

BY8000 series

Fast high-voltage soft-recovery controlled avalanche rectifiers

FEATURES

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

APPLICATIONS

- For colour television and monitors up to 25 kHz
- High-voltage applications for:
 - Multipliers
 - Layer-wound diode-split-transformers where controlled avalanche is required.

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 package is designed to be used in an insulating medium such as resin, oil or SF6 gas.

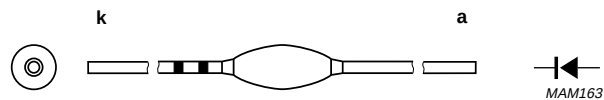


Fig.1 Simplified outline (SOD61) and symbol.

MARKING

Cathode band colour codes

TYPE NUMBER	PACKAGE CODE	INNER BAND	OUTER BAND
BY8004	SOD61AC	violet	black
BY8006	SOD61AD	violet	green
BY8008	SOD61AE	violet	red
BY8010	SOD61AF	violet	violet
BY8012	SOD61AH	violet	orange
BY8014	SOD61AI	violet	lilac
BY8016	SOD61AJ	violet	grey

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LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{RRM}	repetitive peak reverse voltage				
	BY8004		–	5	kV
	BY8006		–	8	kV
	BY8008		–	10	kV
	BY8010		–	12	kV
	BY8012		–	14	kV
	BY8014		–	17	kV
	BY8016		–	19	kV
V _{RW}	working reverse voltage				
	BY8004		–	4	kV
	BY8006		–	6	kV
	BY8008		–	8	kV
	BY8010		–	10	kV
	BY8012		–	12	kV
	BY8014		–	14	kV
	BY8016		–	16	kV
I _{F(AV)}	average forward current	averaged over any 20 ms period; see Figs 2 to 8			
	BY8004		–	20	mA
	BY8006		–	10	mA
	BY8008		–	5	mA
	BY8010		–	5	mA
	BY8012		–	5	mA
	BY8014		–	5	mA
	BY8016		–	3	mA
I _{FRM}	repetitive peak forward current	note 1	–	500	mA
P _{RSM}	non-repetitive peak reverse power dissipation	t = 20 µs half sinewave; T _j = T _{j max} prior to surge			
	BY8004		–	2.5	kW
	BY8006		–	3.5	kW
	BY8008		–	4.2	kW
	BY8010		–	5.2	kW
	BY8012		–	7.0	kW
	BY8014		–	7.8	kW
	BY8016		–	9.1	kW
T _{stg}	storage temperature		–65	+120	°C
T _j	junction temperature		–65	+120	°C

Note

1. Withstands peak currents during flash-over in a picture tube.

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ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ }^{\circ}\text{C}$; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage	$I_F = 100\text{ mA}$; $T_j = T_{j\text{ max}}$; see Figs 9 to 15	—	—	20	V
	BY8004					
	BY8006					
	BY8008					
	BY8010					
	BY8012					
	BY8014					
	BY8016		—	—	63	V
I_R	reverse current	$V_R = V_{RW\text{max}}$; $T_j = 120\text{ }^{\circ}\text{C}$	—	—	3	μA
Q_r	recovery charge	when switched from $I_F = 100\text{ mA}$ to $V_R \geq 100\text{ V}$ and $dI_F/dt = -200\text{ mA}/\mu\text{s}$; see Fig.16	—	—	1	nC
t_f	fall time	when switched from $I_F = 100\text{ mA}$ to $V_R \geq 100\text{ V}$ and $dI_F/dt = -200\text{ mA}/\mu\text{s}$; see Fig.16	80	—	—	ns
t_{rr}	reverse recovery time	when switched from $I_F = 2\text{ mA}$ to $I_R = 4\text{ mA}$; measured at $I_R = 1\text{ mA}$; see Fig.17	—	—	100	ns
C_d	diode capacitance	$V_R = 0\text{ V}$; $f = 1\text{ MHz}$	—	0.90	—	pF
	BY8004					
	BY8006					
	BY8008					
	BY8010					
	BY8012					
	BY8014					
	BY8016		—	0.25	—	pF