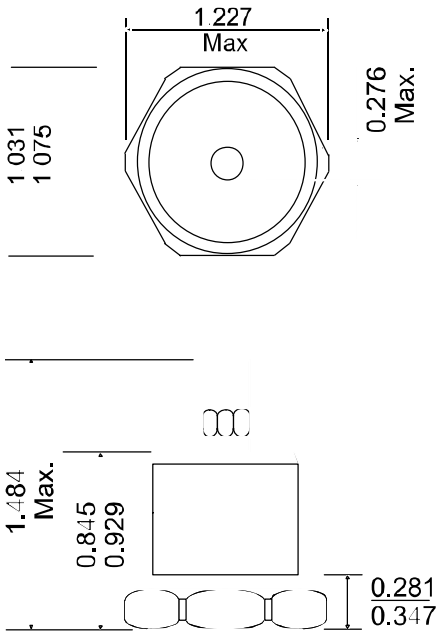
DO-205AA (DO-8)



Dimensions in inches

Features

- Alloy diode
- High current carrying capability
- High voltage ratings up to 600V
- High surge current capabilities
- Stud cathode and stud anode version

Typical Application

- Battery charges
- Welders
- Machine tool controls
- High power drives
- Medium traction applications
- Freewheeling diodes

Voltage Ratings

Type number	Voltage Code	V_{RRM}, maximum repetitive peak reverse voltage (V)	V_{RSM}, maximum non-repetitive peak reverse voltage (V)	I_{RRM} max. @ T_J=175°C (mA)
SPDO15xxKS	10	100	200	35
	20	200	300	
	30	300	400	
	40	400	500	
	60	600	720	

Forward Conduction

Parameter		SPDO15xxKS	Units	Conditions		
$I_{F(AV)}$	Max. average forward current @ Case temperature	150	A	180° conduction, half sine wave		
		150	°C			
$I_{F(RMS)}$	Max. RMS forward current	235	A	DC @ 142°C case temperature		
I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	3570	A	t = 10ms	No voltage re-applied	
		3740		t = 8.3ms		
		3000		t = 10ms	100% V_{RRM} re-applied	
		3140		t = 8.3ms		
I^2t	Maximum I^2t for fusing	64	KA^2S	t = 10ms	No voltage re-applied	
		58		t = 8.3ms		
		45		t = 10ms	100% V_{RRM} re-applied	
		41		t = 8.3ms		
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	640	$KA^2\sqrt{s}$	t = 0.1 to 10ms, no voltage re-applied		
$V_{F(TO)1}$	Low level value of threshold voltage	0.67	V	(16.7% x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), T_J = T_J max.		
$V_{F(TO)2}$	High level value of threshold voltage	0.83		(I > x π x $I_{F(AV)}$), T_J = T_J max.		

Forward Conduction				
Parameter		SPDO15xxKS	Units	Conditions
r_{f1}	Low level value of forward slope resistance	1.42	mΩ	(16.7% x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), T_J = T_J max.
r_{f2}	High level value of forward slope resistance	0.91		(I > x π x $I_{F(AV)}$), T_J = T_J max.
V_{FM}	Max. forward voltage drop	1.33	V	I_{pk}= 471A, T_J = 25°C, tp = 10ms sinusoidal wave

Thermal and Mechanical Specifications					
Parameter			SPDO15xxKS	Units	Conditions
T_J	Max. junction operating temperature range		-40 to 200	°C	
Tstg	Max. storage temperature range		-40 to 200		
R_{thJC}	Max. thermal resistance, junction to case		0.25	K/W	DC operation
R_{thCS}	Max. thermal resistance, case to heatsink		0.10		Mounting surface, smooth, flat and greased
T	Mounting torque	Min.	11.3 (100)	Nm (lbf-in)	Not lubricated threads
		Max.	14.1 (125)		
		Min.	9.5 (85)		Lubricated threads
		Max.	12.5 (110)		

ΔRthJC Conduction				
(The following table shows the increment of thermal resistence RthJC when devices operate at different conduction angles than DC)				
Conduction angle	Sinusoidal conduction	Rectangular conduction	Units	Conditions
180°	0.031	0.023	K/W	T_J = T_J max.
120°	0.038	0.040		
90°	0.048	0.053		
60°	0.071	0.075		
30°	0.120	0.121		

RATINGS AND CHARACTERISTICS CURVES

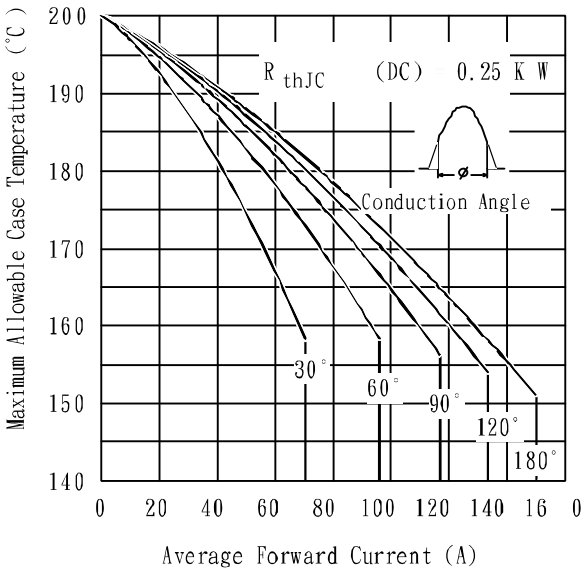


Fig. 1 – Peak forward voltage vs. peak forward current

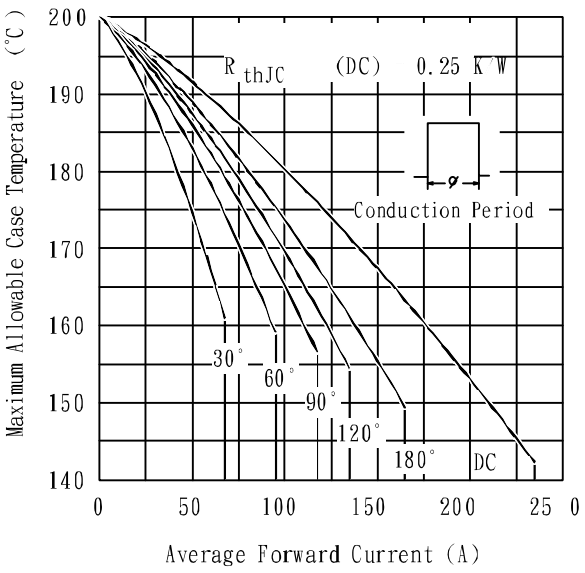


Fig. 2 – Max. junction to case thermal impedance vs. time

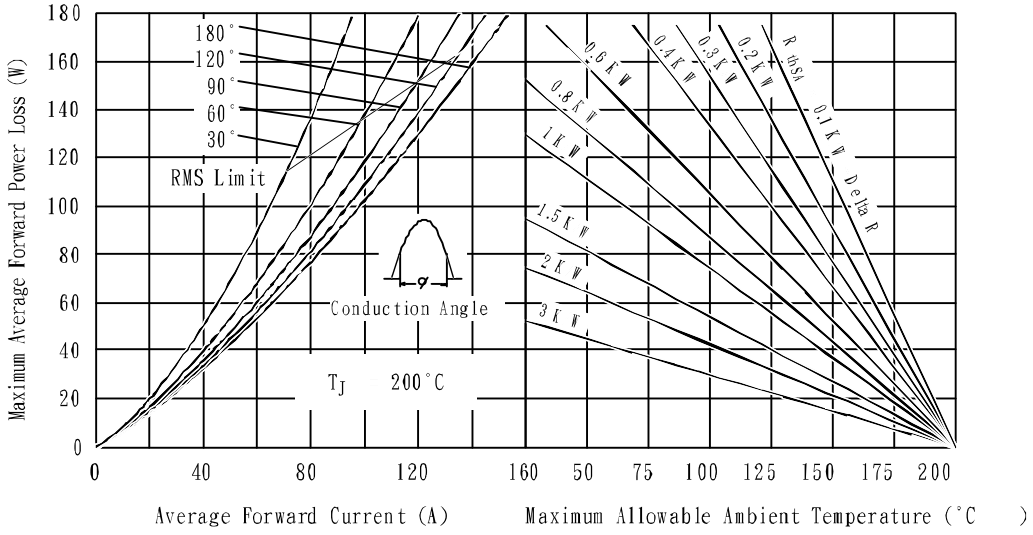


Fig. 3 –Forward Power Loss Characteristics

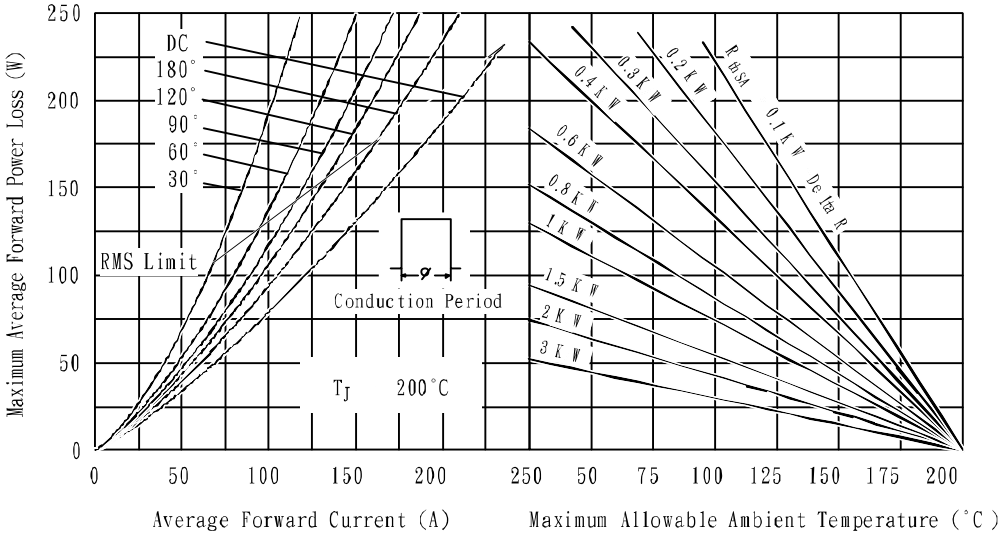


Fig. 4 –Forward Power Loss Characteristics

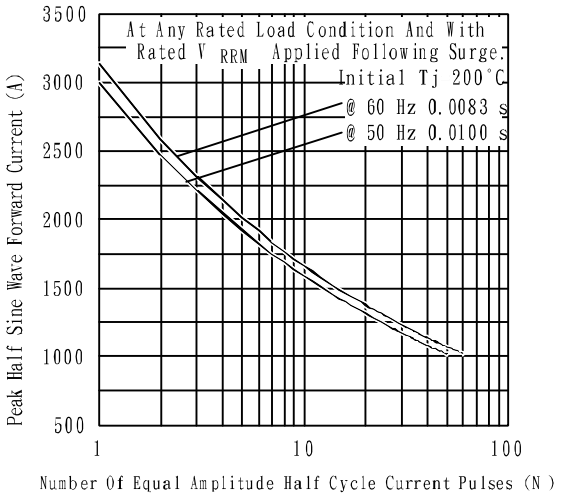


Fig.5 - Maximum Non-Repetitive Surge Current

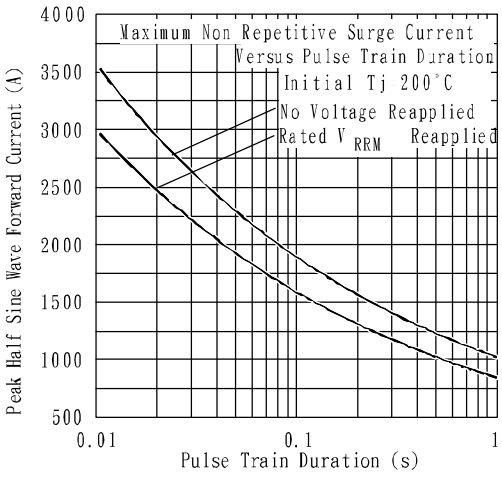


Fig. 6 - Maximum Non-Repetitive Surge Current

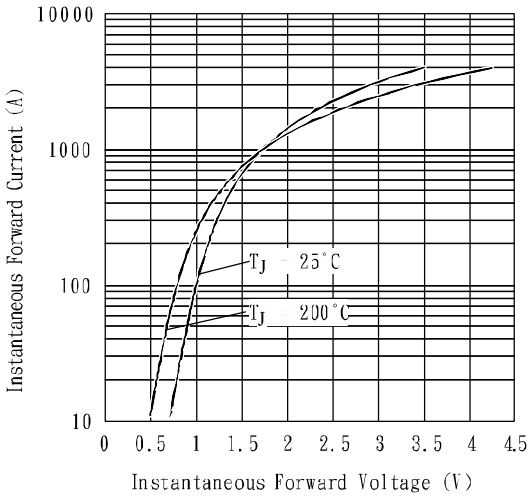


Fig. 7 - Forward Voltage Drop Characteristics

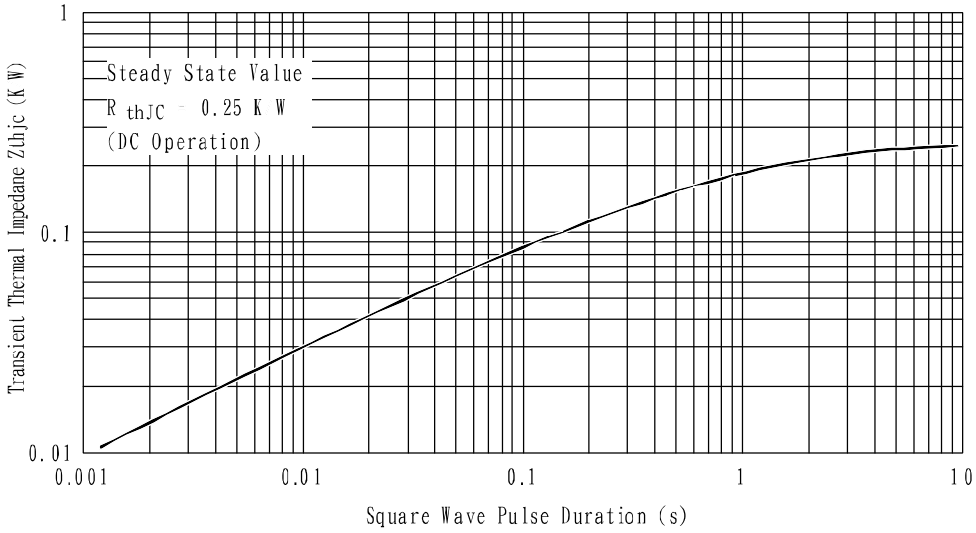


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

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