Characteristics 1

Table 2. **Absolute ratings (limiting values)**

Symbol	Poro	matar	Value			Unit
Symbol	Parameter		1N5817	1N5818	1N5819	Oiiit
V _{RRM}	Repetitive peak reverse voltage		20	30	40	V
I _{F(RMS)}	Forward rms current		10			Α
I _{F(AV)}	Average forward current	$T_L = 125 ^{\circ}\text{C}, \delta = 0.5$	1		Α	
I _{FSM}			25			Α
P _{ARM}	Repetitive peak avalanche power	$t_p = 1 \mu s, T_j = 25 °C$	1200	1200	900	W
T _{stg}	Storage temperature range		-65 to + 150		°C	
Tj	Maximum operating junction temperature ⁽¹⁾		150		°C	
dV/dt	Critical rate of rise of re	10000			V/µs	

 $[\]frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ condition to avoid thermal runaway for a diode on its own heatsink.

Table 3. Thermal resistances

Symbol	Parameter		Value	Unit
R _{th (j-a)}	Junction to ambient	Lead length = 10 mm	100	°C/W
R _{th (j-l)}	Junction to lead	Lead length = 10 mm	45	°C/W

Table 4. Static electrical characteristics

Symbol	Parameter	Tests conditions		1N5817	1N5818	1N5819	Unit
ı (1)	Reverse leakage current $T_j = 25 ^{\circ}\text{C}$ $T_j = 100 ^{\circ}\text{C}$ $V_R = V_R$	V -V	0.5	0.5	0.5	mA	
'R		T _j = 100 °C	VR = VRRM	10	10	10	mA
V _E ⁽¹⁾	Forward voltage drop	T _j = 25 °C	I _F = 1 A	0.45	0.50	0.55	
VF ''	Forward voltage drop	T _j = 25 °C	I _F = 3 A	0.75	0.80	0.85	V

^{1.} Pulse test : t_p = 380 μ s, δ < 2%

To evaluate the conduction losses use the following equations : P = 0.3 x I_{F(AV)} + 0.090 I_F 2 _(RMS) for 1N5817 / 1N5818 P = 0.3 x I_{F(AV)} + 0.150 I_F 2 _(RMS) for 1N5819

$$P = 0.3 \text{ x } I_{F(AV)} + 0.150 I_{F(BMS)}$$
 for 1N5819

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Figure 1. Average forward power dissipation Figure 2. Average forward power dissipation versus average forward current (1N5817/1N5818) Figure 2. Average forward power dissipation versus average forward current (1N5819)

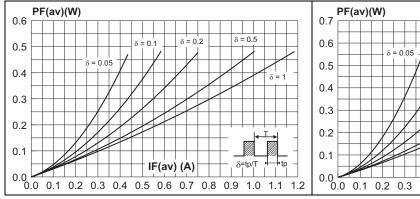
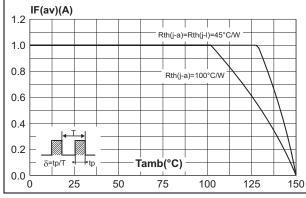


Figure 3. Average forward current versus ambient temperature $(\delta = 0.5)$ (1N5817/1N5818)

Figure 4. Average forward current versus ambient temperature $(\delta = 0.5)$ (1N5819)



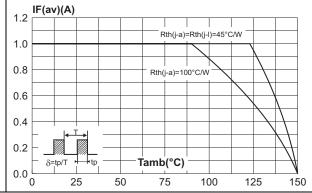


Figure 5. Normalized avalanche power derating versus pulse duration

Figure 6. Normalized avalanche power derating versus junction temperature

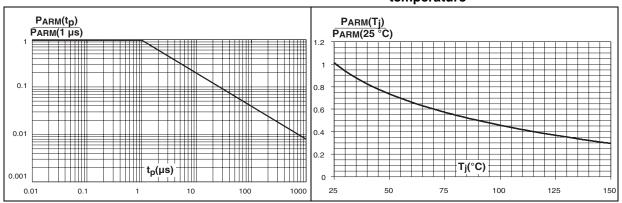
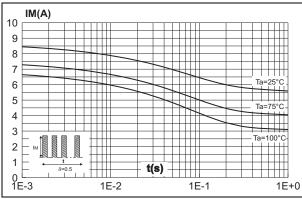


Figure 7. Non repetitive surge peak forward current versus overload duration (maximum values) (1N5817/1N5818)

Figure 8. Non repetitive surge peak forward current versus overload duration (maximum values) (1N5819)



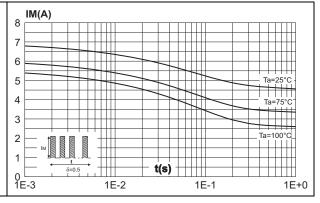
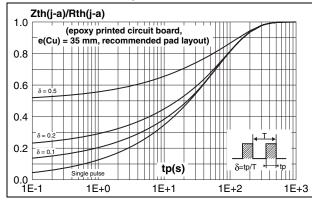


Figure 9. Relative variation of thermal impedance junction to ambient versus pulse duration

Figure 10. Junction capacitance versus reverse voltage applied (typical values)



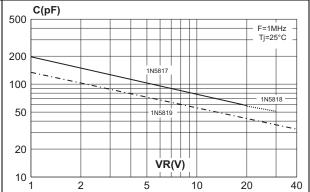
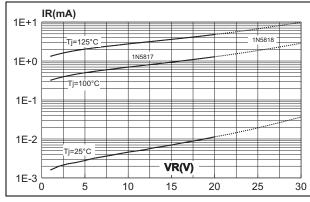
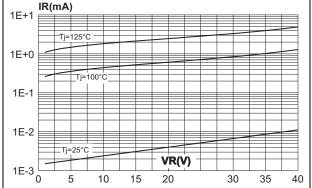


Figure 11. Reverse leakage current versus reverse voltage applied (typical values) (1N5817/1N5818)

Figure 12. Reverse leakage current versus reverse voltage applied (typical values) (1N5819)





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Figure 13. Forward voltage drop versus forward current (typical values) (1N5817/1N5818)

Figure 14. Forward voltage drop versus forward current (typical values) (1N5819)

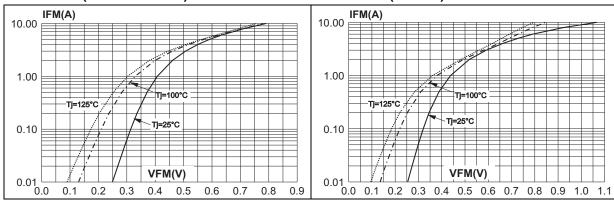
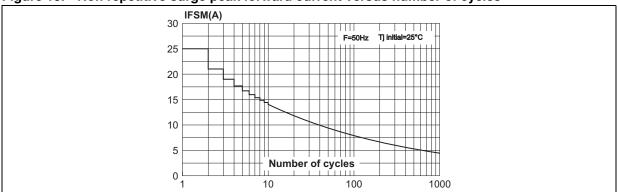


Figure 15. Non repetitive surge peak forward current versus number of cycles

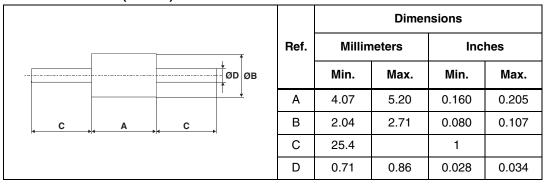


2 Package Information

- Epoxy meets UL94, V0
- Band indicates cathode

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Table 5. DO-41 (Plastic) dimensions



3 Ordering information

Table 6. Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
1N581x	Part number cathode ring	DO-41	0.34 g	2000	Ammopack
1N581xRL	Part number cathode ring	DO-41	0.34 g	5000	Tape and reel

4 Revision history

Table 7. Document revision history

Date	Revision	Changes
Jul-2003	4A	Last update.
04-Jul-2011	5	Updated Table 5.: DO-41 (Plastic) dimensions.

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