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

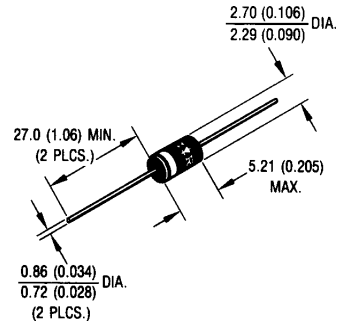
Description/Features

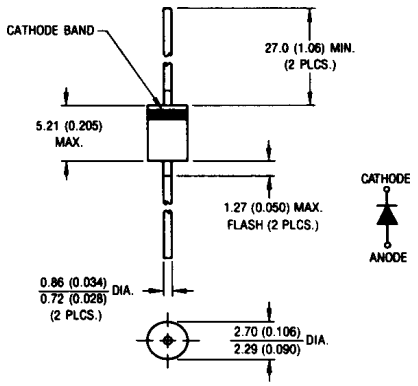
The 1N5818/ 1N5819 axial leaded Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 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

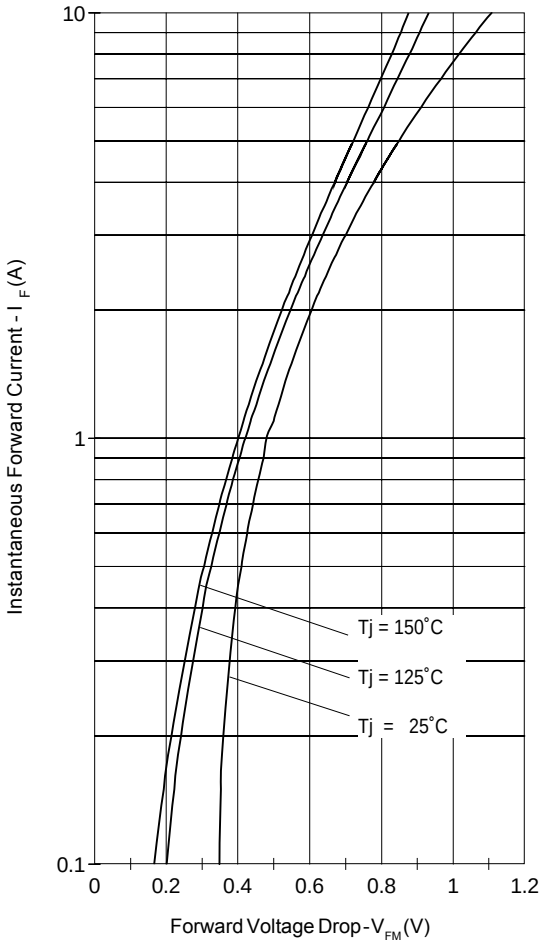


Fig. 1 - Typ. Forward Voltage Drop Characteristics

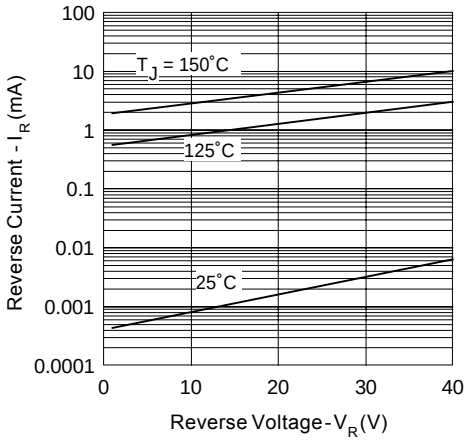


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

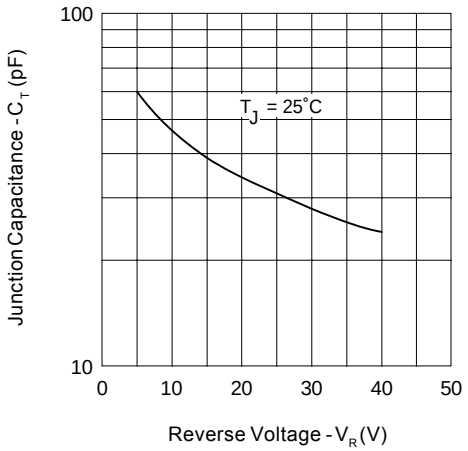


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

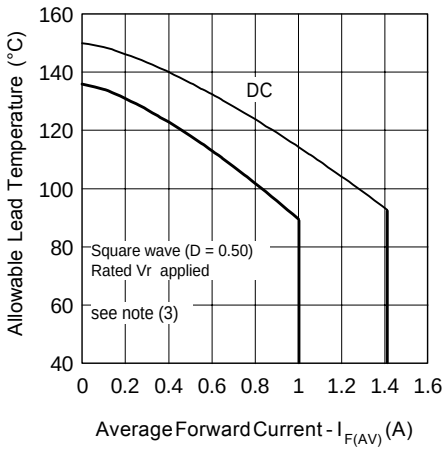


Fig. 4 - Typ. Allowable Lead Temperature Vs. Average Forward Current

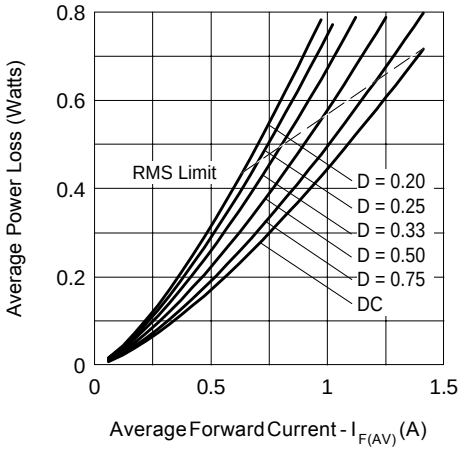


Fig. 5 - Forward Power Loss Characteristics

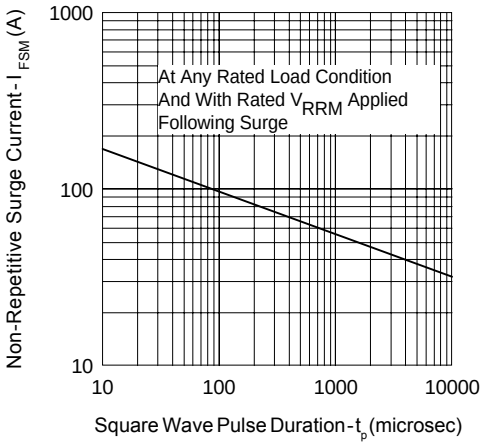


Fig. 6 - Typ. Non-Repetitive Surge Current

(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
IOR Rectifier

IR WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105
TAC Fax: (310) 252-7309
Visit us at www.irf.com for sales contact information. 04/01