1N582x

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**

DO-201AD

FEATURES AND BENEFITS

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

DESCRIPTION

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	Parameter		Value			Unit
			1N5820	**1N5821**	**1N5822**	
V_{RRM}	Repetitive peak reverse voltage		20	30	40	V
$I_{F(RMS)}$	RMS forward current		10			A
$I_{F(AV)}$	Average forward current	T_L = 100°C δ = 0.5			3	A
		T_L = 110°C δ = 0.5	3	3		A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	80			A
T_{stg}	Storage temperature range		- 65 to + 150			°C
Tj	Maximum operating junction temperature *		150			°C
dV/dt	Critical rate of rise of reverse voltage		10000			V/µs

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

THERMAL RESISTANCES

Symbol	Parameter		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 Conditions		1N5820	1N5821	1N5822	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$	2	2	2	mA
		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 µs, δ < 2%

To evaluate the conduction losses use the following equations :

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

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

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

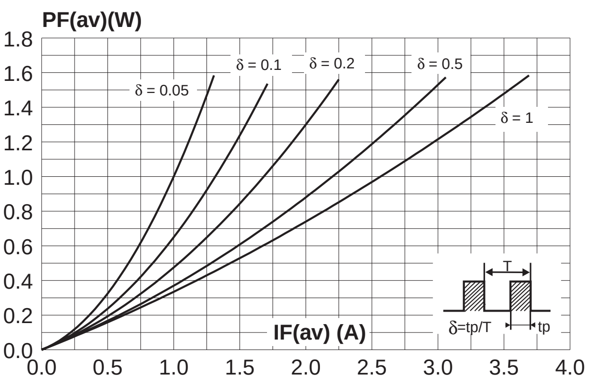


Fig. 2: Average forward power dissipation versus average forward current (1N5822).

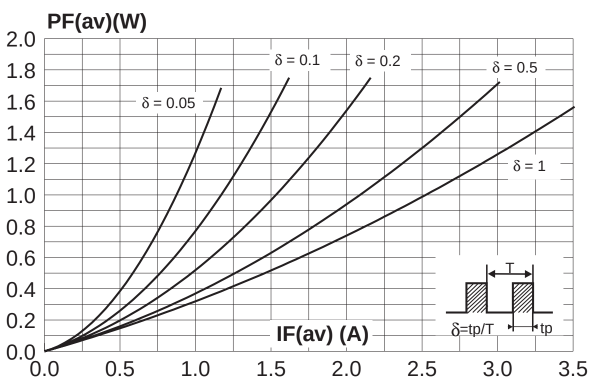


Fig. 2-1: Average forward current versus ambient temperature (δ=0.5) (1N5820/1N5821).

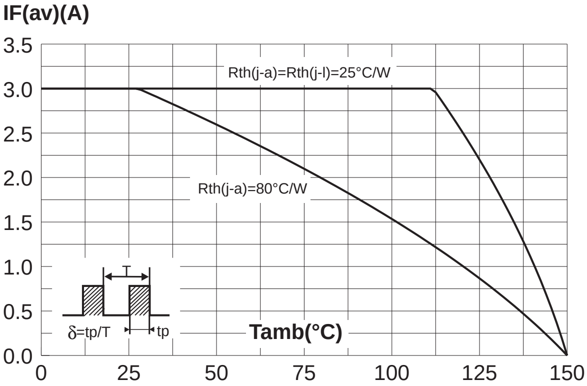


Fig. 2-2: Average forward current versus ambient temperature (δ=0.5) (1N5822).

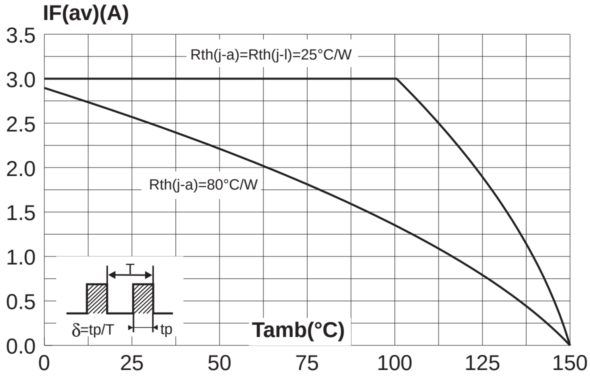


Fig. 3-1: Non repetitive surge peak forward current versus overload duration (maximum values) (1N5820/1N5821).

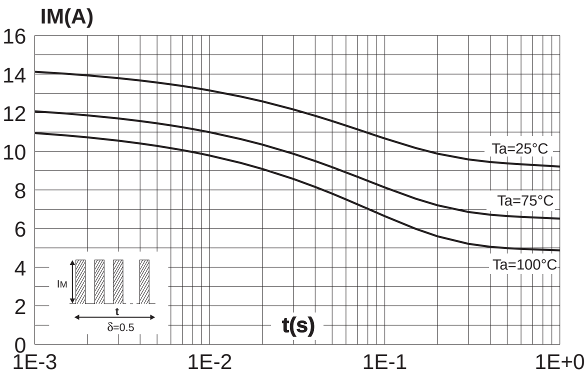


Fig. 3-2: Non repetitive surge peak forward current versus overload duration (maximum values) (1N5822).

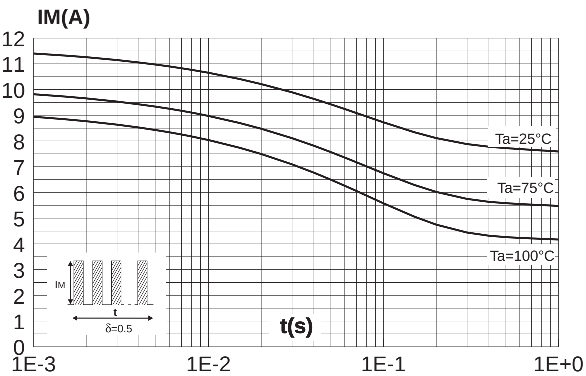


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, e(Cu)=35mm, recommended pad layout).

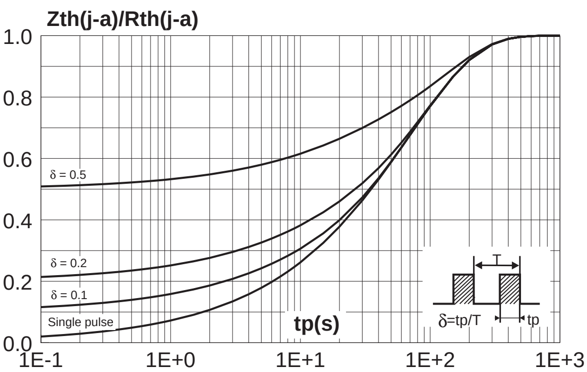


Fig. 5: Junction capacitance versus reverse voltage applied (typical values).

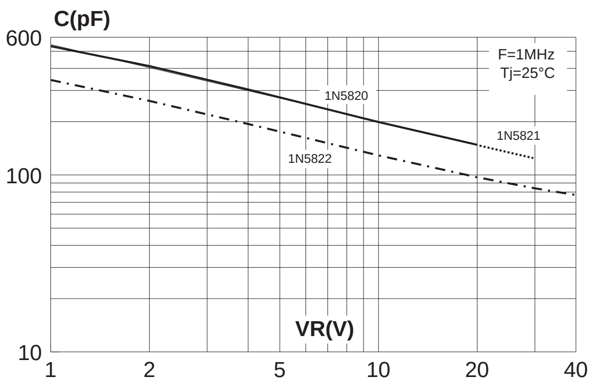


Fig. 6-1: Reverse leakage current versus reverse voltage applied (typical values) (1N5820/1N5821).

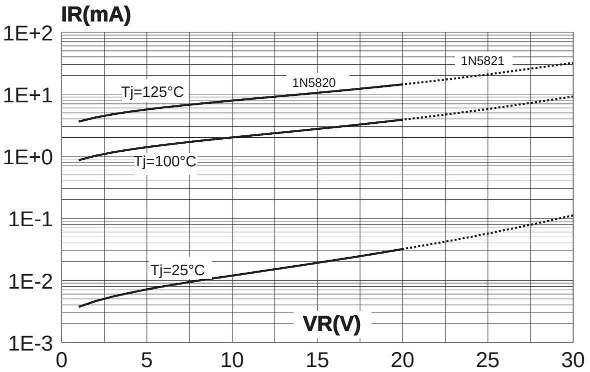


Fig. 6-2: Reverse leakage current versus reverse voltage applied (typical values) (1N5822).

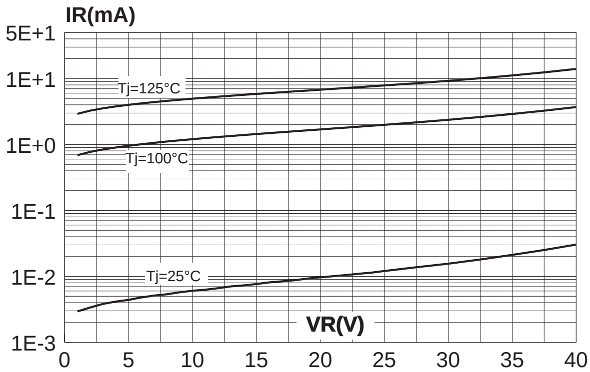


Fig. 7-1: Forward voltage drop versus forward current (typical values) (1N5820/1N5821).

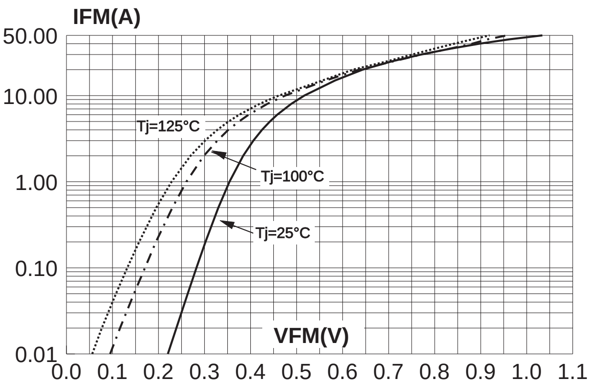


Fig. 7-2: Forward voltage drop versus forward current (typical values) (1N5822).

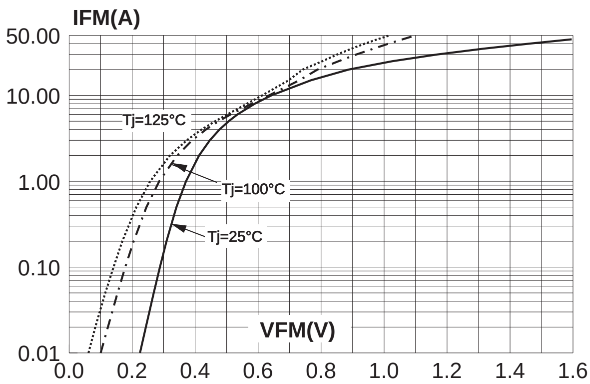
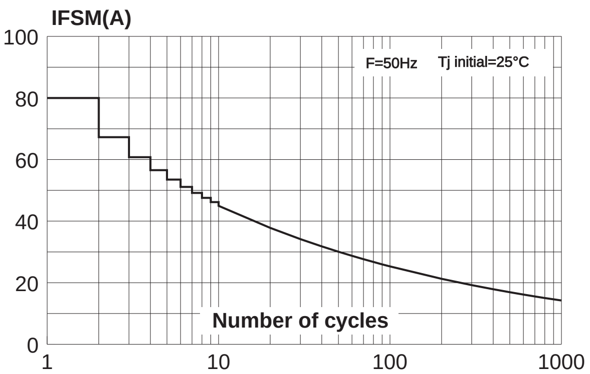
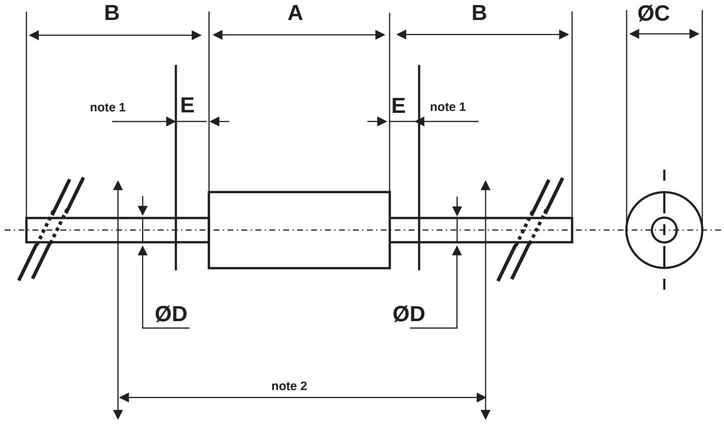


Fig. 8: Non repetitive surge peak forward current versus number of cycles.



PACKAGE MECHANICAL DATA

DO-201AD plastic



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.50		0.374	1 - The lead diameter ∅ D is not controlled over zone E
B	25.40		1.000		
∅ C		5.30		0.209	2 - The minimum axial length within which the device may be placed with its leads bent at right angles is 0.59"(15 mm)
∅ D		1.30		0.051	
E		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