

New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

Ultra fast low-loss controlled avalanche rectifiers

BYD71 series

FEATURES

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

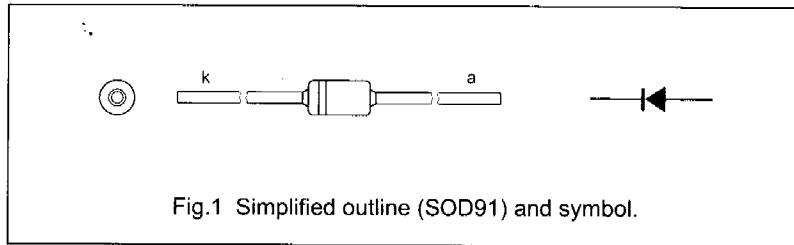


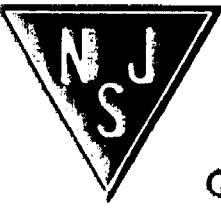
Fig.1 Simplified outline (SOD91) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{RRM}	repetitive peak reverse voltage		-	50	V
	BYD71A			100	V
	BYD71B			150	V
	BYD71C			200	V
	BYD71D			250	V
	BYD71E			300	V
	BYD71F			400	V
V _R	continuous reverse voltage		-	50	V
	BYD71A			100	V
	BYD71B			150	V
	BYD71C			200	V
	BYD71D			250	V
	BYD71E			300	V
	BYD71F			400	V
I _{F(AV)}	average forward current	T _{tp} = 55 °C; lead length = 10 mm; see Figs 2 and 3; averaged over any 20 ms period; see also Figs 10 and 11	-	0.56	A
	BYD71A to D			0.54	A
	BYD71E to G				
I _{F(AV)}	average forward current	T _{amb} = 60 °C; PCB mounting (see Fig.16); see Figs 4 and 5; averaged over any 20 ms period; see also Figs 10 and 11	-	0.43	A
	BYD71A to D			0.41	A
	BYD71E to G				

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



Quality Semi-Conductors

**Ultra fast low-loss
controlled avalanche rectifiers**

BYD71 series

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{FRM}	repetitive peak forward current BYD71A to D BYD71E to G	$T_{tp} = 55^\circ\text{C}$; see Figs 6 and 7	— —	4.7 5.0	A A
I_{FRM}	repetitive peak forward current BYD71A to D BYD71E to G	$T_{amb} = 60^\circ\text{C}$; see Figs 8 and 9	— —	3.7 3.9	A A
I_{FSM}	non-repetitive peak forward current	$t = 10 \mu\text{s}$ half sine wave; $T_j = T_{j\max}$ prior to surge; $V_R = V_{RRM\max}$	—	7	A
P_{RSM}	non-repetitive peak reverse power dissipation BYD71A to D BYD71E to G	$t = 20 \mu\text{s}$ half sine wave; $T_j = T_{j\max}$ prior to surge	— —	250 150	W W
T_{stg}	storage temperature		—65	+175	°C
T_j	junction temperature		—65	+175	°C

ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage BYD71A to D BYD71E to G	$I_F = 0.5 \text{ A}; T_j = T_{j\max}$; see Figs 12 and 13	— —	— —	0.84 0.90	V V
V_F	forward voltage BYD71A to D BYD71E to G	$I_F = 0.5 \text{ A}$; see Figs 12 and 13	— —	— —	1.05 1.11	V V
$V_{(BR)R}$	reverse avalanche breakdown voltage BYD71A BYD71B BYD71C BYD71D BYD71E BYD71F BYD71G	$I_R = 0.1 \text{ mA}$	55 110 165 220 275 330 440	— — — — — — —	— — — — — — —	V V V V V V V
I_R	reverse current	$V_R = V_{RRM\max}$; see Fig 14	—	—	1	μA
		$V_R = V_{RRM\max}$; $T_j = 165^\circ\text{C}$; see Fig 14	—	—	75	μA
t_{rr}	reverse recovery time BYD71A to D BYD71E to G	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 50	ns ns

**Ultra fast low-loss
controlled avalanche rectifiers**

BYD71 series

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
C_d	diode capacitance BYD71A to D BYD71E to G	$f = 1 \text{ MHz}; V_R = 0 \text{ V};$ see Fig.15	— —	25 20	— —	pF pF
$ dI_R $ $ dt $	maximum slope of reverse recovery current BYD71A to D BYD71E to G	when switched from $I_F = 1 \text{ A}$ to $V_R \geq 30 \text{ V}$ and $dI_F/dt = -1 \text{ A}/\mu\text{s}$; see Fig.17	— —	— —	4 5	A/ μs A/ μs

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th j\text{-tp}}$	thermal resistance from junction to tie-point	lead length = 10 mm	180	K/W
$R_{th j\text{-a}}$	thermal resistance from junction to ambient	note 1	250	K/W