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T-03-15

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

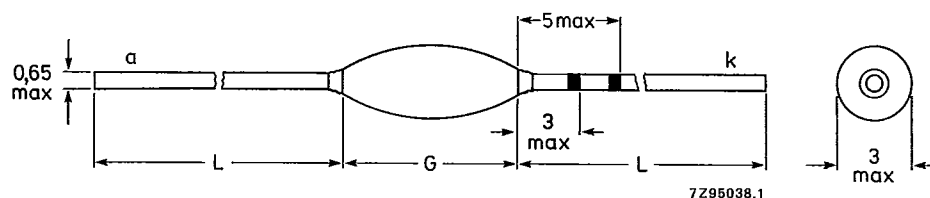
MECHANICAL DATA

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".

BY712
BY713
BY714

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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

$I_R < 3$ μ A

Reverse recovery when switched from

$I_F = 100$ mA to $V_R \geq 100$ V with
 $-dI_F/dt = 200$ mA/ μ s; $T_j = 25$ °C

recovery charge

$Q_s \sim 1$ nC

recovery time

t_{rr} typ. 0,2 μ s

fall time

$t_f > 0,1$ μ s

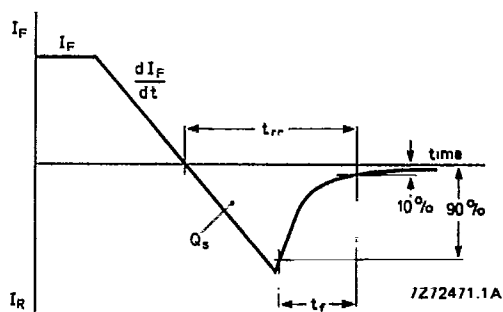


Fig. 2 Definitions of Q_s , t_{rr} and t_f .

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

** Measured under pulse conditions to avoid excessive dissipation.

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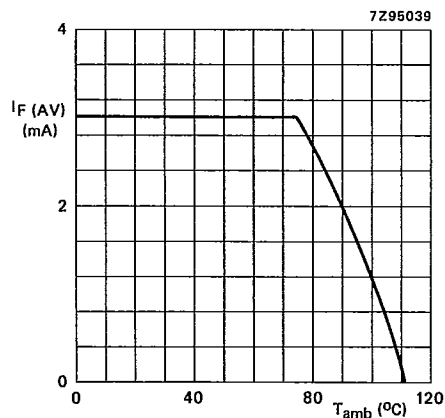


Fig. 3 Maximum permissible average forward current as a function of ambient temperature. $V_R = V_{RWmax}$. The diode should be mounted in such a way that $R_{th j-a} \leq 120$ K/W.

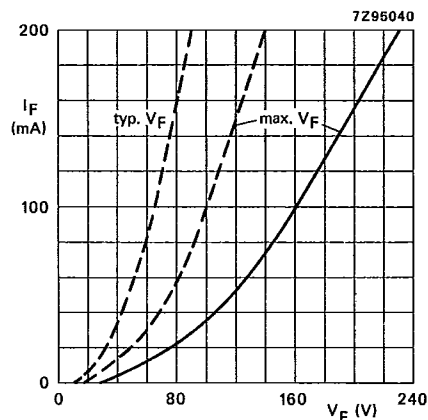


Fig. 4 ——— $T_j = 25^\circ\text{C}$; - - - - $T_j = 120^\circ\text{C}$.

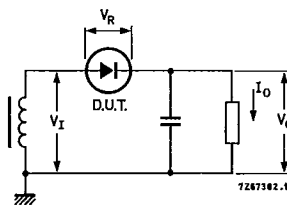


Fig. 5 Typical operation circuit.

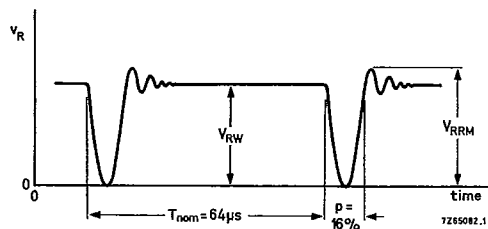


Fig. 6 Typical applied voltage.