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

BYX56 SERIES

CONTROLLED AVALANCHE RECTIFIER DIODES

Silicon diodes in a DO–5 metal envelope, capable of absorbing transients and intended for power rectifier applications.
The series consists of the following types:
Normal polarity (cathode to stud): BYX56–600 to BYX56–1400.
Reverse polarity (anode to stud): BYX56–600R to BYX56–1400R.

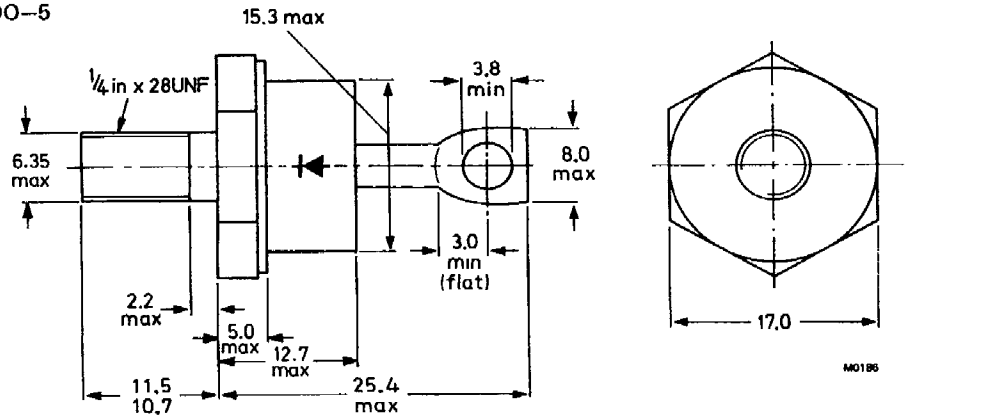
QUICK REFERENCE DATA

			BYX56–600(R)	800(R)	1000(R)	1200(R)	1400(R)	
Crest working reverse voltage	V_{RWM}	max.	600	800	1000	1200	1400	V
Reverse avalanche breakdown voltage	$V_{(BR)R}$	>	750	1000	1250	1450	1650	V
Average forward current	$I_{F(AV)}$	max.			48			A
Non-repetitive peak forward current	I_{FSM}	max.			800			A
Non-repetitive peak reverse power dissipation	P_{RSM}	max.			40			kW

MECHANICAL DATA

Dimensions in mm

Fig. 1 DO–5



Net mass: 22 g
Diameter of clearance hole: max. 6.5 mm
Accessories supplied on request:
see ACCESSORIES section

Supplied with device: 1 nut, 1 lock washer.

Nut dimensions across the flats: 11.1 mm.

Torque on nut:
min. 1.7 Nm (17 kg cm),
max. 3.5 Nm (35 kg cm). ←

The mark shown applies to normal polarity types.

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

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RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC134)

Voltages*			BYX56–600(R)	800(R)	1000(R)	1200(R)	1400(R)	
Crest working reverse voltage	V_{RWM}	max.	600	800	1000	1200	1400	V
Continuous reverse voltage	V_R	max.	600	800	1000	1200	1400	V

Currents				
Average forward current (averaged over any 20 ms period)				
up to T_{mb} = 112 °C	$I_{F(AV)}$	max.	48	A
at T_{mb} = 125 °C	$I_{F(AV)}$	max.	40	A
R.M.S. forward current	$I_{F(RMS)}$	max.	75	A
Repetitive peak forward current	I_{FRM}	max.	450	A
Non-repetitive peak forward current t = 10 ms (half sine-wave); T_j = 175 °C prior to surge; with reapplied V_{RWMmax}	I_{FSM}	max.	800	A
I^2t for fusing (t ≤ 10 ms)	I^2t	max.	3200	A^2s
Reverse power dissipation				
Repetitive peak reverse power dissipation t = 10 μs (square-wave; f = 50 Hz); T_j = 175 °C	P_{RRM}	max.	6.5	kW
Non-repetitive peak reverse power dissipation t = 10 μs (square-wave)				
T_j = 25 °C prior to surge	P_{RSM}	max.	40	kW
T_j = 175 °C prior to surge	P_{RSM}	max.	6.5	kW
Temperatures				
Storage temperature	T_{stg}		−55 to +175	°C
Junction temperature	T_j	max.	175	°C

THERMAL RESISTANCE				
From junction to mounting base	$R_{th\ j\text{-}mb}$	=	0.8	°C/W
From mounting base to heatsink	$R_{th\ mb\text{-}h}$	=	0.2	°C/W
Transient thermal impedance; t = 1 ms	$Z_{th\ j\text{-}h}$	=	0.03	°C/W

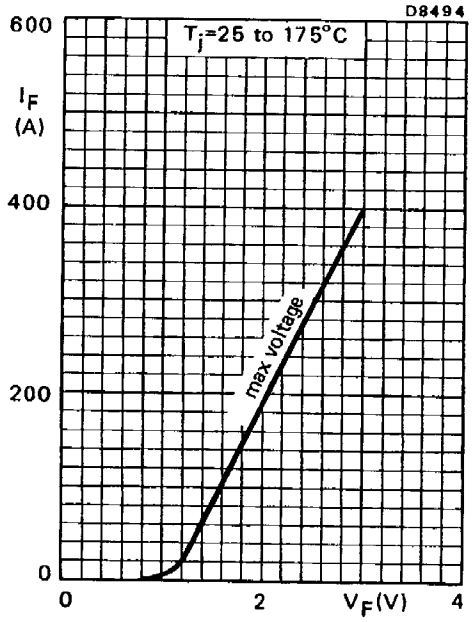
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CHARACTERISTICS

			BYX56–600(R)	800(R)	1000(R)	1200(R)	1400(R)	
Forward voltage I_F = 150 A; T_j = 25 °C	V_F	<	1.8	1.8	1.8	1.8	1.8	V*
Reverse avalanche breakdown voltage I_R = 5 mA; T_j = 25 °C	$V_{(BR)R}$	>	750	1000	1250	1450	1650	V
		<	2400	2400	2400	2400	2400	V
Reverse current $V_R = V_{RWMmax}$; T_j = 125 °C	I_R	<	1.6	1.6	1.6	1.6	1.6	mA

OPERATING NOTES

The top connector should neither be bent nor twisted; it should be soldered into the circuit so that there is no strain on it.
During soldering the heat conduction to the junction should be kept to a minimum by using a thermal shunt.



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