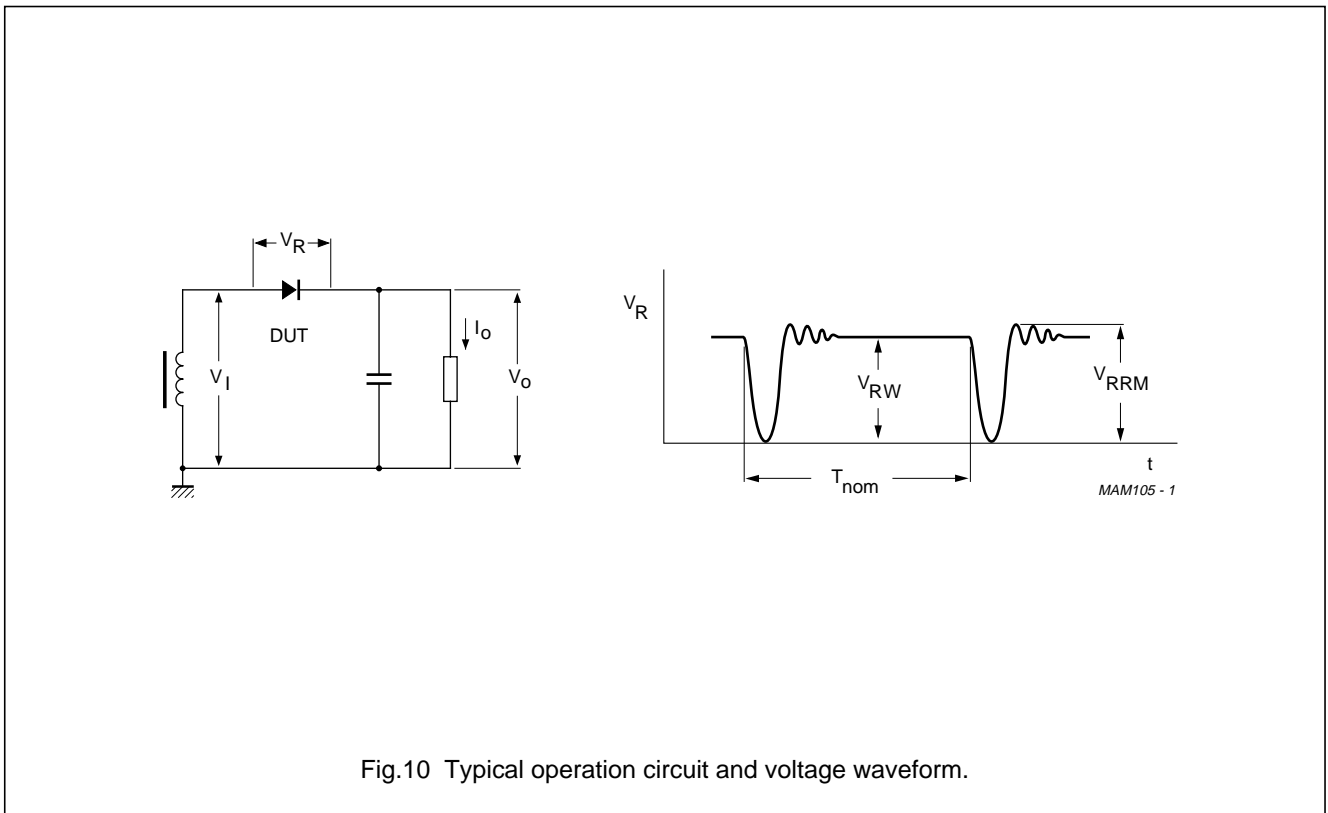


Fig.10 Typical operation circuit and voltage waveform.

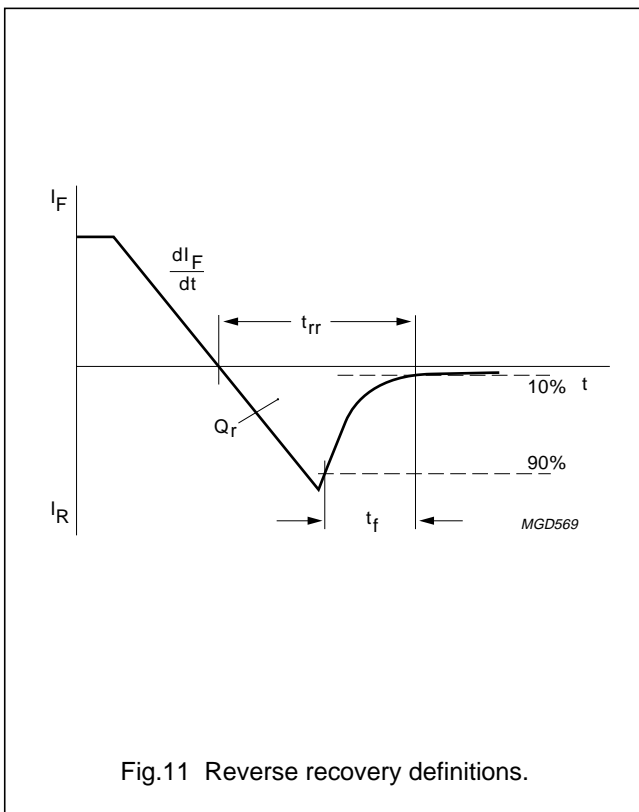
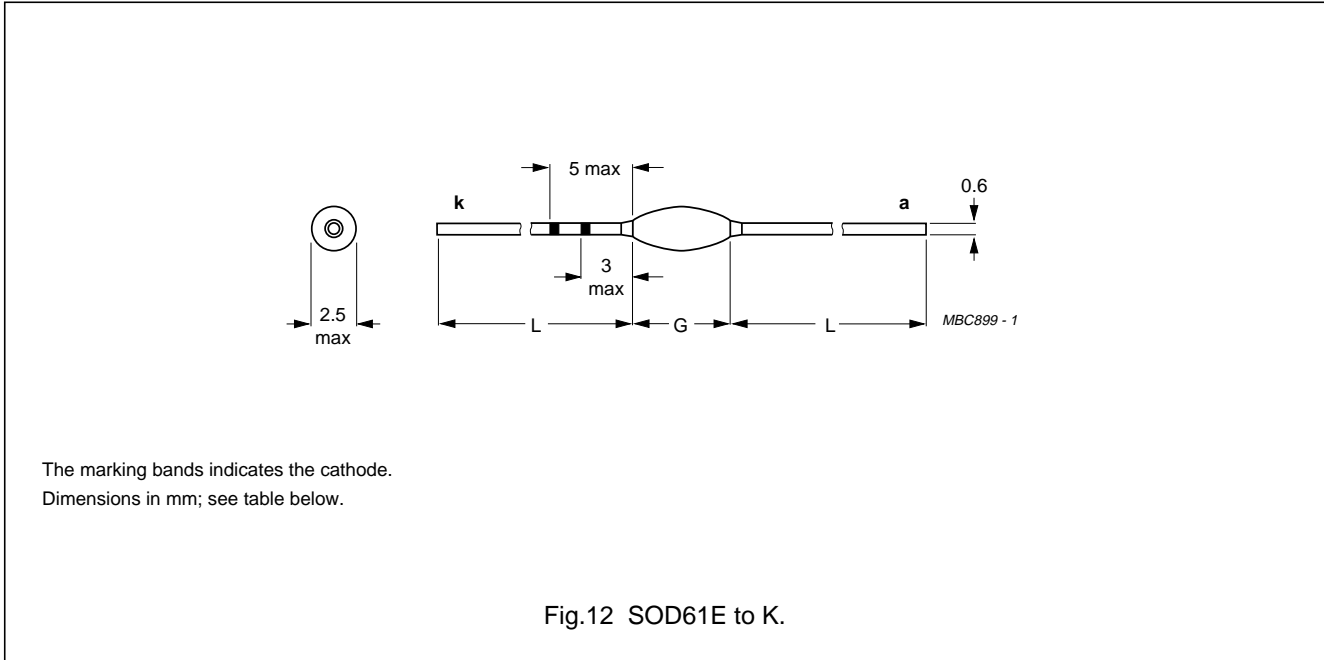


Fig.11 Reverse recovery definitions.

Very fast high-voltage soft-recovery rectifiers

BY715 to BY724

PACKAGE OUTLINE



PACKAGE SPECIFICATION

TYPE NUMBER	PACKAGE CODE	L _{min} (mm)	G _{max} (mm)
BY715	SOD61E	29.7	9.5
BY716	SOD61E	29.7	9.5
BY717	SOD61E	29.7	9.5
BY718	SOD61E	29.7	9.5
BY719	SOD61E	29.7	9.5
BY720	SOD61G	29.0	11.0
BY721	SOD61G	29.0	11.0
BY722	SOD61K	28.2	12.5
BY723	SOD61K	28.2	12.5
BY724	SOD61K	28.2	12.5

Very fast high-voltage soft-recovery rectifiers

BY715 to BY724

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DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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