

LOW DROP POWER SCHOTTKY RECTIFIER

MAIN PRODUCTS CHARACTERISTICS

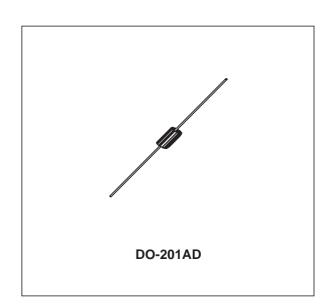
I _{F(AV)}	3 A
V _{RRM}	40 V
T _j	150°C
V _F (max)	0.475 V

FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW FORWARD VOLTAGE DROP
- AVALANCHE CAPABILITY SPECIFIED



Axial Power Schottky rectifier suited for Switch Mode Power Supplies and high frequency DC to DC converters. Packaged in DO-201AD these devices are intended for use in low voltage, high frequency inverters, free wheeling, polarity protection and small battery chargers.



ABSOLUTE RATINGS (limiting values)

Symbol	Doromot		Unit			
Symbol	Paramete	1N5820	1N5821	1N5822	Unit	
V _{RRM}	Repetitive peak reverse voltage	20	30	40	V	
I _{F(RMS)}	RMS forward current		10			Α
I _{F(AV)}	Average forward current	$T_L = 100^{\circ}C$ $\delta = 0.5$			3	Α
		$T_L = 110^{\circ}C$ $\delta = 0.5$	3	3		Α
I _{FSM}	Surge non repetitive forward current		80		А	
P _{ARM}	Repetitive peak avalanche tp = 1µs Tj = 25°C power			1700		W
T _{stg}	Storage temperature range	- 65 to + 150			°C	
Tj	Maximum operating junction to	150			°C	
dV/dt	Critical rate of rise of reverse voltage			10000		

^{* :} $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

July 2003 - Ed: 3A

THERMAL RESISTANCES

Symbol	Paramete	Value	Unit	
R _{th (j-a)}	Junction to ambient	Lead length = 10 mm	80	°C/W
R _{th (j-l)}	Junction to lead	Lead length = 10 mm	25	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Co	1N5820	1N5821	1N5822	Unit	
I _R *	Reverse leakage	Tj = 25°C	$V_R = V_{RRM}$	2	2	2	mA
	current	Tj = 100°C		20	20	20	mA
V _F *	Forward voltage drop	Tj = 25°C	I _F = 3 A	0.475	0.5	0.525	V
		Tj = 25°C	I _F = 9.4 A	0.85	0.9	0.95	V

Pulse test : * tp = 380 μ s, δ < 2%

To evaluate the conduction losses use the following equations:

 $P = 0.33 \times I_{F(AV)} + 0.035 I_{F}^{2}_{(RMS)} \text{ for } 1N5820 / 1N5821$ $P = 0.33 \times I_{F(AV)} + 0.060 I_{F}^{2}_{(RMS)} \text{ for } 1N5822$

Fig. 1: Average forward power dissipation versus average forward current (1N5820/1N5821).

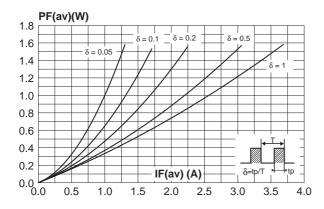


Fig. 3: Normalized avalanche power derating versus pulse duration.

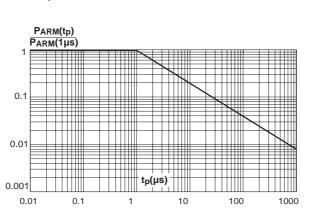


Fig. 2: Average forward power dissipation versus average forward current (1N5822).

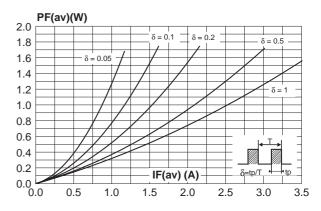


Fig. 4: Normalized avalanche power derating versus junction temperature.

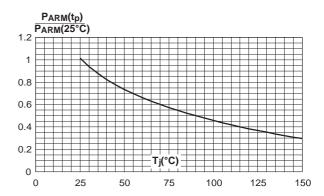


Fig. 5-1: Average forward current versus ambient temperature (δ =0.5) (1N5820/1N5821).

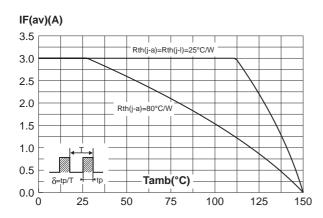


Fig. 6-1: Non repetitive surge peak forward current versus overload duration (maximum values) (1N5820/1N5821).

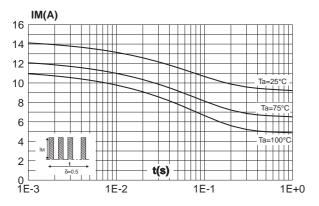


Fig. 7: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, e(Cu)=35mm, recommended pad layout).

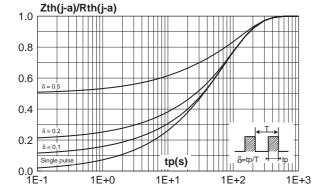


Fig. 5-2: Average forward current versus ambient temperature (δ =0.5) (1N5822).

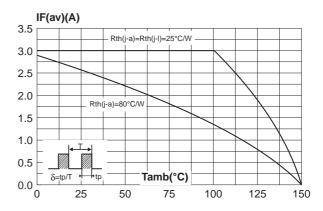


Fig. 6-2: Non repetitive surge peak forward current versus overload duration (maximum values) (1N5822).

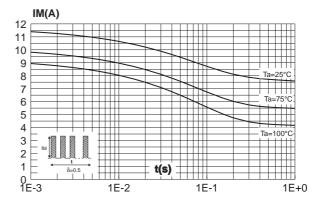
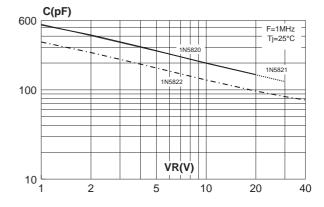


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).



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Fig. 9-1: Reverse leakage current versus reverse voltage applied (typical values) (1N5820/1N5821).

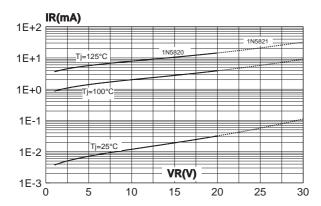


Fig. 9-2: Reverse leakage current versus reverse voltage applied (typical values) (1N5822).

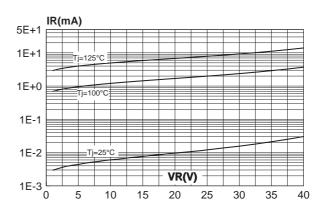


Fig. 10-1: Forward voltage drop versus forward current (typical values) (1N5820/1N5821).

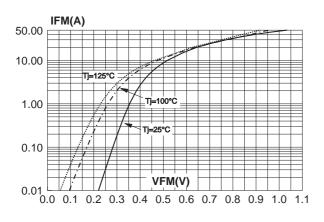


Fig. 10-2: Forward voltage drop versus forward current (typical values) (1N5822).

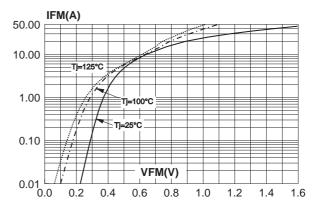
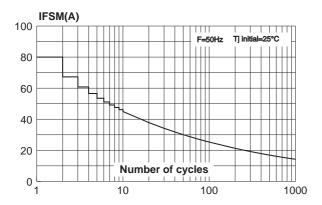


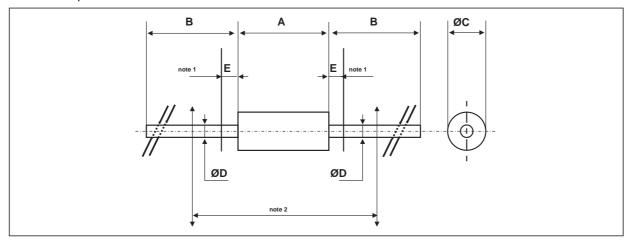
Fig. 11: Non repetitive surge peak forward current versus number of cycles.



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PACKAGE MECHANICAL DATA

DO-201AD plastic



		DIMEN	SIONS				
REF. Millin		imeters Inc		hes	NOTES		
	Min.	Max.	Min.	Max.			
Α		9.50		0.374	1 - The lead diameter ♠ D is not controlled over zone E		
В	25.40		1.000				
♠ C		5.30		0.209	2 - The minimum axial length within which the device may be		
♠ D		1.30		0.051	placed with its leads bent at right angles is 0.59"(15 mm)		
Е		1.25		0.049			

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
1N582x	Part number cathode ring	DO-201AD	1.12g	600	Ammopack
1N582xRL	Part number cathode ring	DO-201AD	1.12g	1900	Tape & reel

■ EPOXY MEETS UL94,V0

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