

INTERNATIONAL RECTIFIER

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

35, 40 and 60 Amp Power Silicon Rectifier Diodes

Major Ratings and Characteristics

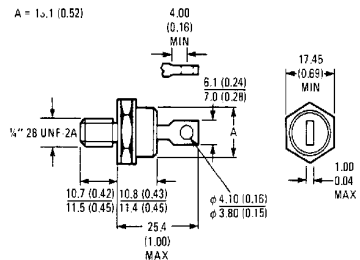
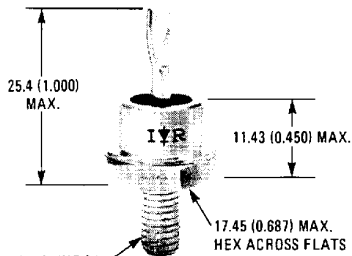
	1N1183	1N3765	1N1183A	1N2128A	Units
$I_{F(AV)}$	35*	35*	40*	60*	A
@ Max. T_C	140*	140*	150*	140*	°C
I_{FSM} @ 50 Hz	480	380	765	860	A
@ 60 Hz	500*	400*	800*	900*	
I^2t @ 50 Hz	1140	730	2900	3700	A ² s
@ 60 Hz	1040	670	2650	3400	
I^2t/T	16 100	10 300	41 000	52 500	A ² /s
V_{RRM} Range	50* to 800*	700* 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 _{RRM} – Max. Repetitive Peak Reverse Voltage (V)	V _R – Max. Direct Reverse Voltage (V)
			T _C = –65°C to 200°C ②	T _C = –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 _{F(AV)} Max. average forward current @ Max. T _C	35*	35*	40*	60*	A	1-phase operation, 180° conduction
	140*	140*	150*	140*	°C	
I _{FSM} 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 _{RRM} 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 _{RRM} applied following surge = 0
	595	475	950	1050		
I ² t Max. I ² t for fusing	1140	730	2900	3700	A ² s	t = 10ms With rated V _{RRM} applied following surge, initial T _J = T _J max.
	1040	670	2650	3400		t = 10ms With V _{RRM} = 0 following surge, initial T _J = T _J Max.
	1610	1030	4150	5250		t = 8.3ms
	1470	940	3750	4750		t = 0.1 to 10 ms, V _{RRM} = 0 following surge.
I _F √t Max. I _F √t for individual device fusing ③	16 100	10 300	41 500	52 500	A ² √s	t = 0.1 to 10 ms, V _{RRM} = 0 following surge.
	1.7*	1.8*	1.3*	1.3*	V	T _J = 25°C
V _{FM} Max. peak forward voltage @ I _{FM}	110	110	126	188	A	
	–	5.0*	–	–	mA	Max. rated I _{F(AV)} and T _C , V _{RRM} = 700V 800V 900V 1000V
–	4.0*	–	–			
–	3.0*	–	–			
–	2.0*	–	–			
I _{R(AV)} Max. average reverse current	10*	–	2.5*	10*	mA	Max. rated I _{F(AV)} , V _{RRM} and T _C

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_C = –65 to 190°C.

③ I²t for t_x = I²√t_x · √t_x

* JEDEC registered values.

THERMAL-MECHANICAL SPECIFICATIONS

		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)
		Max.	3.4 (30)				
wt	Approximate weight			17 (0.6)		g (oz)	
	Case style			DO-203AB (DO-5)			JEDEC

*JEDEC registered values.

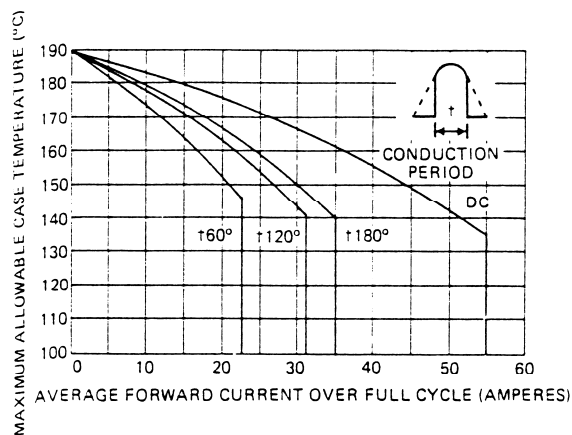


Fig. 1 — Maximum Allowable Case Temperature Vs. Average Forward Current, 1N1183 and 1N3765 Series

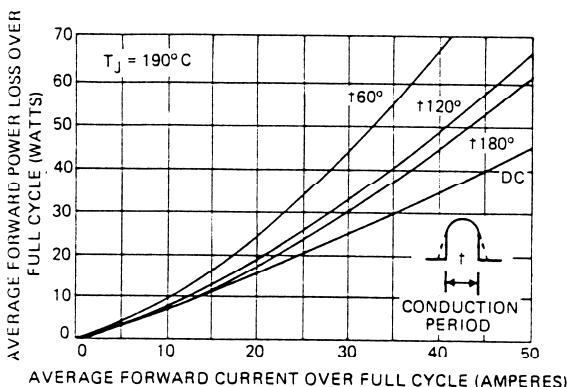


Fig. 2 — Typical Low Level Forward Power Loss Vs. Average Forward Current (Sinusoidal Current Waveform), 1N1183 and 1N3765 Series

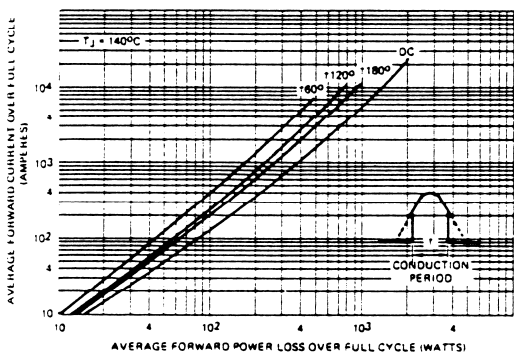


Fig. 3 — Typical High Level Forward Power Loss Vs. Average Forward Current (Sinusoidal Current Waveform), 1N1183 and 1N3765 Series

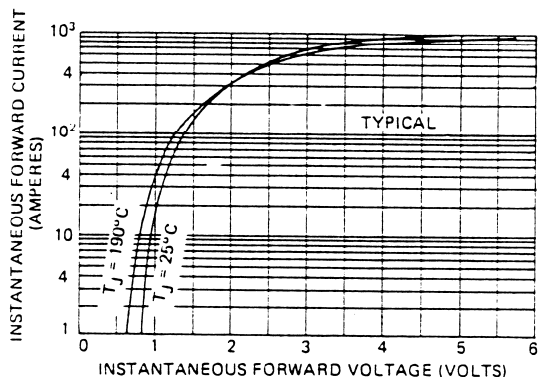


Fig. 4 — Typical Forward Voltage Vs. Forward Current, 1N1183 and 1N3765 Series

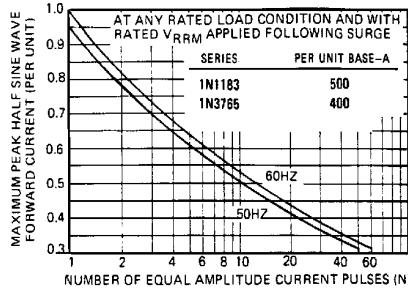


Fig. 5 - Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N1183 and 1N3765 Series

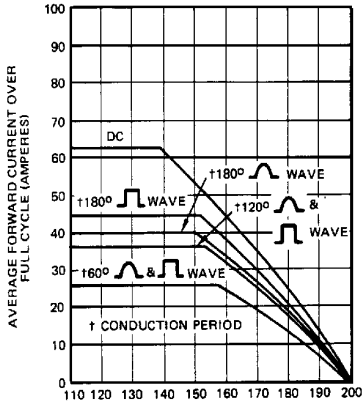


Fig. 6 - Average Forward Current Vs. Maximum Allowable Case Temperature, 1N1183A Series

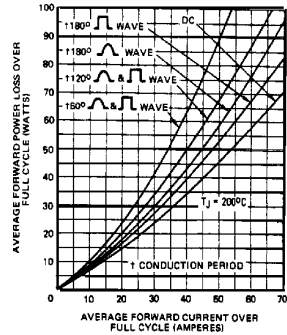


Fig. 7 - Maximum Low Level Forward Power Loss Vs. Average Forward Current, 1N1183A Series

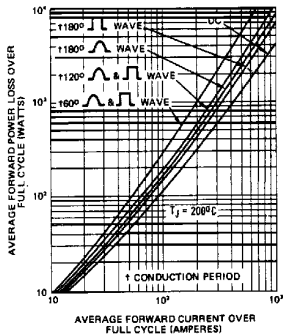


Fig. 8 - Maximum High Level Forward Power Loss Vs. Average Forward Current, 1N1183A Series.

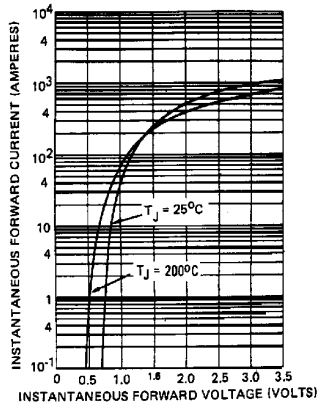


Fig. 9 - Maximum Forward Voltage Vs. Forward Current, 1N1183A Series

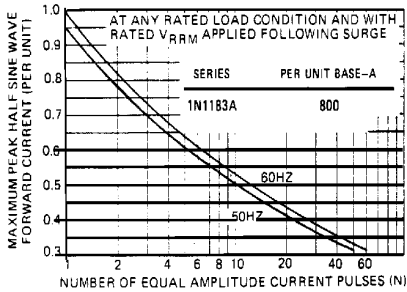


Fig. 10 - Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N1183A Series

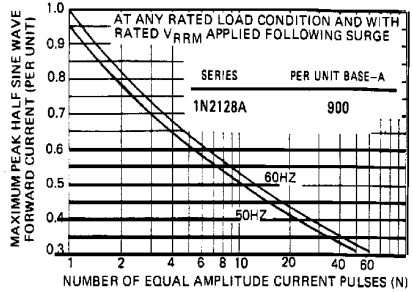


Fig. 11 - Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N2128A Series

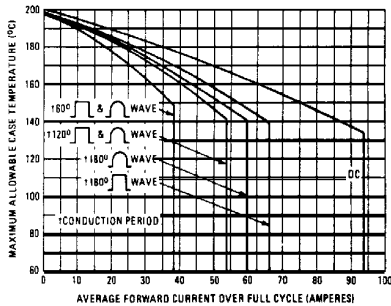


Fig. 12 - Maximum Allowable Case Temperature Vs. Average Forward Current, 1N2128A Series

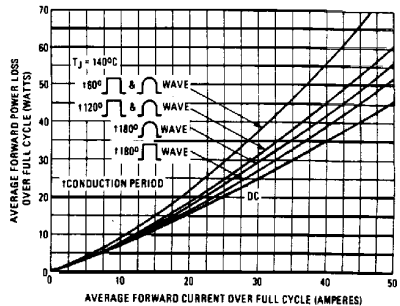


Fig. 13 - Maximum Low Level Forward Power Loss Vs. Average Forward Current, 1N2128A Series

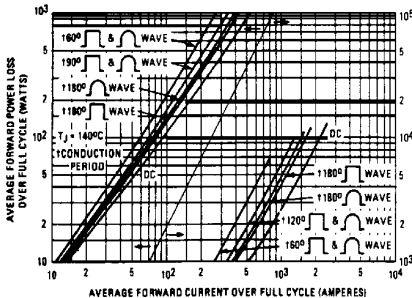


Fig. 14 - Maximum High Level Forward Power Loss Vs. Average Forward Current, 1N2128A Series

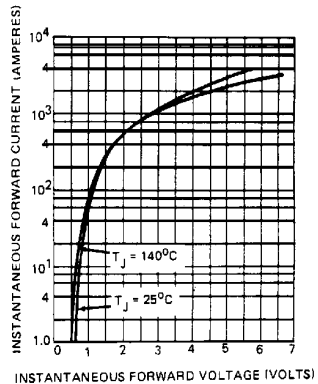


Fig. 15 - Maximum Forward Voltage Vs. Forward Current, 1N2128A Series