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Miniature high-voltage soft-recovery rectifier

BY614

FEATURES

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

APPLICATIONS

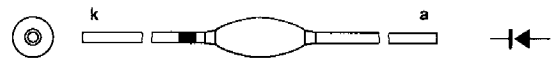
- Miniature high-voltage assemblies such as voltage multipliers.

DESCRIPTION

Miniature 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.



The cathode lead is marked with a black band.

Fig.1 Simplified outline (SOD61H2) and symbol.

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		–	2200	V
V_{RRM}	repetitive peak reverse voltage		–	2200	V
V_{RW}	working reverse voltage		–	2000	V
V_R	continuous reverse voltage		–	2000	V
$I_{F(AV)}$	average forward current	averaged over any 20 ms period; PCB mounting (see Fig.5); T_{amb} = 65 °C; see Fig.2; see also Fig.3	–	50	mA
I_{FRM}	repetitive peak forward current		–	500	mA
I_{FSM}	non-repetitive peak forward current	t ≤ 10 ms; half sinewave; $T_j = T_{j\,max}$ prior to surge; $V_R = V_{RWmax}$	–	1	A
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C

ELECTRICAL CHARACTERISTICS

T_j = 25 °C; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage	I_F = 50 mA; $T_j = T_{j\,max}$; see Fig.4	–	–	6	V
I_R	reverse current	$V_R = V_{RWmax}$; T_j = 120 °C	–	–	3	µA
Q_r	recovery charge	when switched from I_F = 100 mA to $V_R \geq$ 100 V and dI_F/dt = –200 mA/µs; see Fig.6	–	–	1	nC
t_f	fall time	when switched from I_F = 100 mA to $V_R \geq$ 100 V and dI_F/dt = –200 mA/µs; see Fig.6	100	–	–	ns
t_{rr}	reverse recovery time	when switched from I_F = 100 mA to $V_R \geq$ 100 V and dI_F/dt = –200 mA/µs; see Fig.6	–	–	300	ns
C_d	diode capacitance	V_R = 0 V; f = 1 MHz	–	2	–	pF

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\,j\text{-}tp}$	thermal resistance from junction to tie-point	lead length = 10 mm	100	K/W
$R_{th\,j\text{-}a}$	thermal resistance from junction to ambient	note 1	155	K/W

Note

1. Device mounted on epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper ≥40 µm, see Fig.5.