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High-voltage soft-recovery controlled avalanche rectifier

BYX90G

FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Soft-recovery switching characteristics
- Guaranteed avalanche energy absorption capability.

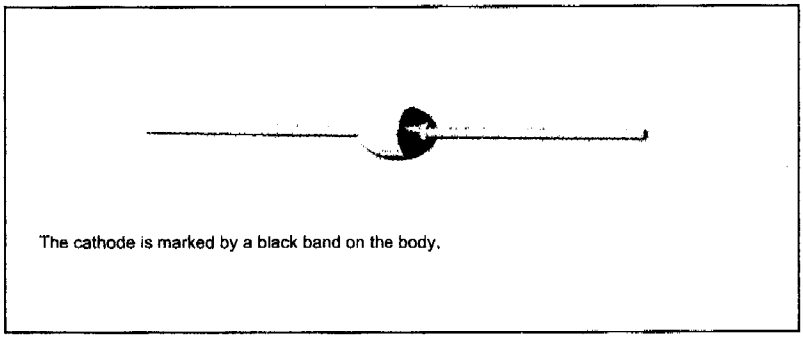
APPLICATIONS

- High-voltage rectification at high frequencies
- Sub-component for very high voltage rectifiers, for example, in X-ray and radar equipment.

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 cathode is marked by a black band on the body.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage		–	7.5	kV
V_{RWM}	crest working reverse voltage		–	6	kV
$I_{F(AV)}$	average forward current	averaged over any 20 ms period; T_{oil} = 45 °C;	–	550	mA
I_{FRM}	repetitive peak forward current		–	5	A
I_{FSM}	non-repetitive peak forward current	t = 10 ms half sinewave; $T_j = T_{j\,max}$ prior to surge; $V_R = V_{RWMmax}$;	–	20	A
P_{RSM}	non-repetitive peak reverse power dissipation	t = 10 µs; triangular pulse; $T_j = T_{j\,max}$ prior to surge	–	5	kW
T_{stg}	storage temperature		–65	+165	°C
T_j	junction temperature		–65	+165	°C

ELECTRICAL CHARACTERISTICS

T_j = 25 °C; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage	I_F = 2 A;	–	–	14.5	V
$V_{(BR)R}$	reverse avalanche breakdown voltage	I_R = 0.1 mA	8	–	–	kV
I_R	reverse current	$V_R = V_{RWMmax}$; $T_j = T_{j\,max}$	–	–	50	µA
t_{rr}	reverse recovery time	when switched from I_F = 0.5 A to I_R = 1 A; measured at I_R = 0.25 A;	–	–	350	ns

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\,j\text{-}o}$	thermal resistance from junction to oil		20	K/W