

**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.

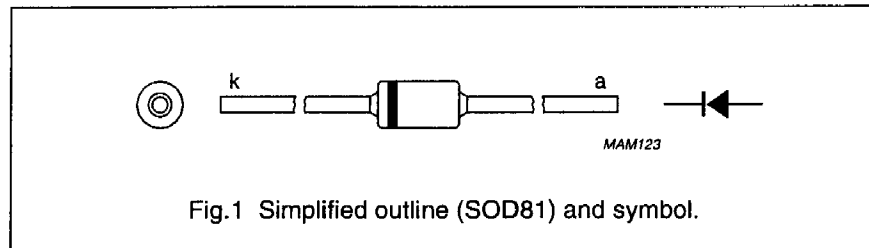


Fig.1 Simplified outline (SOD81) and symbol.

**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>RRM</sub>	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 <sub>R</sub>	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 <sub>F(AV)</sub>	average forward current	T <sub>tp</sub> = 55 °C; lead length = 10 mm; see Figs 2 and 3; averaged over any 20 ms period; see also Figs 10 and 11			
	BYD73A to D		-	1.75	A
	BYD73E to G		-	1.70	A
I <sub>F(AV)</sub>	average forward current	T <sub>amb</sub> = 60 °C; PCB mounting (see Fig.16); see Figs 4 and 5; averaged over any 20 ms period; see also Figs 10 and 11			
	BYD73A to D		-	1.00	A
	BYD73E to G		-	0.95	A

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SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I <sub>FRM</sub>	repetitive peak forward current	T <sub>tp</sub> = 55 °C; see Figs 6 and 7	-	14	A
	BYD73A to D			15	A
I <sub>FRM</sub>	repetitive peak forward current	T <sub>amb</sub> = 60 °C; see Figs 8 and 9	-	8.5	A
	BYD73E to G			9.5	A
I <sub>FSM</sub>	non-repetitive peak forward current	t = 10 ms half sine wave; T <sub>j</sub> = T <sub>j max</sub> prior to surge; V <sub>R</sub> = V <sub>RRMmax</sub>	-	25	A
E <sub>RSM</sub>	non-repetitive peak reverse avalanche energy	L = 120 mH; T <sub>j</sub> = T <sub>j max</sub> prior to surge; inductive load switched off	-	10	mJ
T <sub>stg</sub>	storage temperature		-65	+175	°C
T <sub>j</sub>	junction temperature		-65	+175	°C

**ELECTRICAL CHARACTERISTICS**

T<sub>j</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT				
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 1 A; T <sub>j</sub> = T <sub>j max</sub> ; see Figs 12 and 13	-	-	0.75	V				
	BYD73A to D				0.83	V				
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 1 A; see Figs 12 and 13	-	-	0.98	V				
	BYD73E to G				1.05	V				
V <sub>(BR)R</sub>	reverse avalanche breakdown voltage	I <sub>R</sub> = 0.1 mA								
	BYD73A						55	-	-	V
	BYD73B						110	-	-	V
	BYD73C						165	-	-	V
	BYD73D						220	-	-	V
	BYD73E						275	-	-	V
	BYD73F						330	-	-	V
BYD73G	440	-	-	V						
I <sub>R</sub>	reverse current	V <sub>R</sub> = V <sub>RRMmax</sub> ; see Fig.14	-	-	1	μA				
		V <sub>R</sub> = V <sub>RRMmax</sub> ; T <sub>j</sub> = 165 °C; see Fig.14	-	-	100	μA				
t <sub>rr</sub>	reverse recovery time	when switched from I <sub>F</sub> = 0.5 A to I <sub>R</sub> = 1 A; measured at I <sub>R</sub> = 0.25 A; see Fig.18	-	-	25	ns				
	BYD73A to D				50	ns				
	BYD73E to G									

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SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
C <sub>d</sub>	diode capacitance	f = 1 MHz; V <sub>R</sub> = 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 <sub>F</sub> = 1 A to V <sub>R</sub> ≥ 30 V and dI <sub>F</sub> /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 <sub>th j-tp</sub>	thermal resistance from junction to tie-point	lead length = 10 mm	60	K/W
R <sub>th j-a</sub>	thermal resistance from junction to ambient	note 1	120	K/W