SILICON E.H.T. SOFT-RECOVERY RECTIFIER DIODES*

E.H.T. rectifier diodes in glass envelopes intended for use in high-voltage applications such as the high-voltage supply of television receivers and monitors. The devices feature non-snap-off characteristics. Because of the small envelope, the diodes should be used in a suitable insulating medium (resin, oil or special arrangements in test-cases).

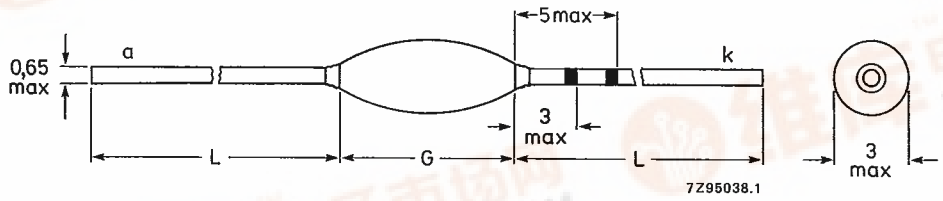
QUICK REFERENCE DATA

			BY712	713	714	
Working reverse voltage	V_{RW}	max.	18	20	24	kV
Repetitive peak reverse voltage	V_{RRM}	max.	22	24	30	kV
Average forward current	$I_{F(AV)}$	max.		3		mA
Junction temperature	T_j	max.		120		°C
Reverse recovery charge	Q_s	<		1		nC
Reverse recovery time	t_{rr}	typ.		0,2		μs

MECHANICAL DATA

Dimensions in mm

Fig. 1 SOD-61.
L = 27 min.
G = 12,5 max.



The cathode of the BY712 is indicated by two blue bands on the lead.
The cathode of the BY713 is indicated by a blue band on the lead.
The cathode of the BY714 is indicated by a light blue band on the lead.

*See also "Custom made E.H.T. stacks" in section "General".

RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

			BY712	713	714	
Working reverse voltage	V_{RW}	max.	18	20	24	kV
Repetitive peak reverse voltage	V_{RRM}	max.	22	24	30	kV
Non-repetitive peak reverse voltage $t < 10$ ms	V_{RSM}	max.	22	24	30	kV
Average forward current (averaged over any 20 ms period)	$I_{F(AV)}$	max.		3		mA
Repetitive peak forward current*	I_{FRM}	max.		500		mA
Storage temperature	T_{stg}			−65 to + 120		°C
Junction temperature	T_j	max.		120		°C

CHARACTERISTICS

Forward voltage** I_F = 50 mA; T_j = 120 °C	V_F	<	76	V
Reverse current $V_R = V_{RW}$; T_j = 120 °C	I_R	<	3	μA
Reverse recovery when switched from I_F = 100 mA to $V_R \geq$ 100 V with $-dI_F/dt$ = 200 mA/μs; T_j = 25 °C				
recovery charge	Q_s	<	1	nC
recovery time	t_{rr}	typ.	0,2	μs
fall time	t_f	<	0,1	μs

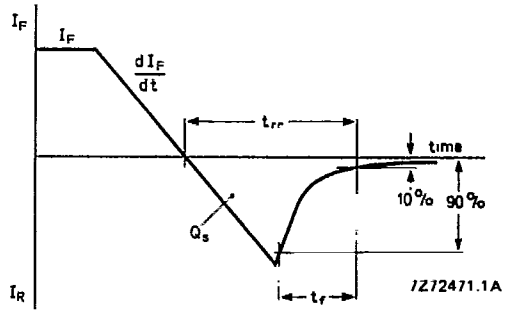


Fig. 2 Definitions of Q_s, t_{rr} and t_f.

* The device can withstand peak currents occurring during flashover in a picture tube.

** Measured under pulse conditions to avoid excessive dissipation.

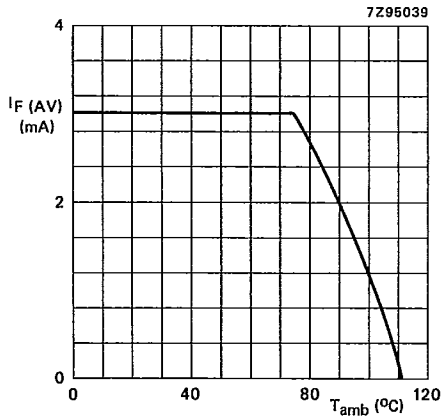


Fig. 3 Maximum permissible average forward current as a function of ambient temperature. $V_R = V_{RWmax}$. The diode should be mounted in such a way that $R_{th\ j\text{-}a} \leqslant 120$ K/W.

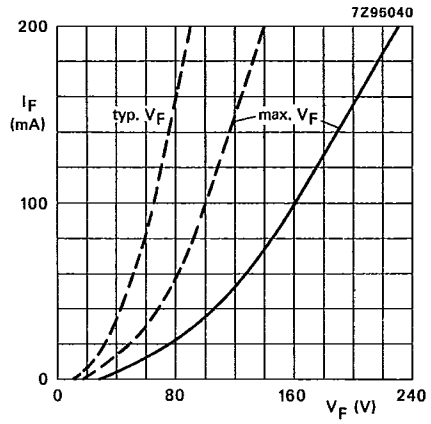


Fig. 4 ——— $T_j = 25$ °C; – – – – $T_j = 120$ °C.

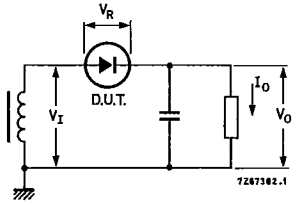


Fig. 5 Typical operation circuit.

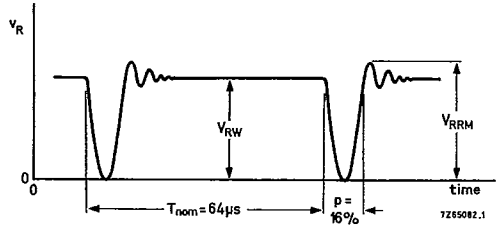


Fig. 6 Typical applied voltage.