New Jersey Semi-Conductor Products, Inc.

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RECTIFIER DIODES

Silicon rectifier diodes in metal envelopes similar to DO-4, intended for use in power rectifier applications.
The series consists of the following types:
Normal polarity (cathode to stud): BYX96-300 to 1600.
Reverse polarity (anode to stud): BYX96-300R to 1600R.

QUICK REFERENCE DATA

			BYX96-300(R)	600(R)	1200(R)	1600(R)	
Repetitive peak reverse voltage	V_{RRM}	max.	300	600	1200	1600	V
Average forward current		$I_{F(AV)}$		max.		30	A
Non-repetitive peak forward current		I_{FSM}		max.		400	A

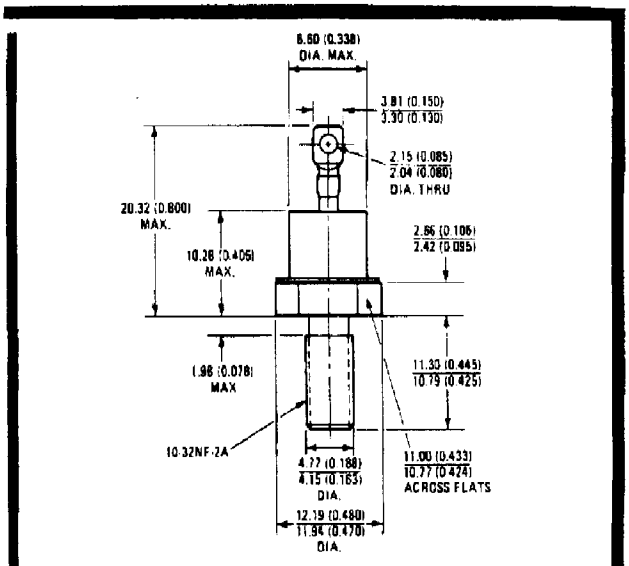
CHARACTERISTICS

Forward voltage

I_F = 100 A; T_j = 25 °C $\quad V_F < 1,7$ V [1]

Reverse current

$V_R = V_{RWMmax}$; T_j = 125 °C $\quad I_R < 1$ mA



Conforms to JEDEC Outline DO-203AA (DO-4)
All Dimensions in Millimeters and (Inches)

Quality Semi-Conductors

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Voltages [1]		BYX96-	300(R)	600(R)	1200(R)	1600(R)	
Non-repetitive peak reverse voltage ($t \leq 10$ ms)	V_{RSM}	max.	300	600	1200	1600	V
Repetitive peak reverse voltage ($\delta \leq 0,01$)	V_{RRM}	max.	300	600	1200	1600	V
Crest working reverse voltage	V_{RWM}	max.	200	400	800	800	V
Continuous reverse voltage	V_R	max.	200	400	800	800	V

Currents

Average forward current (averaged over any 20 ms period) up to $T_{mb} = 125$ °C	$I_{F(AV)}$	max.	30	A
R.M.S. forward current	$I_{F(RMS)}$	max.	48	A
Repetitive peak forward current	I_{FRM}	max.	400	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.	400	A
I^2t for fusing ($t = 10$ ms)	I^2t	max.	800	A^2s

Temperatures

Storage temperature	T_{stg}	−55 to +175	°C
Junction temperature	T_j	max. 175	°C

THERMAL RESISTANCE

From junction to mounting base	$R_{th\ j\text{-}mb}$	=	1,0	°C/W
From mounting base to heatsink without heatsink compound	$R_{th\ mb\text{-}h}$	=	0,5	°C/W
with heatsink compound	$R_{th\ mb\text{-}h}$	=	0,3	°C/W
Transient thermal impedance; $t = 1$ ms	$Z_{th\ j\text{-}mb}$	=	0,2	°C/W

[1] To ensure thermal stability: $R_{th\ j\text{-}a} \leq 2$ °C/W (continuous reverse voltage) or ≤ 8 °C/W (a.c.)
For smaller heatsinks $T_{j\ max}$ should be derated. For a.c. see page 4.
For continuous reverse voltage: if $R_{th\ j\text{-}a} = 4$ °C/W, then $T_{j\ max} = 138$ °C,
if $R_{th\ j\text{-}a} = 6$ °C/W, then $T_{j\ max} = 125$ °C.

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