

Ultra fast low-loss controlled avalanche rectifiers

BYD73 series

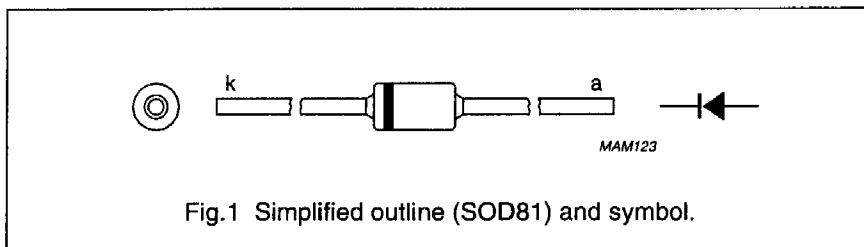
FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Guaranteed avalanche energy absorption capability
- Available in ammo-pack.

DESCRIPTION

Cavity free cylindrical glass SOD81 package through Implotec™⁽¹⁾ technology. This package is

hermetically sealed and fatigue free as coefficients of expansion of all used parts are matched.



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage				
	BYD73A		—	50	V
	BYD73B		—	100	V
	BYD73C		—	150	V
	BYD73D		—	200	V
	BYD73E		—	250	V
	BYD73F		—	300	V
	BYD73G		—	400	V
V_R	continuous reverse voltage				
	BYD73A		—	50	V
	BYD73B		—	100	V
	BYD73C		—	150	V
	BYD73D		—	200	V
	BYD73E		—	250	V
	BYD73F		—	300	V
	BYD73G		—	400	V
$I_{F(AV)}$	average forward current	$T_{ip} = 55\text{ }^{\circ}\text{C}$; lead length = 10 mm; see Figs 2 and 3;			
	BYD73A to D	averaged over any 20 ms period;	—	1.75	A
$I_{F(AV)}$	average forward current	$T_{amb} = 60\text{ }^{\circ}\text{C}$; PCB mounting (see Fig.16); see Figs 4 and 5;			
	BYD73E to G	averaged over any 20 ms period; see also Figs 10 and 11	—	1.70	A
$I_{F(AV)}$	average forward current	$T_{amb} = 60\text{ }^{\circ}\text{C}$; PCB mounting (see Fig.16); see Figs 4 and 5;			
	BYD73A to D	averaged over any 20 ms period;	—	1.00	A
$I_{F(AV)}$	average forward current	$T_{amb} = 60\text{ }^{\circ}\text{C}$; PCB mounting (see Fig.16); see Figs 4 and 5;			
	BYD73E to G	averaged over any 20 ms period; see also Figs 10 and 11	—	0.95	A

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I_{FRM}	repetitive peak forward current BYD73A to D	$T_{tp} = 55\text{ }^{\circ}\text{C}$; see Figs 6 and 7	–	14	A
	BYD73E to G		–	15	A
I_{FRM}	repetitive peak forward current BYD73A to D	$T_{amb} = 60\text{ }^{\circ}\text{C}$; see Figs 8 and 9	–	8.5	A
	BYD73E to G		–	9.5	A
I_{FSM}	non-repetitive peak forward current	$t = 10\text{ ms}$ half sine wave; $T_J = T_{Jmax}$ prior to surge; $V_R = V_{RRMmax}$	–	25	A
E_{RSM}	non-repetitive peak reverse avalanche energy	$L = 120\text{ mH}$; $T_J = T_{Jmax}$ prior to surge; inductive load switched off	–	10	mJ
T_{stg}	storage temperature		–65	+175	$^{\circ}\text{C}$
T_J	junction temperature		–65	+175	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage BYD73A to D	$I_F = 1\text{ A}$; $T_J = T_{Jmax}$; see Figs 12 and 13	–	–	0.75	V
	BYD73E to G		–	–	0.83	V
V_F	forward voltage BYD73A to D	$I_F = 1\text{ A}$; see Figs 12 and 13	–	–	0.98	V
	BYD73E to G		–	–	1.05	V
$V_{(BR)R}$	reverse avalanche breakdown voltage	$I_R = 0.1\text{ mA}$				
	BYD73A		55	–	–	V
	BYD73B		110	–	–	V
	BYD73C		165	–	–	V
	BYD73D		220	–	–	V
	BYD73E		275	–	–	V
	BYD73F		330	–	–	V
	BYD73G		440	–	–	V
I_R	reverse current	$V_R = V_{RRMmax}$; see Fig.14	–	–	1	μA
		$V_R = V_{RRMmax}$; $T_J = 165\text{ }^{\circ}\text{C}$; see Fig.14	–	–	100	μA
t_{rr}	reverse recovery time BYD73A to D	when switched from $I_F = 0.5\text{ A}$ to $I_R = 1\text{ A}$; measured at $I_R = 0.25\text{ A}$; see Fig.18	–	–	25	ns
	BYD73E to G		–	–	50	ns

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
C _d	diode capacitance	f = 1 MHz; V _R = 0 V; see Fig.15	–	50	–	pF
	BYD73A to D					
	BYD73E to G		–	40	–	pF
$\left \frac{dI_R}{dt} \right $	maximum slope of reverse recovery current	when switched from I _F = 1 A to V _R ≥ 30 V and dI _F /dt = –1 A/μs; see Fig.17	–	–	4	A/μs
	BYD73A to D					
	BYD73E to G		–	–	5	A/μs

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-tp}	thermal resistance from junction to tie-point	lead length = 10 mm	60	K/W
R _{th j-a}	thermal resistance from junction to ambient	note 1	120	K/W