



## A1C:300S.XX.10

### 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 150°C	T <sub>J</sub> = -40 to 0°C	T <sub>J</sub> = 25 to 150°C
	A1C:300S.02.10	200	200
A1C:300S.04.10	400	400	500
A1C:300S.06.10	600	600	700
A1C:300S.08.10	800	800	900
A1C:300S.10.10	1000	1000	1100
A1C:300S.12.10	1200	1200	1300
A1C:300S.14.10	1400	1400	1500
A1C:300S.16.10	1600	1600	1700

This datasheet applies to:

**Metric thread: A1C:300S.XX.10,  
A1D:300S.XX.10**

**Inch thread: A2C:300S.XX.10,  
A2D:300S.XX.10**

### MAXIMUM ALLOWABLE RATINGS

PARAMETER	VALUE	UNITS	NOTES
T <sub>J</sub> Junction Temperature	-40 to 150	°C	-
T <sub>stg</sub> Storage Temperature	-40 to 150	°C	-
I <sub>F(AV)</sub> Max. Av. current @ Max. T <sub>C</sub>	300	A	180° half sine wave
	100	°C	
I <sub>F(RMS)</sub> Nom. RMS current	470	A	-
I <sub>FSM</sub> Max. Peak non-rep. surge current	8.89	kA	50 Hz half cycle sine wave Initial T <sub>J</sub> = 125°C, rated V <sub>RRM</sub> applied after surge.
	9.69		60 Hz half cycle sine wave
	10.14		50 Hz half cycle sine wave Initial T <sub>J</sub> = 125°C, no voltage applied after surge.
	11.05		60 Hz half cycle sine wave
I <sup>2</sup> t Max. I <sup>2</sup> t capability	411	kA <sup>2</sup> s	t = 10ms Initial T <sub>J</sub> = 125°C, rated V <sub>RRM</sub> applied after surge.
	448		t = 8.3 ms
	469		t = 10ms Initial T <sub>J</sub> = 125°C, no voltage applied after surge.
	511		t = 8.3 ms
I <sup>2</sup> t <sup>1/2</sup> Max. I <sup>2</sup> t <sup>1/2</sup> capability	5610	A <sup>2</sup> s <sup>1/2</sup>	Initial T <sub>J</sub> = 125°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> /2. (0.1 < t <sub>x</sub> < 10ms).
I <sub>RRM</sub> Maximum peak reverse current at rated V <sub>RRM</sub> .	1.3	mA	T <sub>J</sub> = 25°C
I <sub>RM</sub> Peak reverse recovery current	50	A	
I <sub>FM</sub> Peak forward current	300	A	
di/dt Max. Non-repetitive rate-of-rise current	50	A/μs	T <sub>J</sub> = 25°C, V <sub>D</sub> = V <sub>DRM</sub> , I <sub>FM</sub> = 300A.
F Mounting Force	60	N.m	-



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### CHARACTERISTICS

PARAMETER	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
$V_{FM}$ peak on-state voltage	---	---	1.75	V	Initial $T_J = 25^\circ\text{C}$ , 50-60Hz half sine, $I_{peak} = 943\text{A}$ .
$V_{F(TO)}$ Threshold voltage	---	---	0.8	V	$T_J = 150^\circ\text{C}$
$r_F$ Slope resistance	---	---	1.5	$\text{m}\Omega$	
$t_{tr}$ Maximum reverse recovery time	---	---	1000	ns	$T_J = 25^\circ\text{C}$ , $I_F = 1\text{A}$ to $V_R = 30\text{V}$ , $-dI_F/dt = 25\text{A}/\mu\text{s}$
	---	---	2000		$T_J = 25^\circ\text{C}$ , $-dI_F/dt = 25\text{A}/\mu\text{s}$ , $I_{FM} = \pi \times \text{rated } I_{F(Av)}$ .
$R_{thJC}$ Thermal resistance, junction-to-case	---	---	0.15	$^\circ\text{C}/\text{W}$	DC operation
$R_{thCS}$ Thermal resistance, case-to-sink	---	---	0.015	$^\circ\text{C}/\text{W}$	Mtg. Surface smooth, flat and greased. Single side cooled.
wt Weight	---	500(17.5)	---	g(oz.)	---
Case Style	---	DO-205AD (DO-13)	JEDEC	---	---

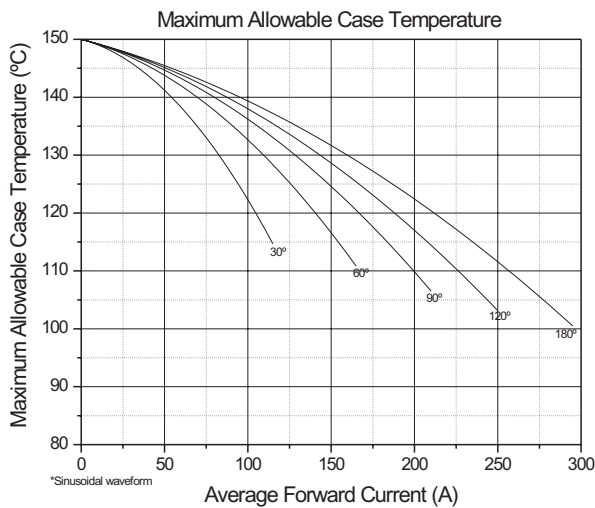


Fig. 1 - Current Ratings Characteristics

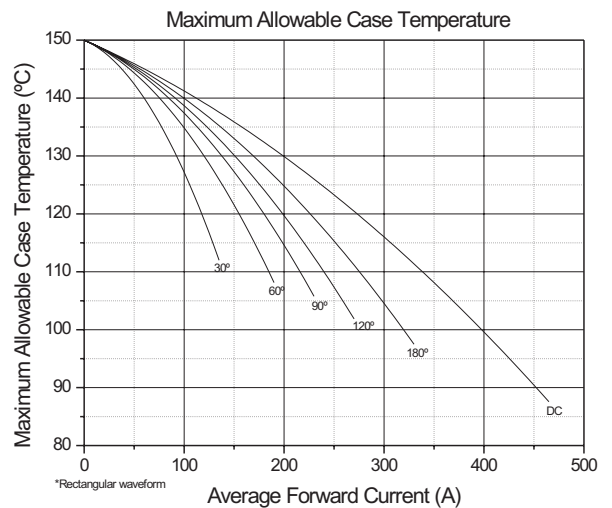


Fig. 2 - Current Ratings Characteristics



Fig. 3 - Forward Power Loss Characteristics

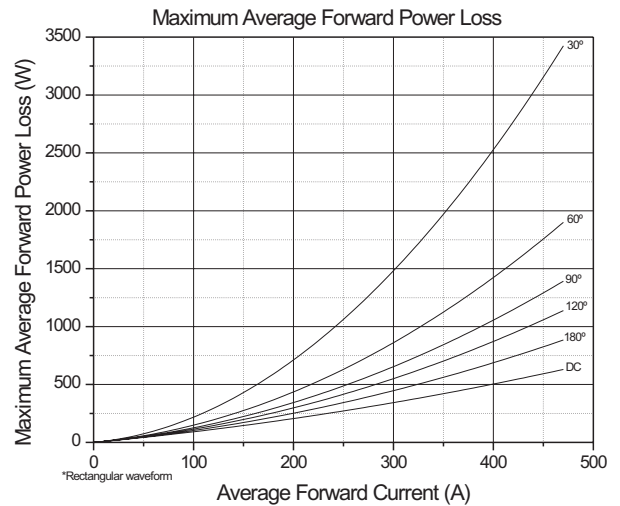


Fig. 4 - Forward Power Loss Characteristics



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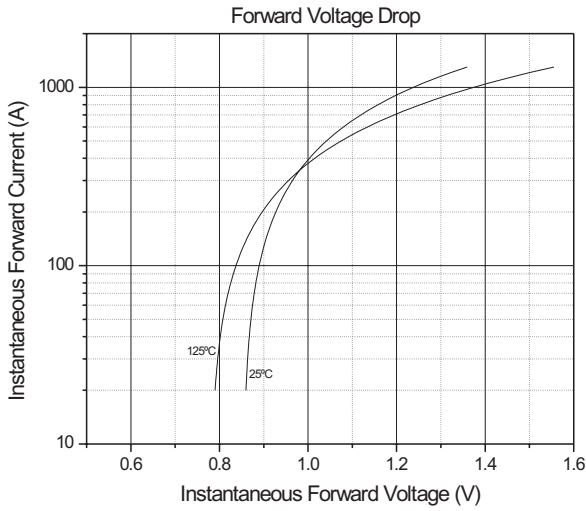


Fig. 5 - Forward Voltage Drop Characteristics

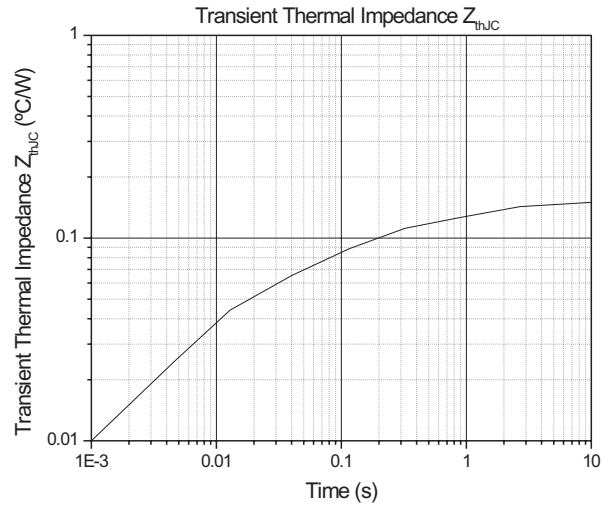


Fig. 6 - Transient Thermal Impedance Characteristics

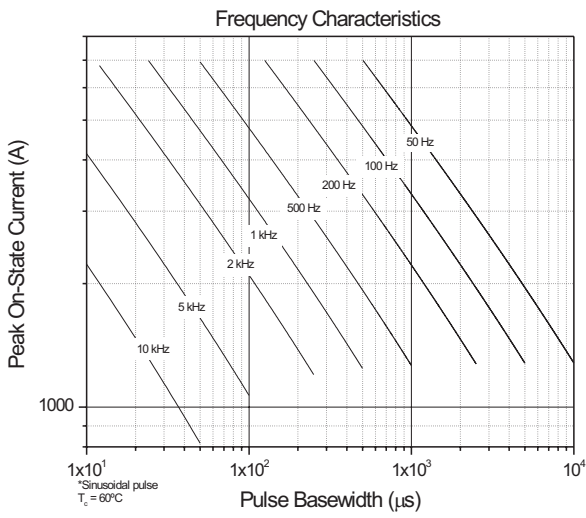


Fig. 7 - Frequency Characteristics

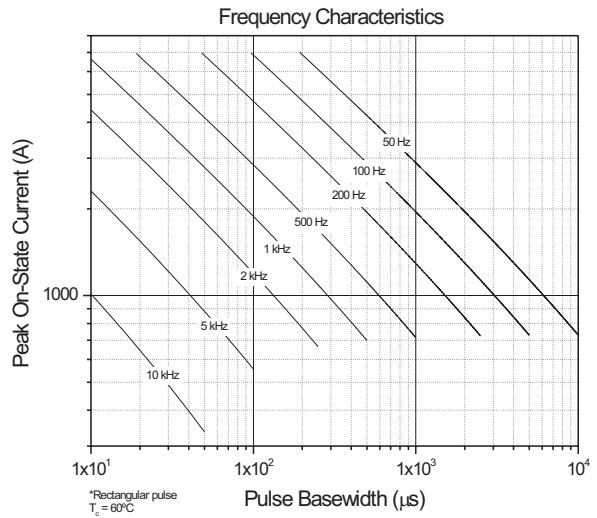


Fig. 8 - Frequency Characteristics

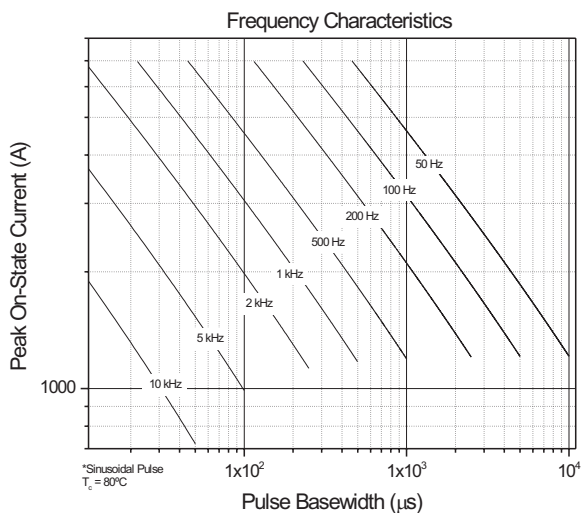


Fig. 9 - Frequency Characteristics

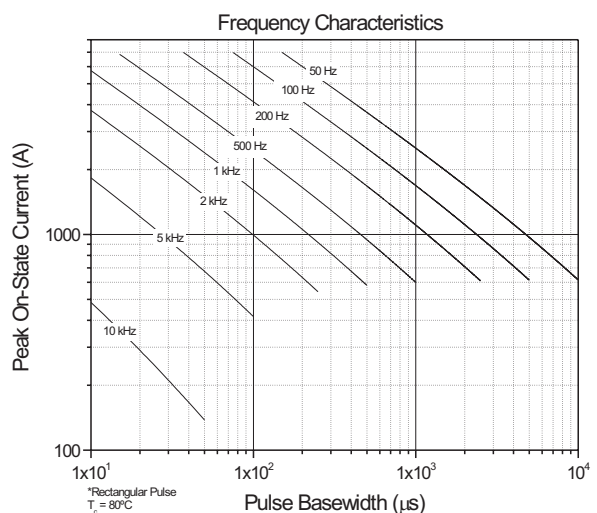


Fig. 10 - Frequency Characteristics



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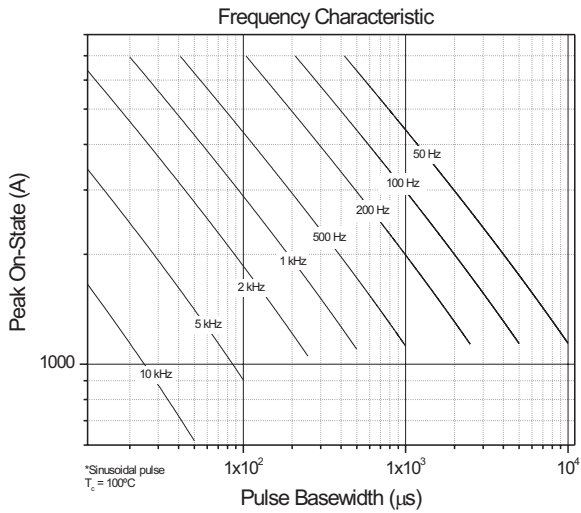


Fig. 11 - Frequency Characteristics

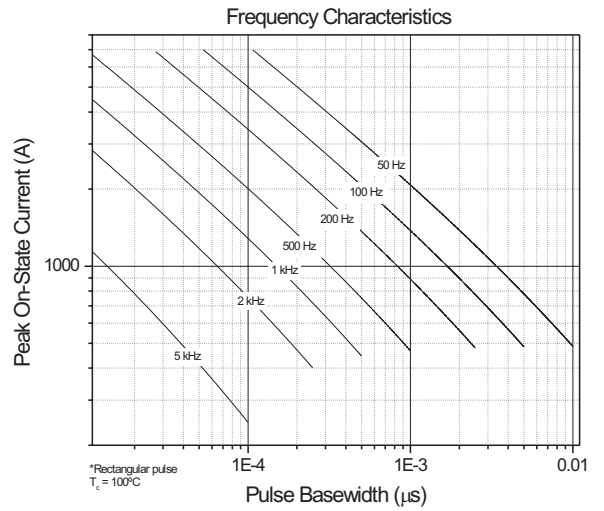


Fig. 12 - Frequency Characteristics

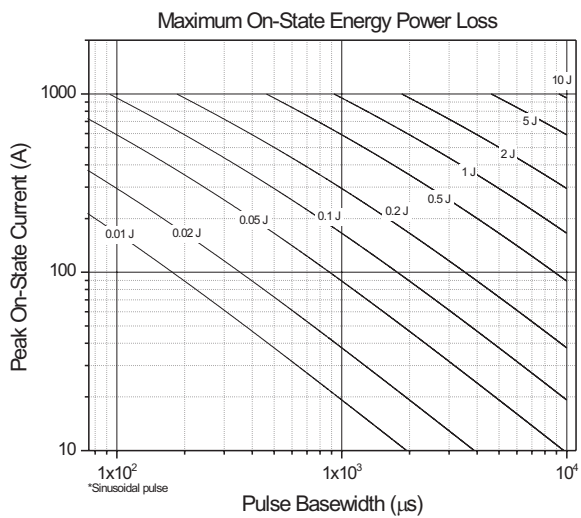


Fig. 13 - Maximum On-State Power Loss Characteristics

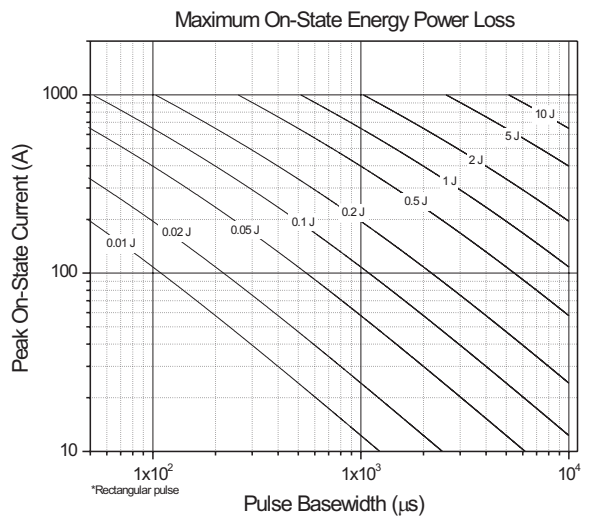


Fig. 14 - Maximum On-State Power Loss Characteristics

## DO-205AC(DO-13)

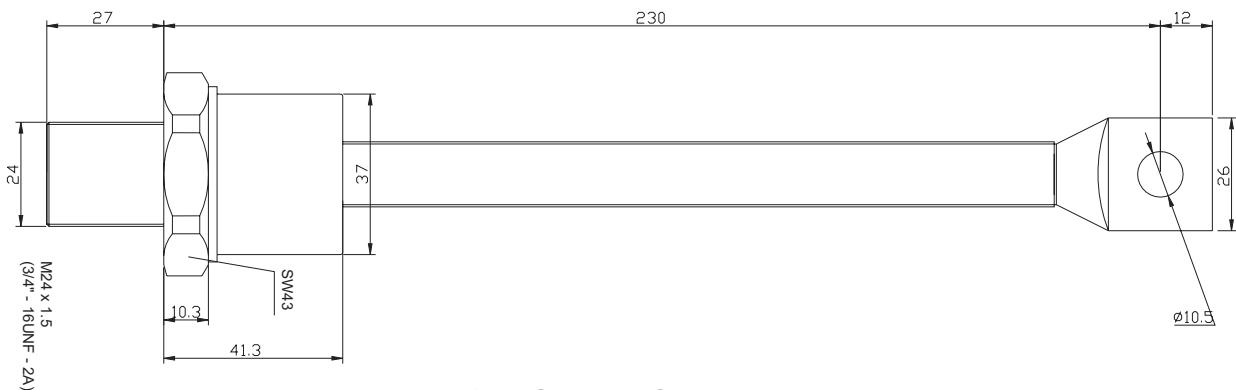


Fig. 15 - Outline Characteristics