



A1C:300S.XX.05

VOLTAGE RATINGS

Part Number	V _{RRM} , V _R (V) Max. rep. peak reverse voltage		V _{RSM} , V _R (V) Max. non- rep. peak reverse voltage
	T _J = 0 to 150°C	T _J = -40 to 0°C	T _J = 25 to 150°C
A1C:300S.02.05	200	200	300
A1C:300S.04.05	400	400	500
A1C:300S.06.05	600	600	700
A1C:300S.08.05	800	800	900
A1C:300S.10.05	1000	1000	1100
A1C:300S.12.05	1200	1200	1300

This datasheet applies to:

**Metric thread: A1C:300S.XX.05,
A1D:300S.XX.05**

**Inch thread: A2C:300S.XX.05,
A2D:300S.XX.05**

MAXIMUM ALLOWABLE RATINGS

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

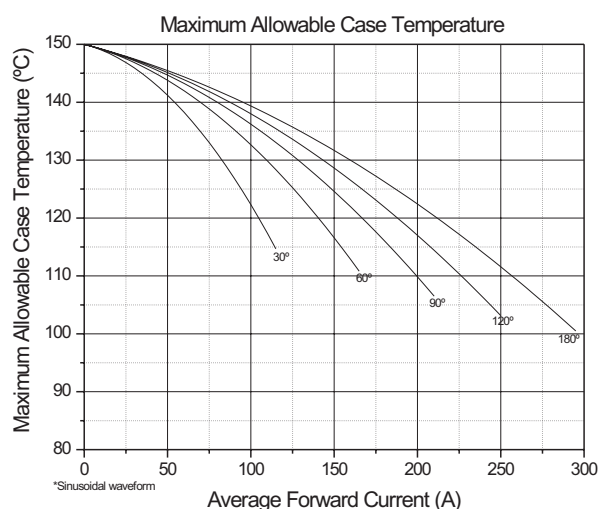


Fig. 1 - Current Ratings Characteristics

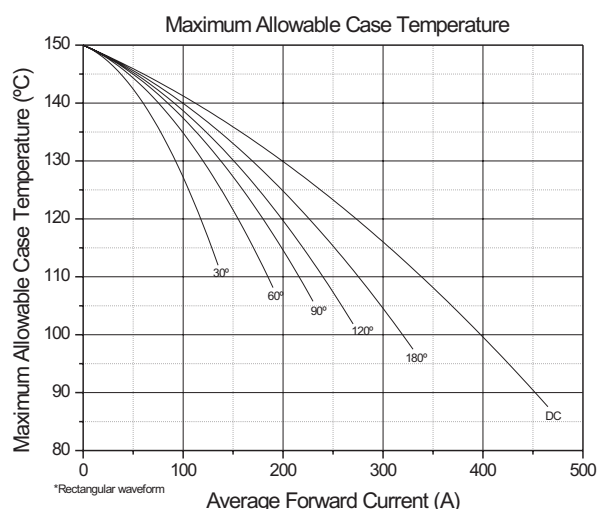


Fig. 2 - Current Ratings Characteristics

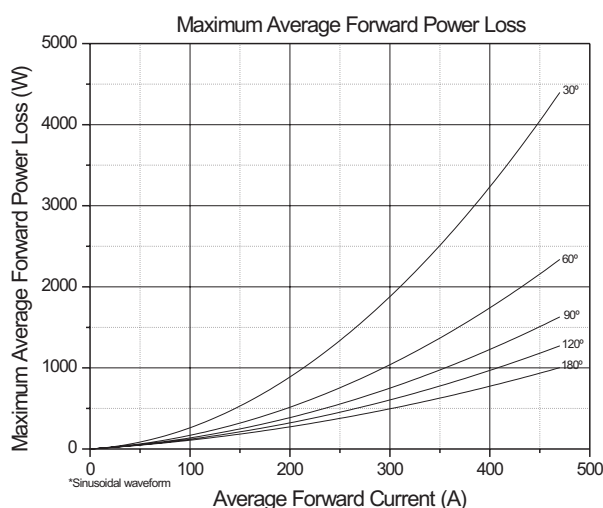


Fig. 3 - Forward Power Loss Characteristics

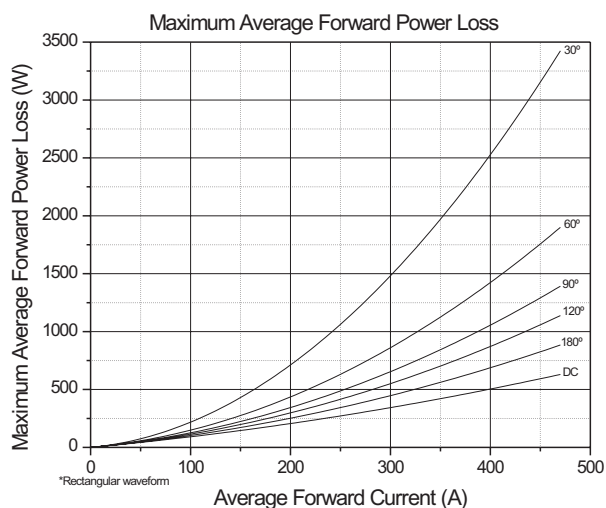


Fig. 4 - Forward Power Loss Characteristics



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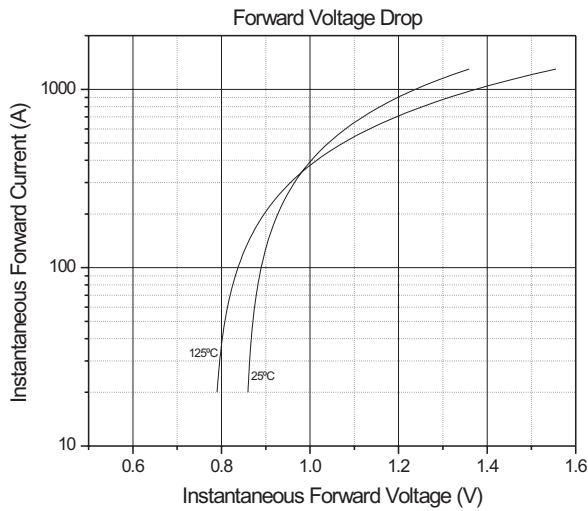


Fig. 5 - Forward Voltage Drop Characteristics

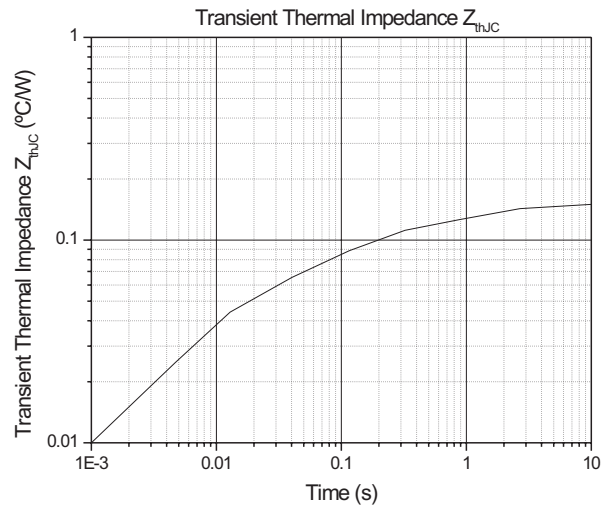


Fig. 6 - Transient Thermal Impedance Characteristics

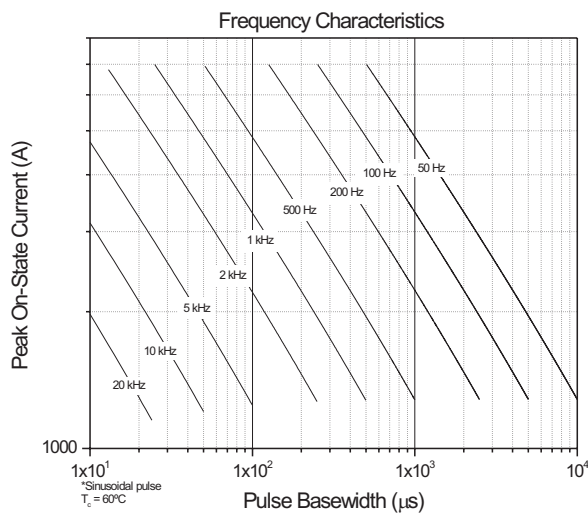


Fig. 7 - Frequency Characteristics

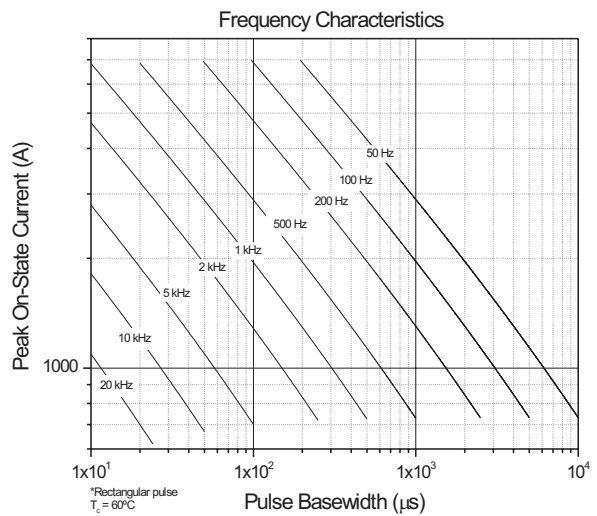


Fig. 8 - Frequency Characteristics

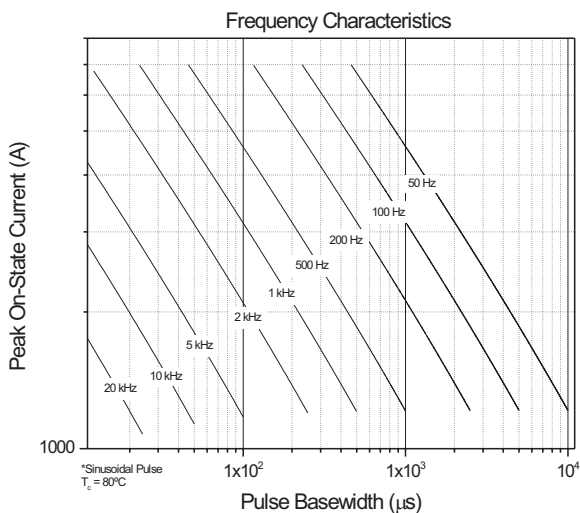


Fig. 9 - Frequency Characteristics

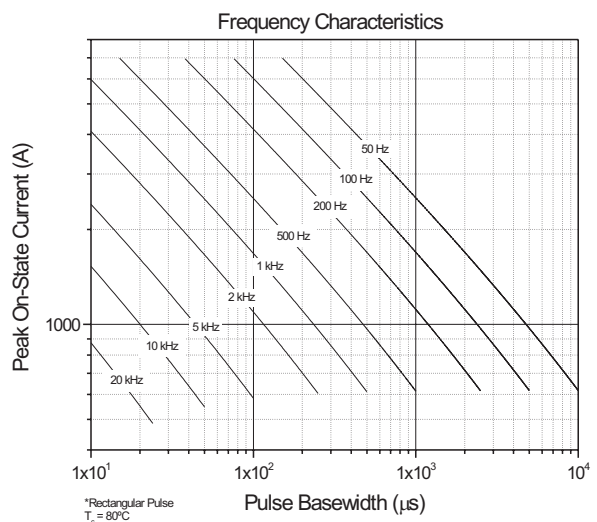


Fig. 10 - Frequency Characteristics



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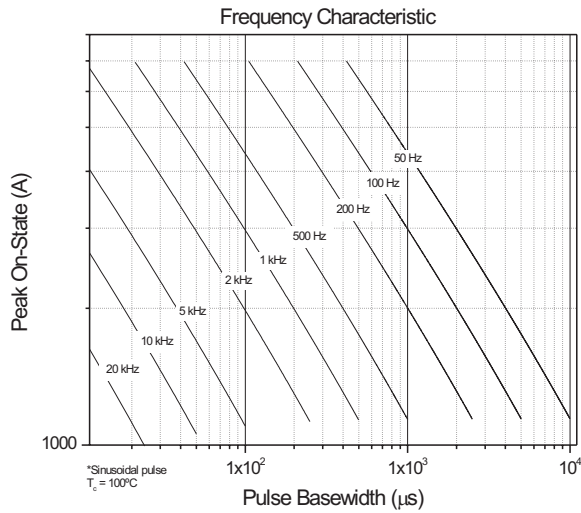


Fig. 11 - Frequency Characteristics

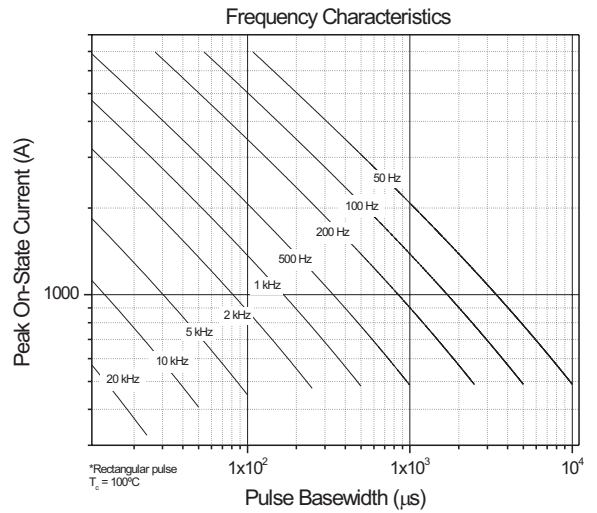


Fig. 12 - Frequency Characteristics

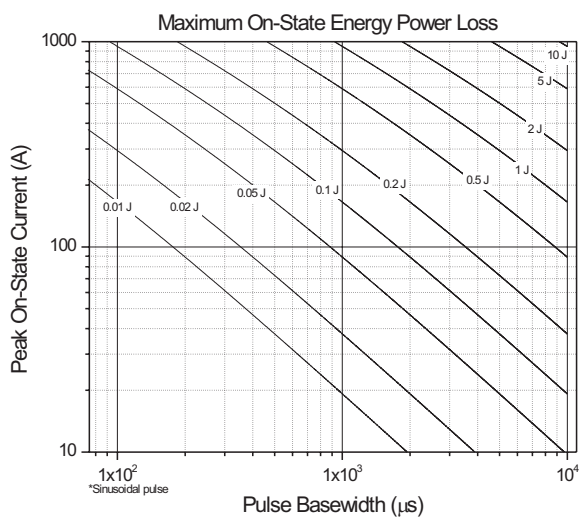


Fig. 13 - Maximum On-State Power Loss Characteristics

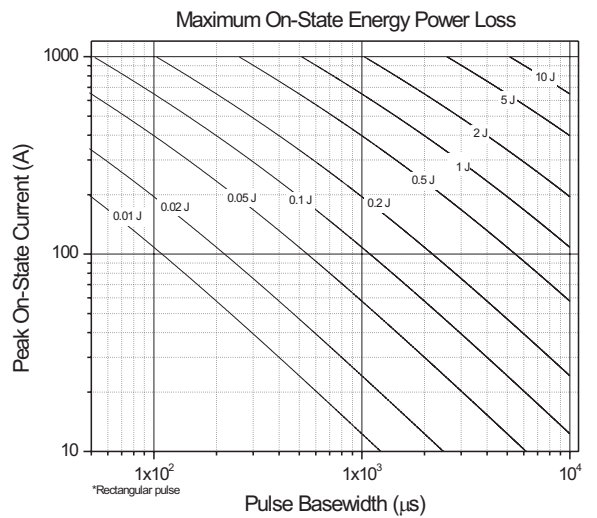


Fig. 14 - Maximum On-State Power Loss Characteristics

DO-205AC(DO-13)

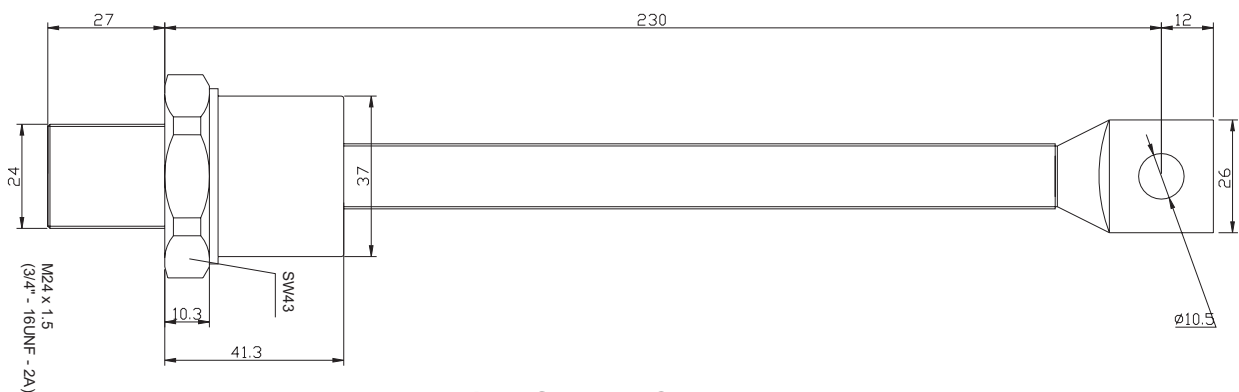


Fig. 15 - Outline Characteristics