

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).

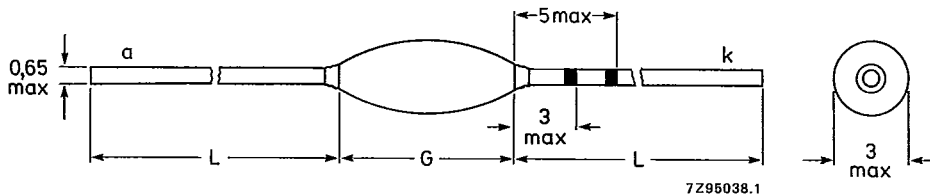
QUICK REFERENCE DATA

| | | 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 |

MÉCHANICAL 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

56E D
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PHILIPS INTERNATIONAL
RATINGS

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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 | Q_s | ~ | 1 | nC |
| recovery charge | t_{rr} | typ. | 0,2 | µs |
| recovery time | t_f | > | 0,1 | µs |
| fall time | | | | |

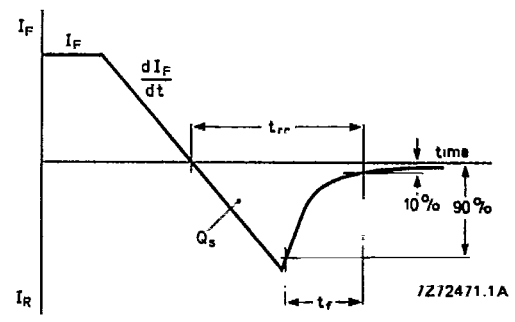


Fig. 2 Definitions of Q_s , t_{rr} and t_f .

* 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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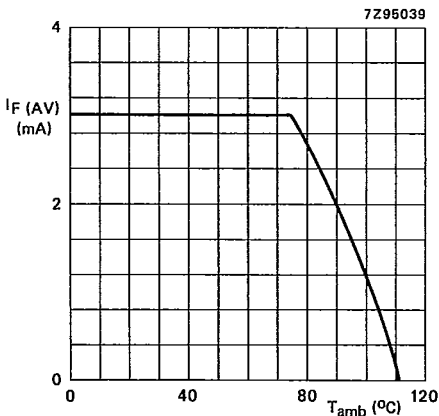


Fig. 3 Maximum permissible average forward current as a function of ambient temperature. $V_R = V_{RWmax}$. The diode should be mounted in such a way that $R_{th j-a} \leq 120$ K/W.

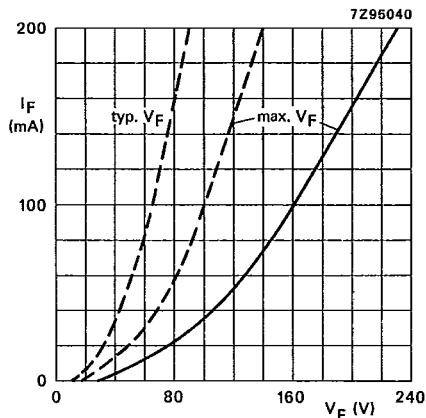


Fig. 4 ——— $T_j = 25$ °C; - - - - $T_j = 120$ °C.

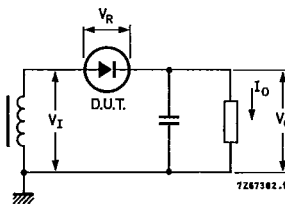


Fig. 5 Typical operation circuit.

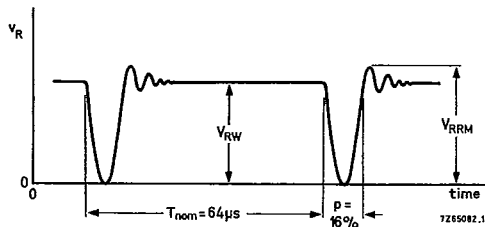


Fig. 6 Typical applied voltage.