STUD TYPE DIODE

Features

- Hermetic metal case with ceramic insulator
- High surge current capabilities
- Stud cathode and stud anode version

400A

Typical Applications

- Converters
- Power supplies
- Machine tool controls

Major Ratings and Characteristics

Parameters		D400A(K)1K8VB	Units
$I_{F(AV)}$		400	A
	@ T_{hs}	120	°C
$I_{F(RMS)}$		640	A
I_{FSM}	@ 50Hz	8250	A
	@ 60Hz	8640	A
I^2t	@ 50Hz	340	KA^2s
	@ 60Hz	311	KA^2s
V_{RRM} range		500	V
T_J		- 40 to 180	°C

Voltage Ratings

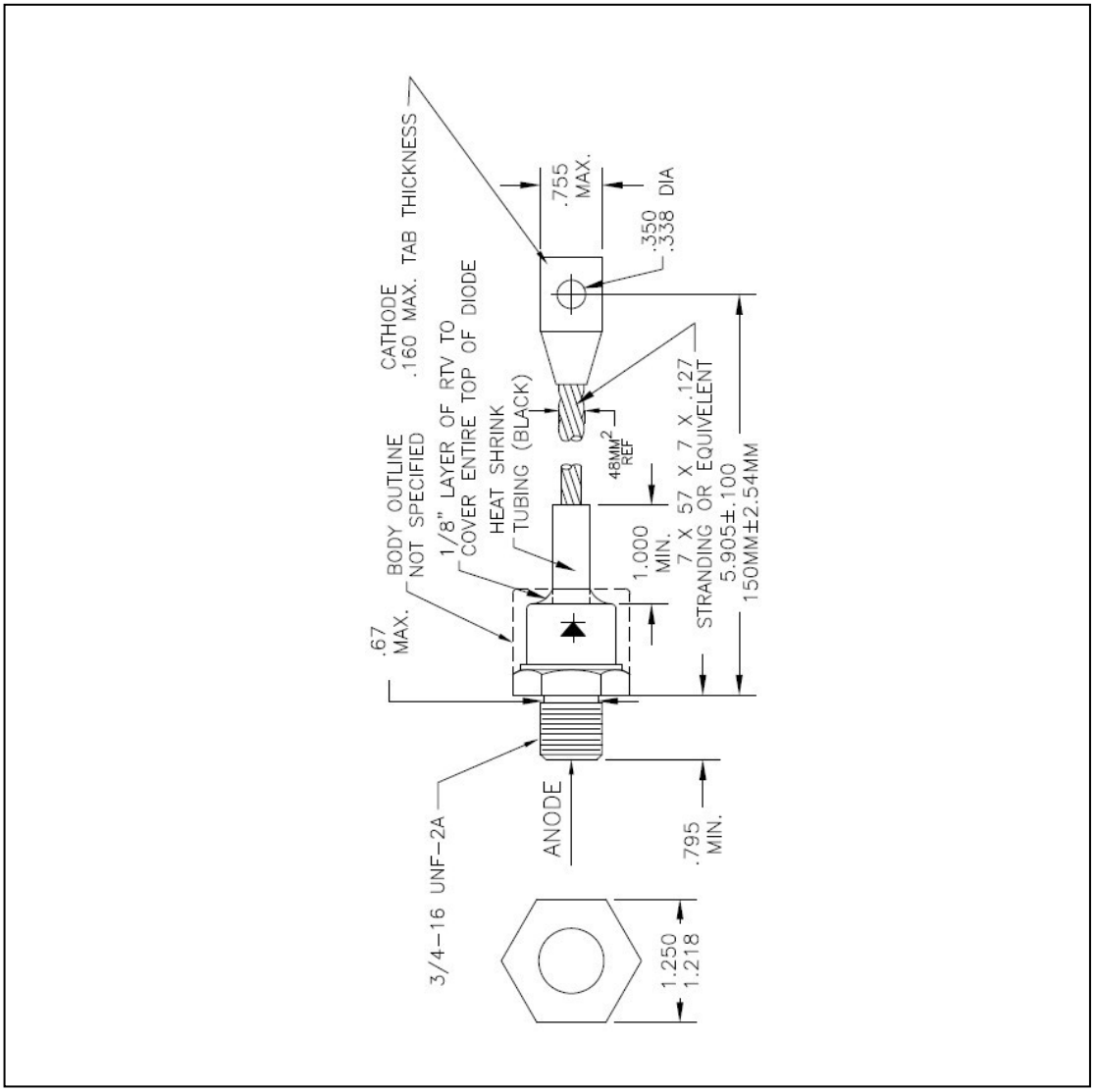
	Voltage Code	V_{RRM}, maximum repetitive peak reverse voltage V	V_{RSM}, maximum non-repetitive peak rev. voltage V	I_{RRM} max. @ $T_J = T_J$ max. mA
D400A(K)	02	200	300	15
	05	500	600	
	08	800	900	
	16	1600	1700	

Forward Conduction

Parameter		D400A (K)	Units	Conditions		
$I_{F(AV)}$	Max. average forward current	400	A	180° conduction, half sine wave		
	@ Heatsink temperature	120	°C	Double side (single side) cooled		
$I_{F(RMS)}$	Max.RMS forward current	640	A	DC@110°C case temperature		
I_{FSM},	Max. peak, one-cycle forward, non-repetitive surge current	8250	A	t = 10ms	No voltage reapplied	Sinusoidal half wave, Initial $T_J = T_J$ max.
		8640		t = 8.3ms		
		6940		t = 10ms	100% V_{RRM} reapplied	
		7270		t = 8.3ms		
I^2t	Maximum I^2t for fusing	340	KA^2s	t = 10ms	No voltage reapplied	
		311		t = 8.3ms		
		241		t = 10ms	100% V_{RRM} reapplied	
		220		t = 8.3ms		
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	3400	$KA^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied		
V_{FM}	Max. forward voltage drop	1.30	V	I_{pk} = 942A, $T_J = T_J$ max, t_p=10ms sinusoidal wave		
r_{f1}	Low level value of threshold voltage	0.49	MΩ	(16.7%×π× $I_{F(AV)}$<1<π× $I_{F(AV)}$), $T_J=T_J$ max		
r_{f2}	High level value of forward slope resistance	0.49		（1>π×$I_{F(AV)}$）, $T_J=T_J$ max		

Thermal and Mechanical Specification

	Parameter	D400A(K)	Units	Conditions
T_J	Max.junction operating temperature range	-40 to 180	°C	
T_{stg}	Max. storage temperature range	-40 to 200		
RthJC	Max,thermal resistance,junction to case	0.14	K/W	DC operation
R_{thCS}	Max. thermal resistance,Case to heatsink	0.08		DC operation single(double) side cooled
T	Max.allowed Mounting torque, ± 10%	37	N	
wt	Approximate weight	290	g	


CATHODE
.160 MAX. TAB THICKNESS
.755
MAX.
.350
.338 DIA
1/8" LAYER OF RTV TO
COVER ENTIRE TOP OF DIODE
HEAT SHRINK
TUBING (BLACK)
48MM²
REF
BODY OUTLINE
NOT SPECIFIED
1.000
MIN.
7 X 57 X 7 X .127
STRANDING OR EQUIVELENT
5.905±.100
150MM±2.54MM
.67
MAX.
3/4–16 UNF–2A
ANODE
.795
MIN.
1.250
1.218

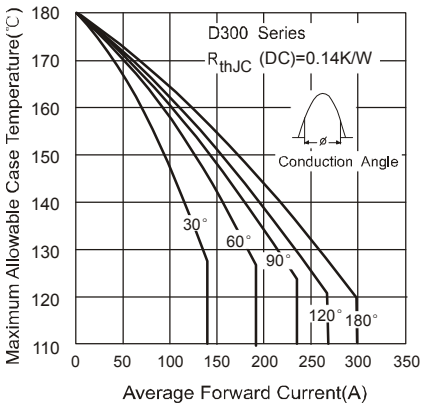


Fig.3-Current Ratings Characteristics

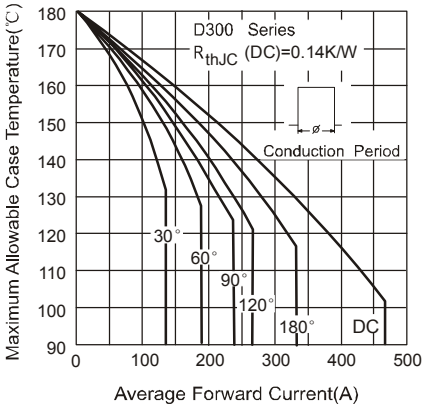


Fig.4-Current Ratings Characteristics

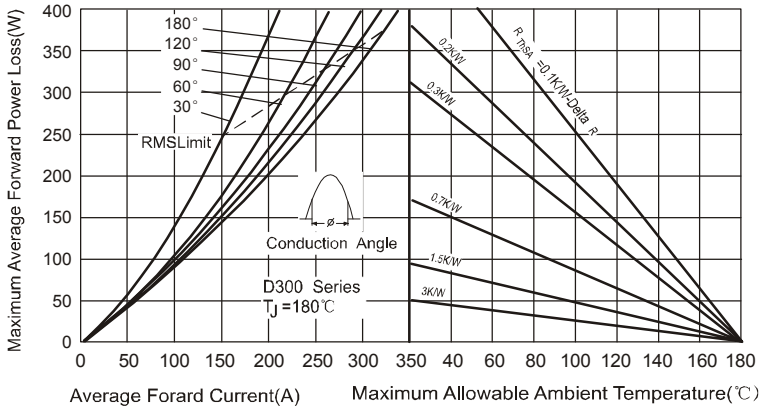


Fig.5-Forward Power Loss Characteristics

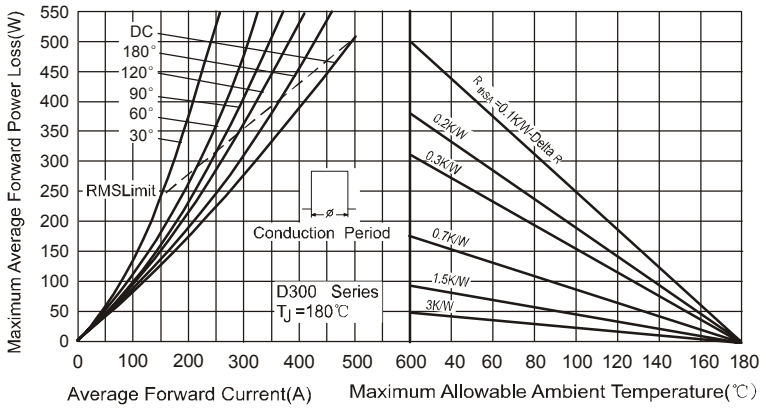


Fig.6-Forward Power Loss Characteristics

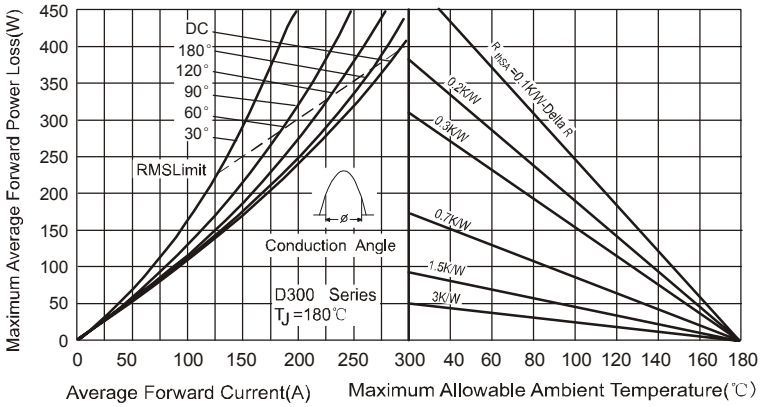


Fig.7-Forward Power Loss Characteristics

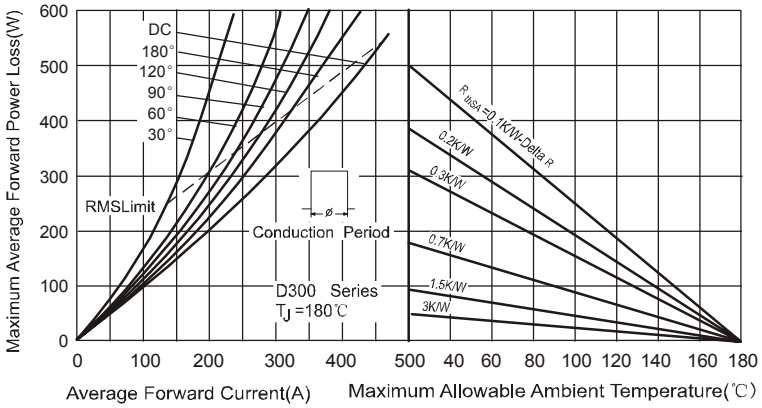


Fig.8-Forward Power Loss Characteristics

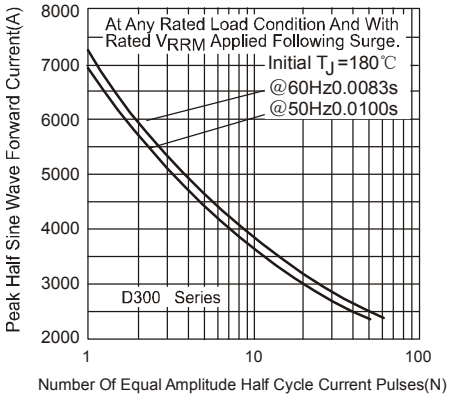


Fig.9-Maximum Non-Repetitive Surge Current

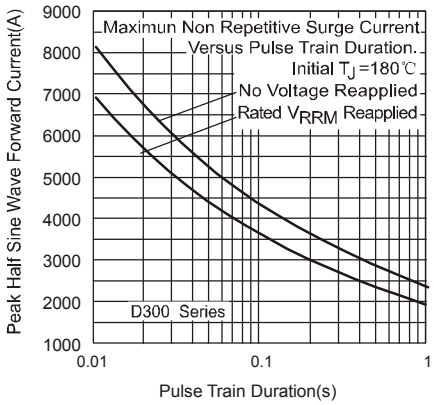


Fig.10-Maximum Non-Repetitive Surge Current

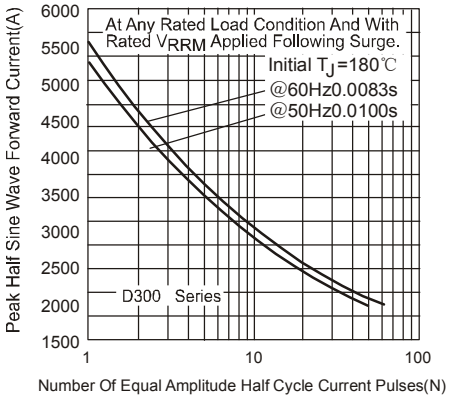


Fig.11-Maximum Non-Repetitive Surge Current

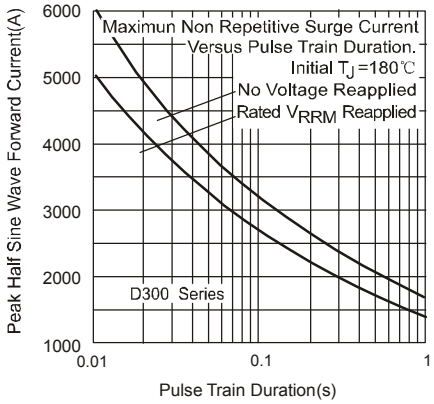


Fig.12-Maximum Non-Repetitive Surge Current

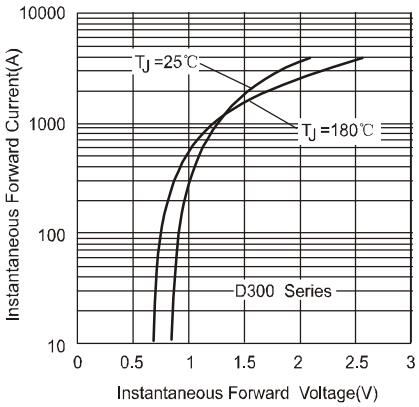


Fig.13-Forward Voltage Drop Characteristics

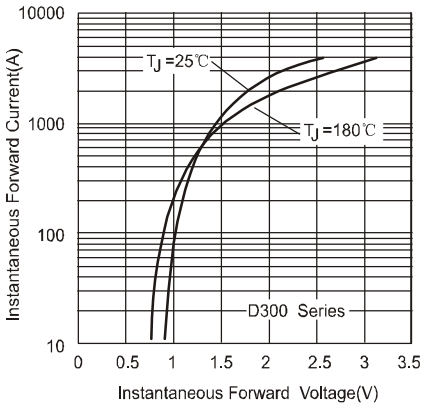


Fig.14-Forward Voltage Drop Characteristics

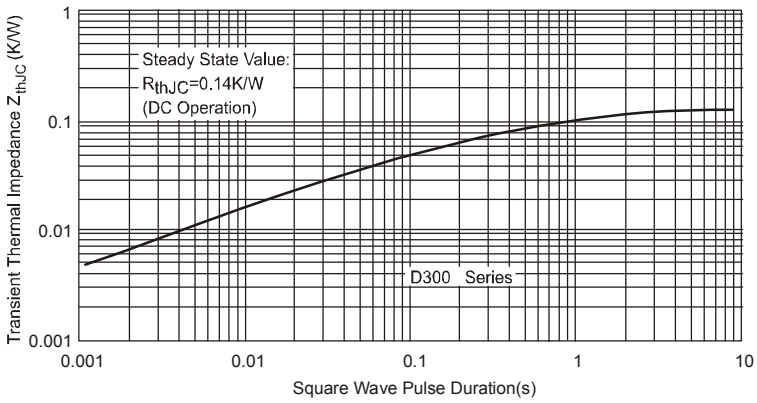


Fig.15-Thermal Impedance Z_{thJC} Characteristics