INTERNATIONAL RECTIFIER IOR

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

35, 40 and 60 Amp Power Silicon Rectifier Diodes

Major Ratings and Characteristics

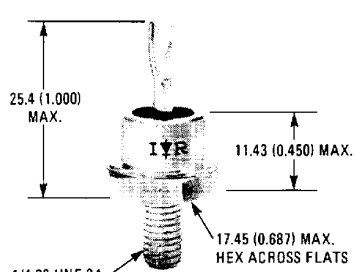
		1N1183	1N3765	1N1183A	1N2128A	Units
$I_{F(AV)}$		35*	35*	40*	60*	A
@ Max. T_C		140*	140*	150*	140*	°C
I_{FSM}	@ 50 Hz	480	380	765	860	A
	@ 60 Hz	500*	400*	800*	900*	
I^2t	@ 50 Hz	1140	730	2900	3700	A^2s
	@ 60 Hz	1040	670	2650	3400	
$I^2\sqrt{t}$		16 100	10 300	41 000	52 500	$A^2\sqrt{s}$
V_{RRM} Range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

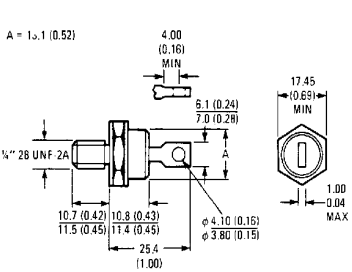
*JEDEC registered values.

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 Number①			V_{RRM} – Max. Repetitive Peak Reverse Voltage (V)	V_R – Max. Direct Reverse Voltage (V)
			T_C = –65°C to 200°C②	T_C = –65°C to 200°C②
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*		Half cycle 60 Hz sine wave or 5 ms rectangular pulse
		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		Half cycle 60 Hz sine wave or 5 ms rectangular pulse
I^2t	Max. I^2t for fusing	1140	730	2900	3700	A^2s	t = 10ms With rated V_{RRM} applied following
		1040	670	2650	3400		t = 8.3ms surge, initial $T_J = T_J$ max.
	Max. I^2t for individual device fusing	1610	1030	4150	5250		t = 10ms With V_{RRM} = 0 following surge,
		1470	940	3750	4750		t = 8.3ms initial $T_J = T_J$ Max.
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ for individual device fusing③	16 100	10 300	41 500	52 500	$A^2\sqrt{s}$	t = 0.1 to 10 ms, V_{RRM} = 0 following surge.
V_{FM}	Max. peak forward voltage	1.7*	1.8*	1.3*	1.3*	V	T_J = 25°C
	@ I_{FM}	110	110	126	188	A	
$I_{R(AV)}$	Max. average reverse current	–	5.0*	–	–	mA	Max rated $I_{F(AV)}$ and T_C, V_{RRM} = 700V
		–	4.0*	–	–		800V
		–	3.0*	–	–		900V
		–	2.0*	–	–		1000V
		10*	–	2.5*	10*	mA	Max. rated $I_{F(AV)}$, V_{RRM} and T_C.

①Basic part number indicates cathode-to-case. For anode-to-case, add "R" to part number, i.e., 1N1188R, 1N3766R, 1N1186RA, 1N2135RA
②For 1N1183 series and 1N3765 series T_C = –65 to 190°C.
③I^2t for $t_x = I^2\sqrt{t} \cdot \sqrt{t_x}$.

* JEDEC registered values.

ELECTRICAL SPECIFICATIONS (Continued)

		1N1199A 1N3670A	Units	Conditions
$I_{R(AV)}$	Max. average reverse current (Continued)			
	V_{RRM} = 400	1.5*		
	= 500	1.25*		Max. rated $I_{F(AV)}$ and T_C
	= 600	1.0*	mA	Note: Max. peak reverse current, I_{RM}, under
	= 700	0.9*		same conditions ≈ 2 x rated $I_{R(AV)}$.
	= 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			N • m (lbf-in)	
		Min.	1.36 (12)		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.

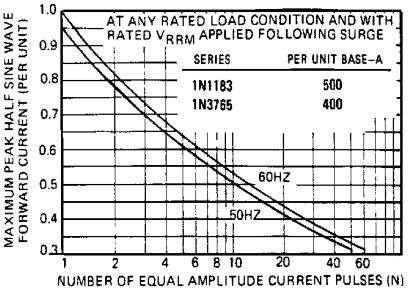


Fig. 5 – Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N1183 and 1N3765 Series

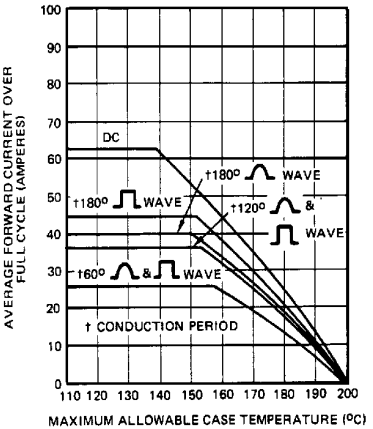


Fig. 6 – Average Forward Current Vs. Maximum Allowable Case Temperature, 1N1183A Series

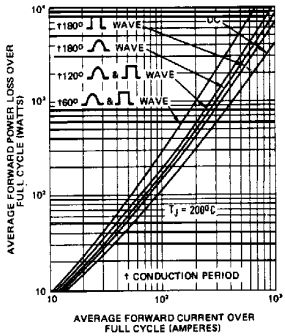


Fig. 8 – Maximum High Level Forward Power Loss Vs. Average Forward Current, 1N1183A Series.

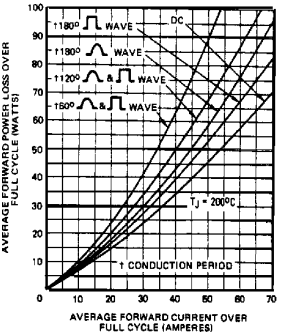


Fig. 7 – Maximum Low Level Forward Power Loss Vs. Average Forward Current, 1N1183A Series

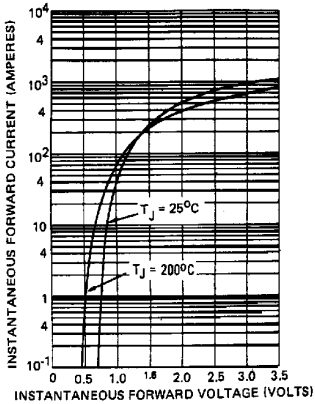


Fig. 9 – Maximum Forward Voltage Vs. Forward Current, 1N1183A Series

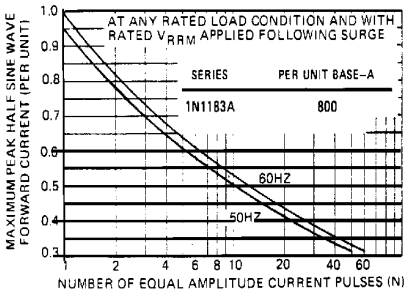


Fig. 10 – Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N1183A Series

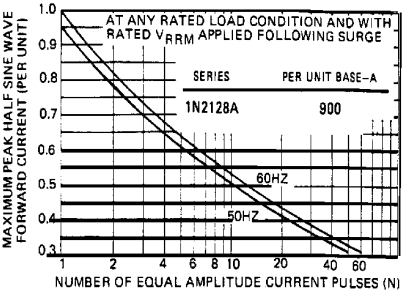


Fig. 11 – Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, 1N2128A Series

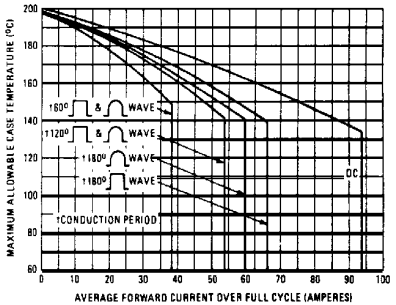


Fig. 12 – Maximum Allowable Case Temperature Vs. Average Forward Current, 1N2128A Series

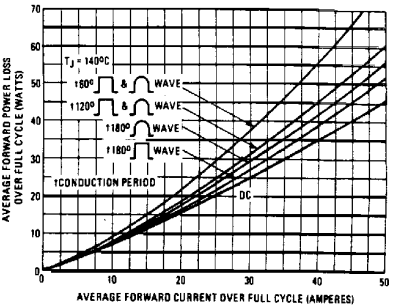


Fig. 13 – Maximum Low Level Forward Power Loss Vs. Average Forward Current, 1N2128A Series

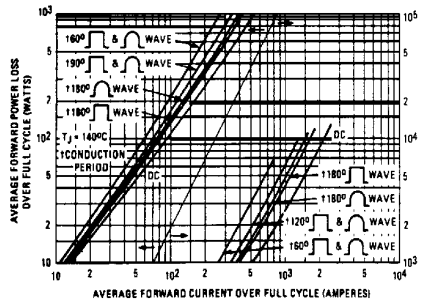


Fig. 14 – Maximum High Level Forward Power Loss Vs. Average Forward Current, 1N2128A Series

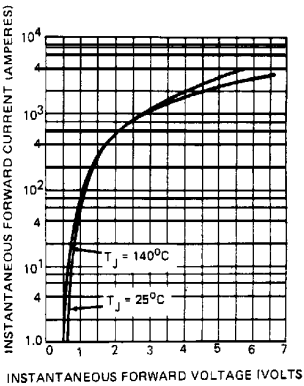


Fig. 15 – Maximum Forward Voltage Vs. Forward Current, 1N2128A Series