

INTERNATIONAL RECTIFIER 

Datasheet Directory

**1N1183, 1N3765,  
1N1183A, 1N2128A SERIES****35, 40 and 60 Amp Power Silicon Rectifier Diodes**

## Major Ratings and Characteristics

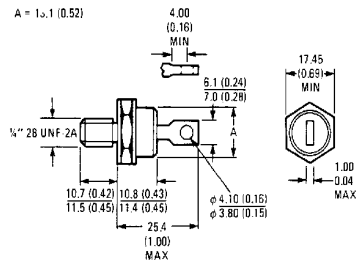
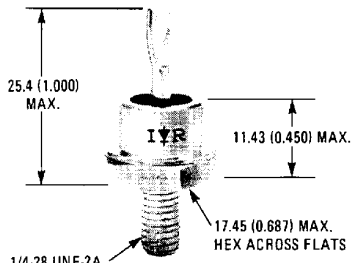
	1N1183	1N3765	1N1183A	1N2128A	Units
$I_{F(AV)}$	35*	35*	40*	60*	A
@ Max. $T_C$	140*	140*	150*	140*	°C
$I_{FSM}$ @ 50 Hz	480	380	765	860	A
@ 60 Hz	500*	400*	800*	900*	
$I^2t$ @ 50 Hz	1140	730	2900	3700	A <sup>2</sup> s
@ 60 Hz	1040	670	2650	3400	
$I_{V}^2/T$	16 100	10 300	41 000	52 500	A <sup>2</sup>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

## VOLTAGE RATINGS

Part Number ①			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 ②	T <sub>C</sub> = –65°C to 200°C ②
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 ½ 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	2900	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		t = 10ms With V <sub>RRM</sub> = 0 following surge, initial T <sub>J</sub> = T <sub>J</sub> Max.
	1610	1030	4150	5250		t = 8.3ms initial T <sub>J</sub> = T <sub>J</sub> Max.
	1470	940	3750	4750		t = 0.1 to 10 ms, V <sub>RRM</sub> = 0 following surge.
I <sub>F</sub> √t Max. I <sub>F</sub> √t for individual device fusing ③	16 100	10 300	41 500	52 500	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, 1N3768R, 1N1188RA, 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<sub>x</sub> · √t<sub>x</sub>

\* JEDEC registered values.

**ELECTRICAL SPECIFICATIONS (Continued)**

	1N1199A 1N3670A	Units	Conditions	
$I_{R(AV)}$ Max. average reverse current (Continued)  $V_{RRM} = 400$	1.5*	mA	Max. rated $I_{F(AV)}$ and $T_C$  Note: Max. peak reverse current, $I_{RM}$ , under same conditions $\approx 2 \times$ rated $I_{R(AV)}$ .	
	= 500			1.25*
	= 600			1.0*
	= 700			0.9*
	= 800			0.8*
	= 900			0.7*
	= 1000			0.6*

**THERMAL-MECHANICAL SPECIFICATIONS**

$T_C$	Max. operating case temperature range	-65* to 200*	°C		
$T_{stg}$	Max. storage temperature range	-65* to 200*	°C		
$R_{thJC}$	Max. internal thermal resistance, junction-to-case	2.0*	deg. C/W	DC operation	
$R_{thCS}$	Thermal resistance, case-to-sink	0.5	deg. C/W	Mounting surface flat, smooth, and greased.	
T	Mounting torque	Min.	1.36 (12)	N · m (lbf·in)	Torque applied to nut. Non-lubricated threads.
		Max.	1.69 (15)		
		Min.	1.07 (9.45)		Torque applied to nut. Lubricated threads.
		Max.	1.30 (11.55)		
		Min.	1.17 (10.35)		Torque applied to device case. Lubricated threads.
		Max.	1.43 (12.65)		
wt	Approximate weight	7.0 (0.25)	g (oz.)		
	Case style	DO-203AA (DO-4)		JEDEC	

\*JEDEC registered value.

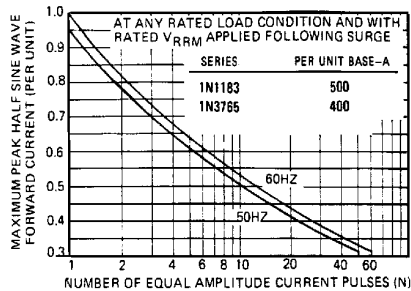


Fig. 5 - Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N1183 and 1N3765 Series

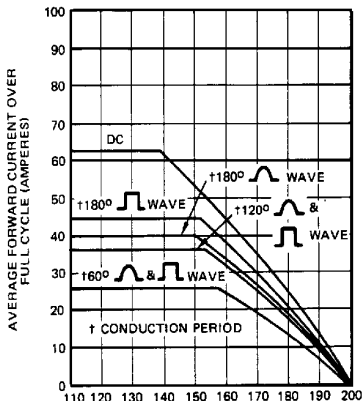


Fig. 6 - Average Forward Current Vs. Maximum Allowable Case Temperature, 1N1183A Series

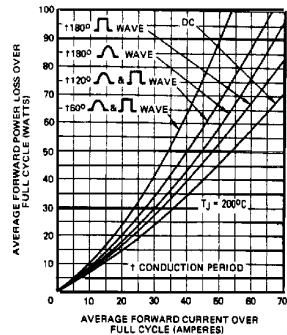


Fig. 7 - Maximum Low Level Forward Power Loss Vs. Average Forward Current, 1N1183A Series

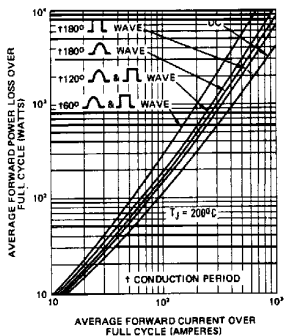


Fig. 8 - Maximum High Level Forward Power Loss Vs. Average Forward Current, 1N1183A Series.

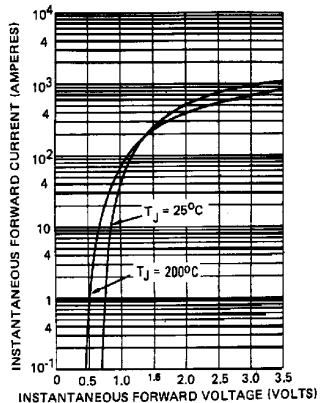


Fig. 9 - Maximum Forward Voltage Vs. Forward Current, 1N1183A Series

