



## A1A:500.XX

### VOLTAGE RATINGS

Part Number	V <sub>RRM</sub> , V <sub>R</sub> (V) Max. rep. peak reverse voltage		V <sub>RSM</sub> , V <sub>R</sub> (V) Max. non-rep. peak reverse voltage
	T <sub>J</sub> = 0 to 200°C	T <sub>J</sub> = -40 to 0°C	T <sub>J</sub> = 25 to 200°C
A1A:500.02	200	200	300
A1A:500.04	400	400	500
A1A:500.06	600	600	700
A1A:500.08	800	800	900

This datasheet applies to:

**Metric thread: A1A:500.XX,  
A1B:500.XX**

**Inch thread: A2A:500.XX,  
A2B:500.XX**

### MAXIMUM ALLOWABLE RATINGS

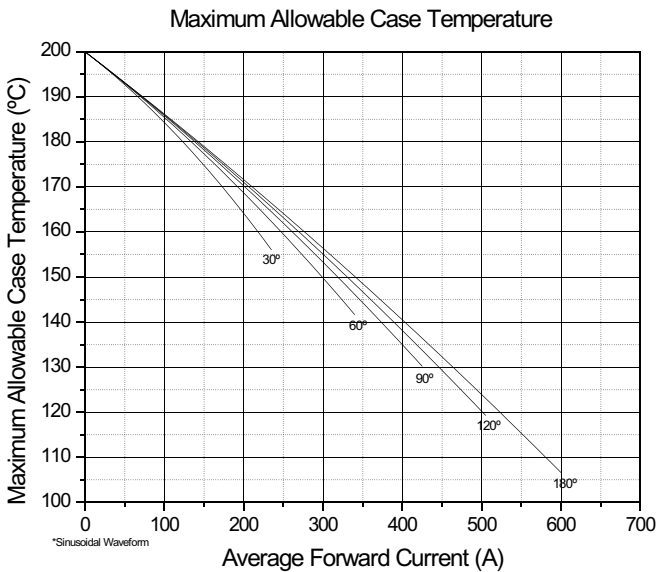
PARAMETER	VALUE	UNITS	NOTES
T <sub>J</sub> Junction Temperature	-40 to 200	°C	-
T <sub>stg</sub> Storage Temperature	-40 to 200	°C	-
I <sub>F(AV)</sub> Max. Av. current @ Max. T <sub>C</sub>	500	A	180° half sine wave
	125	°C	
I <sub>F(RMS)</sub> Nom. RMS current	950	A	-
I <sub>FSM</sub> Max. Peak non-rep. surge current	10900	A	50 Hz half cycle sine wave Initial T <sub>J</sub> = 200°C, rated V <sub>RRM</sub> applied after surge.
	11450		60 Hz half cycle sine wave
	13000		50 Hz half cycle sine wave Initial T <sub>J</sub> = 200°C, no voltage applied after surge.
	13600		60 Hz half cycle sine wave
I <sup>2</sup> t Max. I <sup>2</sup> t capability	546	kA <sup>2</sup> s	t = 10ms Initial T <sub>J</sub> = 200°C, rated V <sub>RRM</sub> applied after surge.
	598		t = 8.3 ms
	772		t = 10ms Initial T <sub>J</sub> = 200°C, no voltage applied after surge.
	845		t = 8.3 ms
I <sup>2</sup> t <sup>1/2</sup> Max. I <sup>2</sup> t <sup>1/2</sup> capability	8450	kA <sup>2</sup> s <sup>1/2</sup>	Initial T <sub>J</sub> = 200°C, no voltage applied after surge. I <sup>2</sup> t for time t <sub>x</sub> = I <sup>2</sup> t <sup>1/2</sup> * t <sub>x</sub> <sup>1/2</sup> . (0.1 < t <sub>x</sub> < 10ms).
F Mounting Force	30(~267)	N.m(Lbf.in)	-



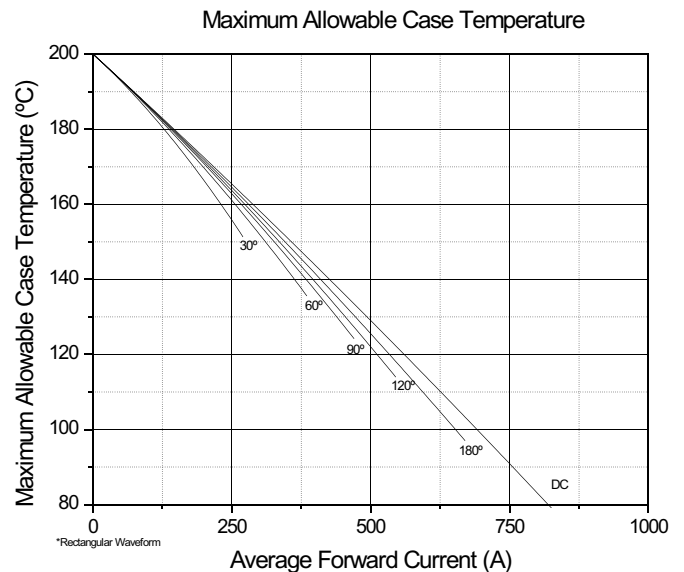
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## CHARACTERISTICS

PARAMETER	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
$V_{FM}$ Peak forward voltage	---	1.07	1.15	V	Initial $T_J = 25^\circ\text{C}$ , sinusoidal wave, $I_{peak} = 1571\text{A}$ .
$V_{F(TO)}$ Threshold voltage	---	---	0.68	V	$T_J = 200^\circ\text{C}$ , Av. Power = $V_{F(TO)} * I_{F(AV)} + r_F * [I_{F(RMS)}]^2$ , sine.
$r_{F1}$ Forward slope resistance	---	---	0.07	m	Use low values for $I_{FM} < I_{F(AV)}$
$I_{RM}$ Peak reverse current	---	30	40.00	mA	$T_J = 200^\circ\text{C}$ . Max. Rated $V_{RRM}$
$R_{thJC}$ Thermal resistance, junction-to-case	---	---	0.20	$^\circ\text{C/W}$	DC operation
	---	---	0.20	$^\circ\text{C/W}$	180° sine wave
	---	---	0.24	$^\circ\text{C/W}$	120° rectangular wave
$R_{thCS}$ Thermal resistance, case-to-sink	---	---	0.03	$^\circ\text{C/W}$	Mtg. Surface smooth, flat and greased. Single side.
wt Weight	---	250(8.75)	---	g(oz.)	---
Case Style	DO-205AB (DO-9)			JEDEC	---



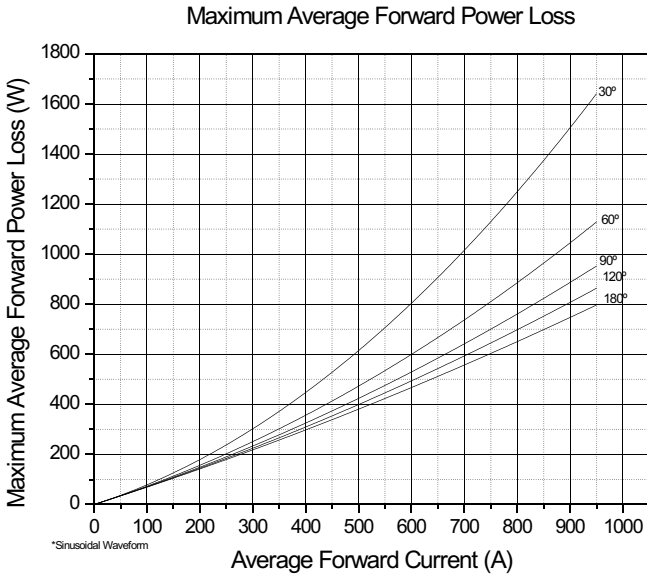
**Fig. 1 - Current Ratings Characteristics**



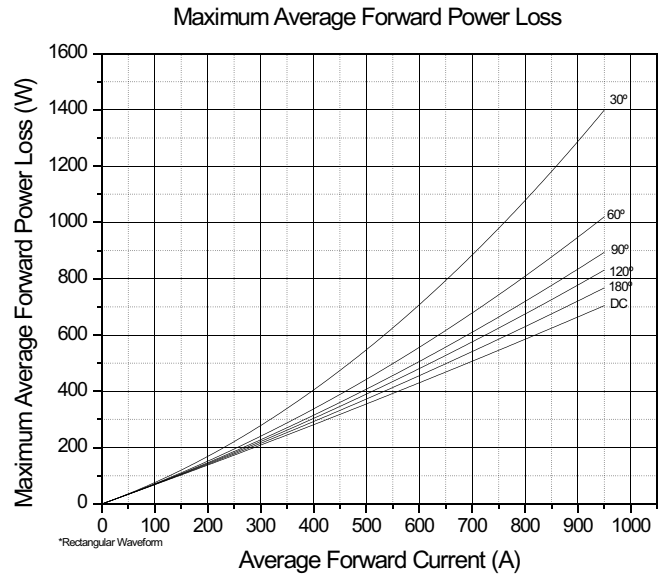
**Fig. 2 - Current Ratings Characteristics**



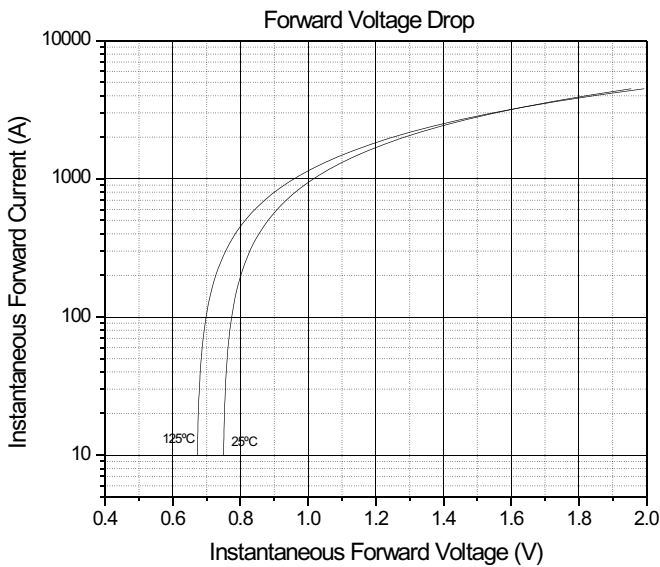
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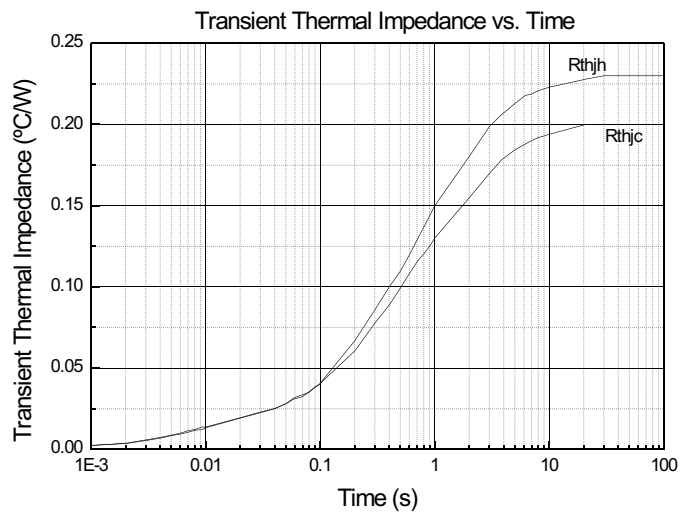
**Fig. 3 - Forward Power Loss Characteristics**



**Fig. 4 - Forward Power Loss Characteristics**



**Fig. 5 - Forward Voltage Drop Characteristics**

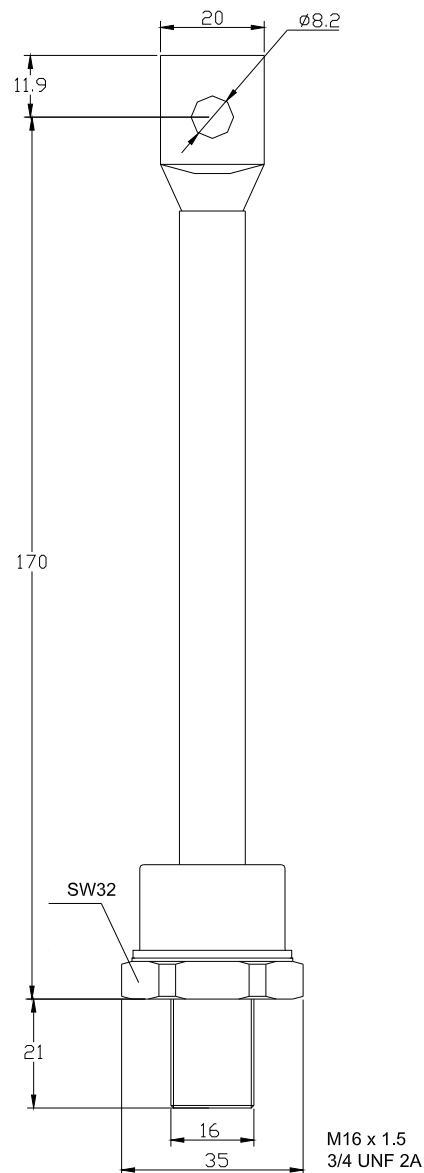


**Fig. 6 - Transient Thermal Impedance Characteristics**



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**DO-205AB (DO-9)**



**Fig. 7 - Outline Characteristics**