Bulletin PD-20590 04/01

International
IOR Rectifier

1N5818
1N5819

SCHOTTKY RECTIFIER

1.0 Amp

Major Ratings and Characteristics

Characteristics		1N5818 1N5819	Units
$I_{F(AV)}$	Rectangular waveform	1.0	A
V_{RRM}		30/40	V
I_{FSM}	@tp = 5 µs sine	225	A
V_F	@1 Apk, T_J = 25°C	0.55	V
T_J	range	-40 to 150	°C

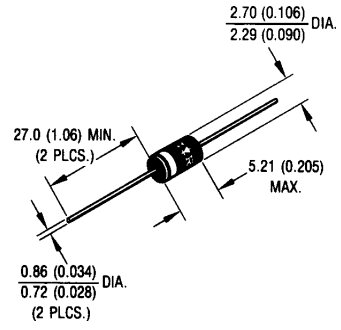
Description/Features

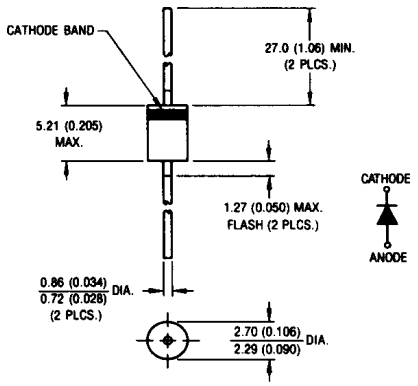
The 1N5818/ 1N5819 axial leaded Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- Low profile, axial leaded outline
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

CASE STYLE AND DIMENSIONS

DeviceMarking: 1N581X





Conform to JEDEC Outline DO-204AL (DO-41)

Dimensions in millimeters and inches

Voltage Ratings

Part number		1N5818	1N5819
V_R	Max. DC Reverse Voltage (V)	30	40
V_{RWM}	Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

Parameters		Value	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward Current *See Fig. 4	1.0	A	50% duty cycle @ T_L = 90 °C, rectangular wave form	
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current *See Fig. 6	225	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
		35		10ms Sine or 6ms Rect. pulse	

Electrical Specifications

Parameters		1N5818	1N5819	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop * See Fig. 1 (1)	0.55	0.6	V	@ 1A	T_J = 25 °C
		0.71	0.73	V	@ 2A	
		0.875	0.9	V	@ 3A	
		0.5	0.55	V	@ 1A	T_J = 125 °C
		0.61	0.63	V	@ 2A	
		0.77	0.79	V	@ 3A	
I_{RM}	Max. Reverse Leakage Current * See Fig. 2 (1)	1.0		mA	T_J = 25°C	V_R = rated V_R
		6.0		mA	T_J = 100°C	
		12		mA	T_J = 125°C	
C_T	Max. Junction Capacitance	60		pF	V_R = 5V_{DC} (test signal range 100 to 1Mhz) 25°C	
L_S	Typical Series Inductance	8.0		nH	Measured lead to lead 5mm from pack. body	
dv/dt	Max. Voltage Rate of Change (Rated V_R)	10000		V/µs		

(1) Pulse Width < 300µs, Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters		Value	Units	Conditions
T_J	Max. Junction Temperature Range	-40 to 150	°C	
T_{stg}	Max. Storage Temperature Range	-40 to 150	°C	
R_{thJL}	Max. Thermal Resistance Junction to Lead (2)	80	°C/W	DC operation (*See Fig. 4)
wt	Approximate Weight	0.33(0.012)	g(oz.)	
	Case Style	DO-204AL(DO-41)		

(2) Mounted 1 inch square PCB, thermal probe connected to lead 2mm from package

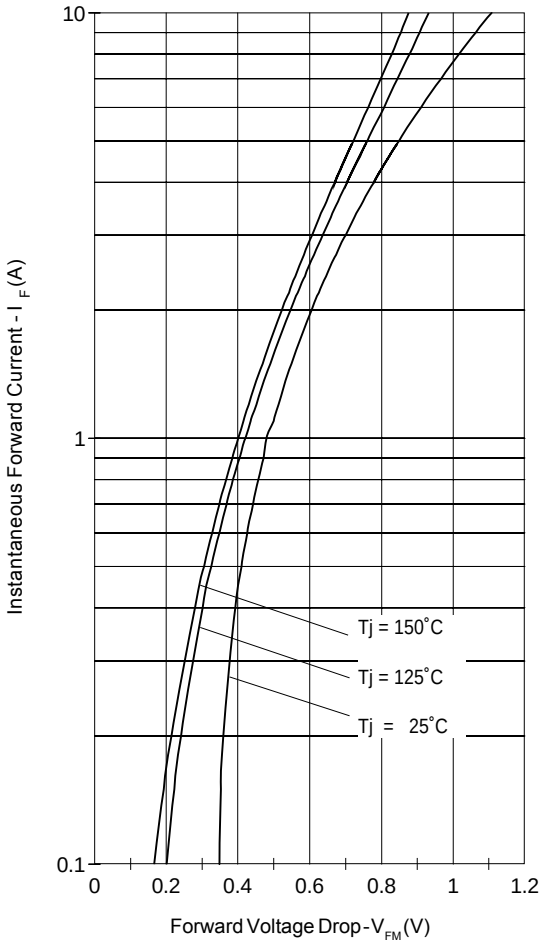


Fig. 1 - Typ. Forward Voltage Drop Characteristics

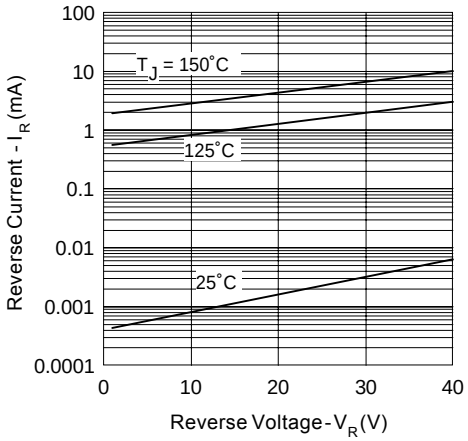


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

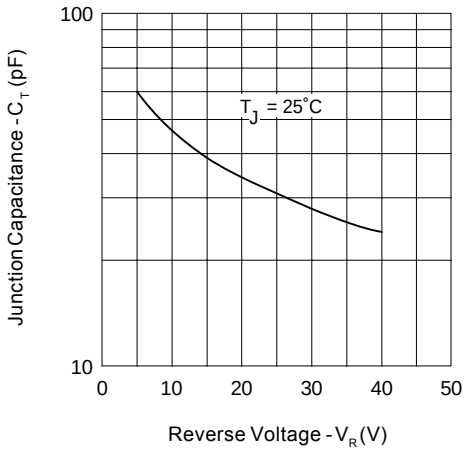


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

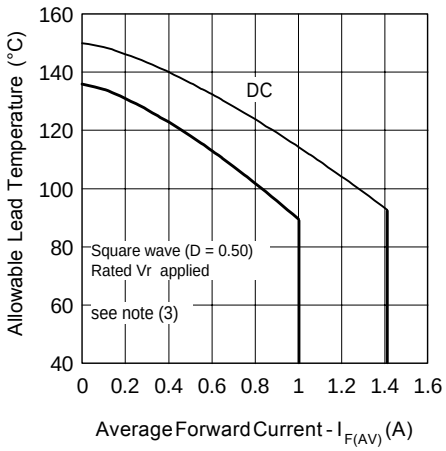


Fig. 4 - Typ. Allowable Lead Temperature Vs. Average Forward Current

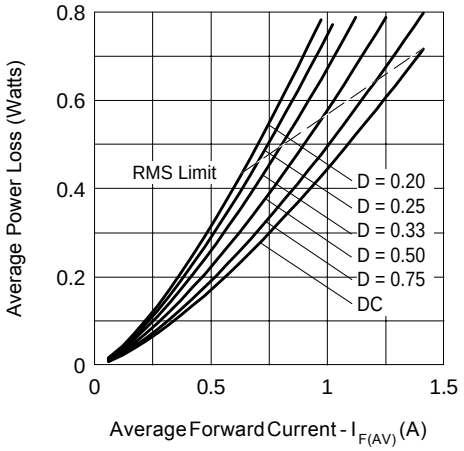


Fig. 5 - Forward Power Loss Characteristics

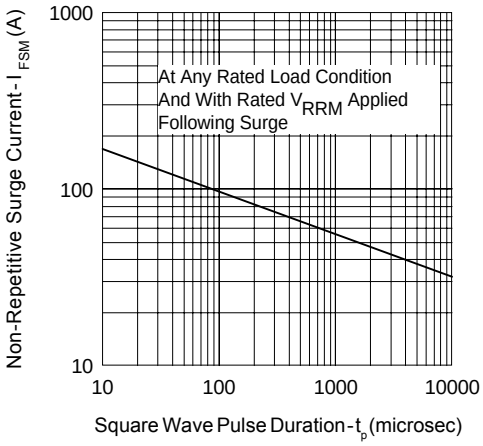


Fig. 6 - Typ. Non-Repetitive Surge Current

(2) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{thJC}$;
Pd = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);
Pd_{REV} = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1}$ = 80% rated V_R

Marking & Identification

Each device has marking and identification on two rows.
- The first row designates the device as manufactured by International Rectifier as indicated by the letters "IR", then Current and Voltage.
- The second row shows the data code: Year and Week.

See below marking diagram.

FIRST ROW

1N581X

SECOND ROW

Date Code

YY WW

Ordering Information

1N581X TR - TAPE AND REEL

WHEN ORDERING, INDICATE THE PART NUMBER AND THE QUANTITY (IN MULTIPLES OF 3000 PIECES).

EXAMPLE: 1N581X TR - 6000 PIECES

1N581X SERIES - BULK QUANTITIES

WHEN ORDERING, INDICATE THE PART NUMBER AND THE QUANTITY (IN MULTIPLE OF 1000 PIECES)

EXAMPLE: 1N581X - 2000 PIECES

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level.
Qualification Standards can be found on IR's Web site.

International
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