

4855452 INTERNATIONAL RECTIFIER

55C 04940 D

Data Sheet No. PD-2.087

T-01-21

INTERNATIONAL RECTIFIER 

**1N1183, 1N3765,  
1N1183A, 1N2128A SERIES**

**35, 40 and 60 Amp Power Silicon Rectifier Diodes**

Major Ratings and Characteristics

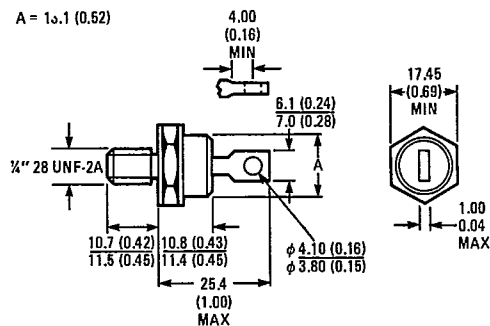
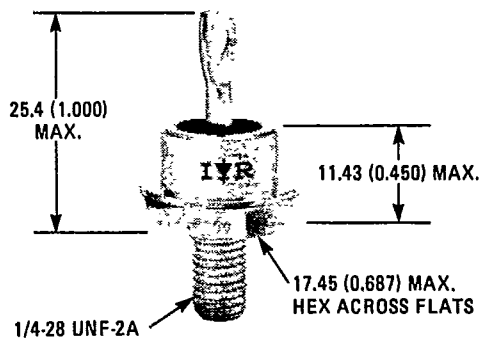
	1N1183	1N3765	1N1183A	1N2128A	Units
$I_F(AV)$	35*	35*	40*	60*	A
@ Max. $T_C$	140*	140*	150*	140*	°C
$I_{FSM}$ @ 50 Hz	480	380	765	860	A
@ 60 Hz	500*	400*	800*	900*	
$I^2t$ @ 50 Hz	1140	730	2900	3700	A <sup>2</sup> s
@ 60 Hz	1040	670	2650	3400	
$R\sqrt{t}$	16 100	10 300	41 000	52 600	A <sup>2</sup> √s
VRRM Range †	50* to 600*	700* to 1000*	50* to 600*	50* to 600*	V

\*JEDEC registered values.

Description and Features

- Low leakage current series
- Good surge current capability up to 1000 amps
- Can be supplied to meet stringent military, aerospace and other high-reliability requirements.

CASE STYLE AND DIMENSIONS



Conforms to JEDEC Outline DO-203AB (DO-5)  
Dimensions in Millimeters and (Inches)

4855452 INTERNATIONAL RECTIFIER

55C 04941 D

1N1183, 1N3765, 1N1183A, 1N2128A Series

INTERNATIONAL RECTIFIER 

T-01-21

VOLTAGE RATINGS

Part Number <sup>①</sup>			V <sub>RRM</sub> - Max. Repetitive Peak Reverse Voltage (V)	V <sub>R</sub> - Max. Direct Reverse Voltage (V)
			T <sub>C</sub> = -65°C to 200°C <sup>②</sup>	T <sub>C</sub> = -65°C to 200°C <sup>②</sup>
1N1183	1N1183A	1N2128A	50*	50*
1N1184	1N1184A	1N2129A	100*	100*
1N1185	1N1185A	1N2130A	150*	150*
1N1186	1N1186A	1N2131A	200*	200*
1N1187	1N1187A	1N2133A	300*	300*
1N1188	1N1188A	1N2135A	400*	400*
1N1189	1N1189A	1N2137A	500*	500*
1N1190	1N1190A	1N2138A	600*	600*
1N3765			700*	700*
1N3766			800*	800*
1N3767			900*	900*
1N3768			1000*	1000*

ELECTRICAL SPECIFICATIONS

	1N1183	1N3765	1N1183A	1N2128A	Units	Conditions
I <sub>F(AV)</sub> Max. average forward current @ Max. T <sub>C</sub>	35*	35*	40*	60*	A	1-phase operation, 180° conduction
	140*	140*	150*	140*	°C	
I <sub>FSM</sub> Max. peak one-cycle non-repetitive surge current	480	380	765	860	A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse Following any rated load condition and with rated V <sub>RRM</sub> applied.
	500*	400*	800*	900*		
	570	455	910	1000	A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse Following any rated load condition and with 1/2 V <sub>RRM</sub> applied following surge = 0
	595	475	950	1050		
I <sup>2</sup> t Max. I <sup>2</sup> t for fusing	1140	730	2800	3700	A <sup>2</sup> s	t = 10ms With rated V <sub>RRM</sub> applied following surge, initial T <sub>J</sub> = T <sub>J</sub> max.
	1040	670	2650	3400		
	1610	1030	4150	5250	A <sup>2</sup> s	t = 10ms With V <sub>RRM</sub> = 0 following surge, initial T <sub>J</sub> = T <sub>J</sub> Max.
	1470	940	3750	4750		
I <sup>2</sup> √t Max. I <sup>2</sup> √t for individual device fusing <sup>③</sup>	16 100	10 300	41 500	52 600	A <sup>2</sup> √s	t = 0.1 to 10 ms, V <sub>RRM</sub> = 0 following surge.
V <sub>FM</sub> Max. peak forward voltage @ I <sub>FM</sub>	1.7*	1.8*	1.3*	1.3*	V	T <sub>J</sub> = 25°C
	110	110	126	188	A	
I <sub>R(AV)</sub> Max. average reverse current	-	5.0*	-	-	mA	Max. rated I <sub>F(AV)</sub> and T <sub>C</sub> , V <sub>RRM</sub> = 700V 800V 900V 1000V
	-	4.0*	-	-		
	-	3.0*	-	-		
	-	2.0*	-	-		
	10*	-	2.5*	10*	mA	Max. rated I <sub>F(AV)</sub> , V <sub>RRM</sub> and T <sub>C</sub> .

① Basic part number indicates cathode-to-case. For anode-to-case, add "R" to part number, i.e., 1N1188R, 1N3766R, 1N1186RA, 1N2135RA

② For 1N1183 series and 1N3765 series T<sub>C</sub> = -65 to 190°C.

③ I<sup>2</sup>t for t<sub>x</sub> = I<sup>2</sup>√t · √t<sub>x</sub>

\* JEDEC registered values.

4855452 INTERNATIONAL RECTIFIER

55C 04942 D



1N1183, 1N3765, 1N1183A, 1N2128A Series

THERMAL-MECHANICAL SPECIFICATIONS

T-01-21

		1N1183	1N3765	1N1183A	1N2128A	Units	Conditions
$T_C$	Max. operating case temperature range	-65 to 190*		-65 to 200		°C	
$T_{stg}$	Max. storage temperature range	-65 to 175*		-65 to 200		°C	
$R_{thJC}$	Max. internal thermal resistance, junction-to-case	1.00*		1.1*	0.65*	deg. C/W	DC operation
$R_{thCS}$	Thermal resistance, case-to-sink	0.25				deg. C/W	Mounting surface flat, smooth, and greased.
T	Mounting torque	Min.	2.3 (20)			Nm (lbf.in)	Non-lubricated threads
		Max.	3.4 (30)				
wt	Approximate weight	17 (0.6)				g (oz)	
Case style		DO-203AB (DO-5)					JEDEC

\*JEDEC registered values.

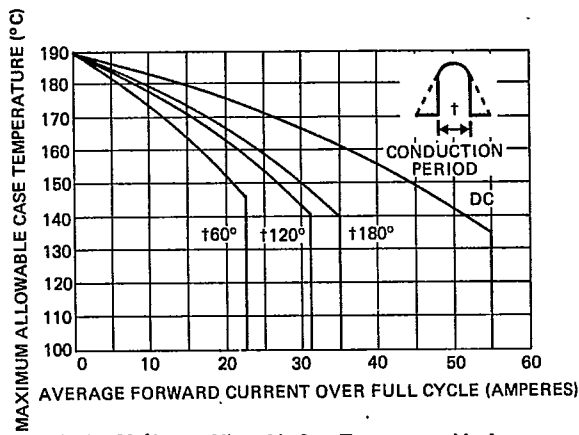


Fig. 1 - Maximum Allowable Case Temperature Vs. Average Forward Current, 1N1183 and 1N3765 Series

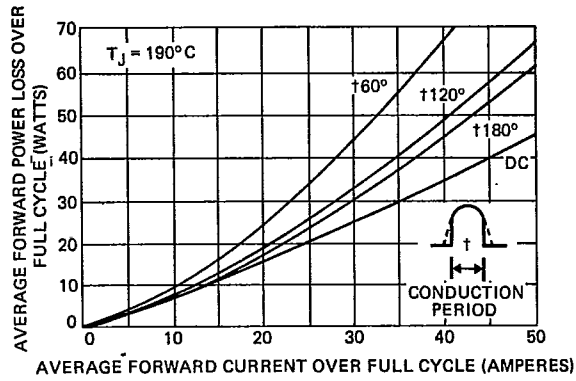


Fig. 2 - Typical Low Level Forward Power Loss Vs. Average Forward Current (Sinusoidal Current Waveform), 1N1183 and 1N3765 Series

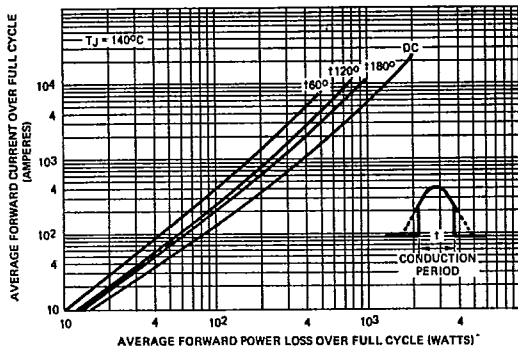


Fig. 3 - Typical High Level Forward Power Loss Vs. Average Forward Current (Sinusoidal Current Waveform), 1N1183 and 1N3765 Series

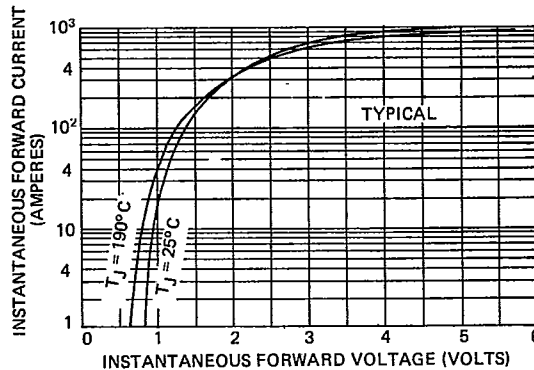


Fig. 4 - Typical Forward Voltage Vs. Forward Current, 1N1183 and 1N3765 Series

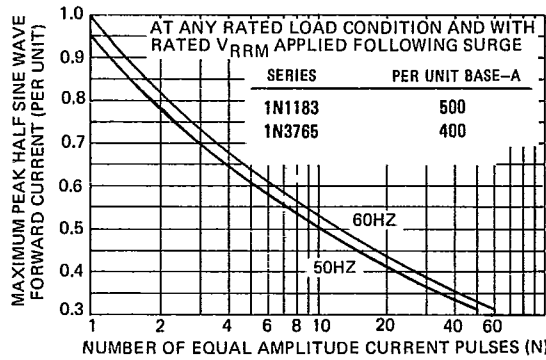
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4855452 INTERNATIONAL RECTIFIER

55C 04943 D

1N1183, 1N3765, 1N1183A, 1N2128A Series

INTERNATIONAL RECTIFIER 



T-01-21

Fig. 5 - Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N1183 and 1N3765 Series

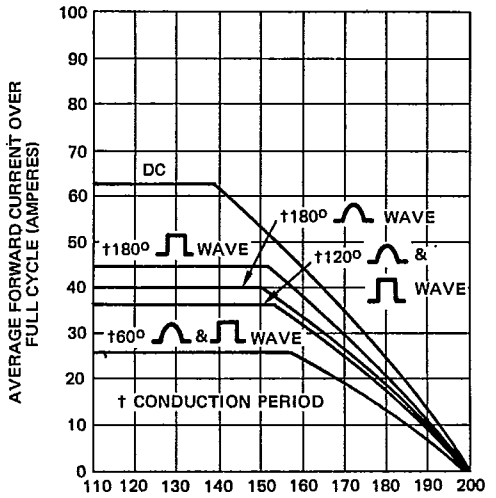


Fig. 6 - Average Forward Current Vs. Maximum Allowable Case Temperature, 1N1183A Series

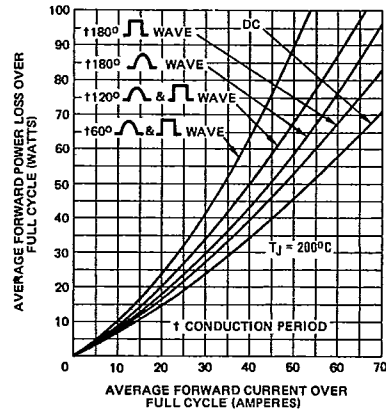


Fig. 7 - Maximum Low Level Forward Power Loss Vs. Average Forward Current, 1N1183A Series

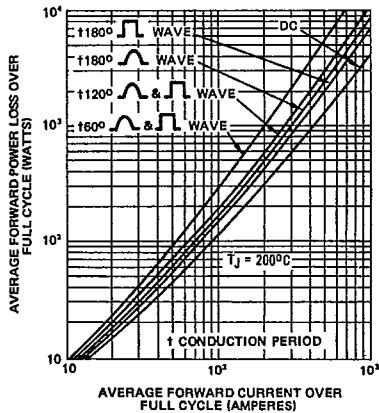


Fig. 8 - Maximum High Level Forward Power Loss Vs. Average Forward Current, 1N1183A Series.

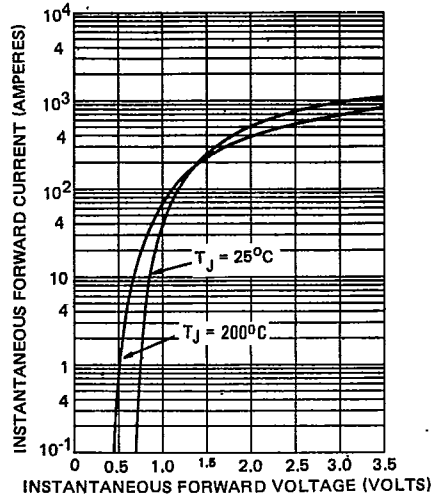


Fig. 9 - Maximum Forward Voltage Vs. Forward Current, 1N1183A Series

4855452 INTERNATIONAL RECTIFIER

55C 04944 D



1N1183, 1N3765, 1N1183A, 1N2128A Series

T-01-21

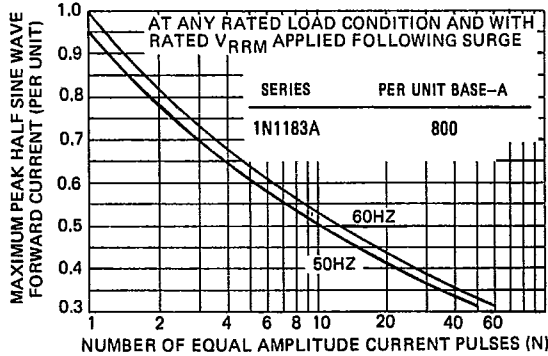


Fig. 10 - Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N1183A Series

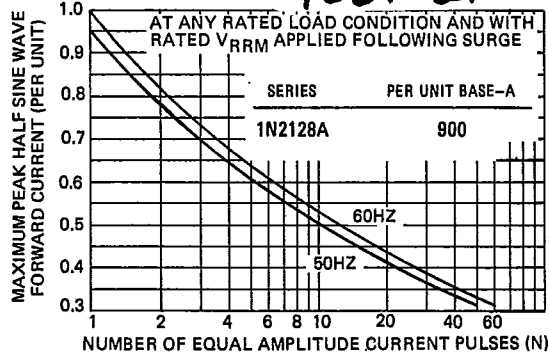


Fig. 11 - Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N2128A Series

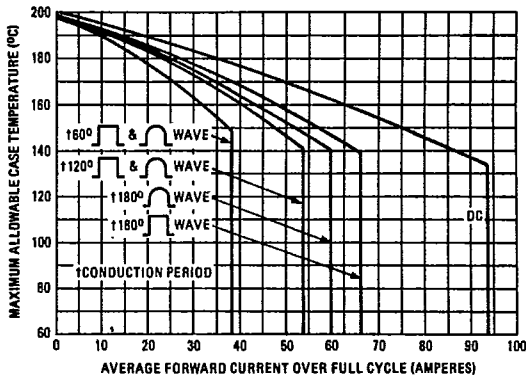


Fig. 12 - Maximum Allowable Case Temperature Vs. Average Forward Current, 1N2128A Series

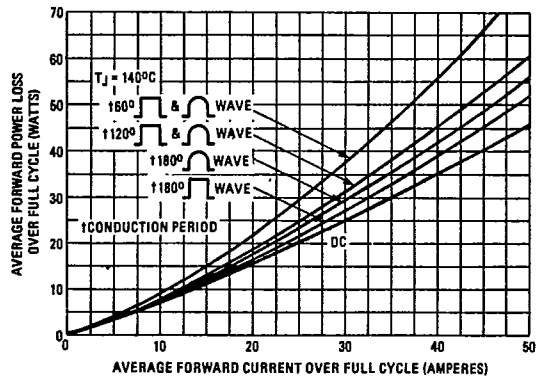


Fig. 13 - Maximum Low Level Forward Power Loss Vs. Average Forward Current, 1N2128A Series

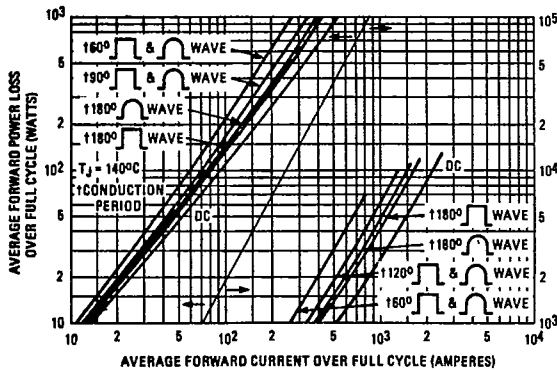


Fig. 14 - Maximum High Level Forward Power Loss Vs. Average Forward Current, 1N2128A Series

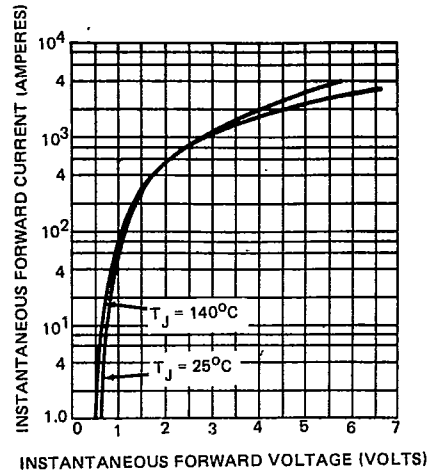


Fig. 15 - Maximum Forward Voltage Vs. Forward Current, 1N2128A Series

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