



RECTIFIERS

The Custom Power Specialist

GD400N/R-xx...SERIES

STUD TYPE DIODE

Features

- Hermetic metal to glass case insulation
- High surge current capabilities
- Stud cathode and stud anode version

⤴ GD400N-xx Anode stud Red sleeve

⤵ GD400R-xx Cathode stud Blue sleeve

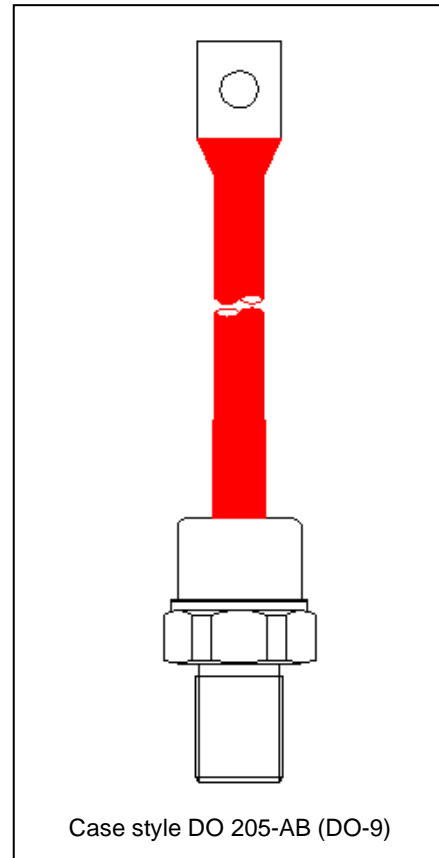
400A

Typical Applications

- Converters
- Power supplies
- Machine tool controls

Major Ratings and Characteristics

Parameters	GD400N/R-xx	Units
$I_{F(AV)}$	400	A
@ T _{case}	120	°C
$I_{F(RMS)}$	640	A
I_{FSM} @ 50Hz	8250	A
@ 60Hz	8640	A
$I^2 t$ @ 50Hz	340	KA ² s
@ 60Hz	311	KA ² s
V _{R(RM)} range	800-1600	V
T _J	- 40 to 180	°C



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Voltage Ratings

GD400N/R	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage	V_{RSM} , maximum non-repetitive peak rev. voltage	I_{RRM} max. @ $T_J = T_J$ max.
	XX	V	V	mA
	08	800	900	15
	12	1200	1300	
	14	1400	1500	
	16	1600	1700	

Forward Conduction

Parameter	GD 400	Units	Conditions
$I_{F(AV)}$ Max. average forward current @ T_{case}	400	A	180° conduction, half sine wave
	120	°C	
$I_{F(RMS)}$ 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 reappplied
	8640		t = 8.3ms
	6940		t = 10ms 100% V_{RRM} reappplied
	7270		t = 8.3ms
$I^2 t$ Maximum $I^2 t$ for fusing	340	KA ² s	t = 10ms No voltage reappplied
	311		t = 8.3ms
	241		t = 10ms 100% V_{RRM} reappplied
	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 reappplied
V_{FM} Max. forward voltage drop	1.22	V	$I_{pk} = 942A$, $T_J = T_J$ max, $t_p = 10ms$ sinusoidal wave
$V_{(TO)}$ Threshold voltage	0.77	V	$T_J = T_J$ max
r_T Forward slope resistance	0.49	m Ω	$T_J = T_J$ max

Thermal and Mechanical Specification

Parameter	GD400	Units	Conditions
T_J Max.junction operating temperature range	-40 to 180	°C	
T_{stg} Max. storage temperature range	-40 to 200		
R_{thJC} Max,thermal resistance,junction to case	0.14	K/W	DC operation
R_{thCS} Max. thermal resistance,Case to heatsink	0.08		DC operation
T Max.allowed Mounting torque, $\pm 10\%$	37	Nm	
wt Approximate weight	250/320	g	

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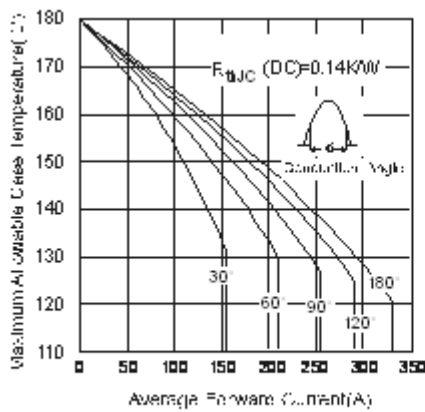
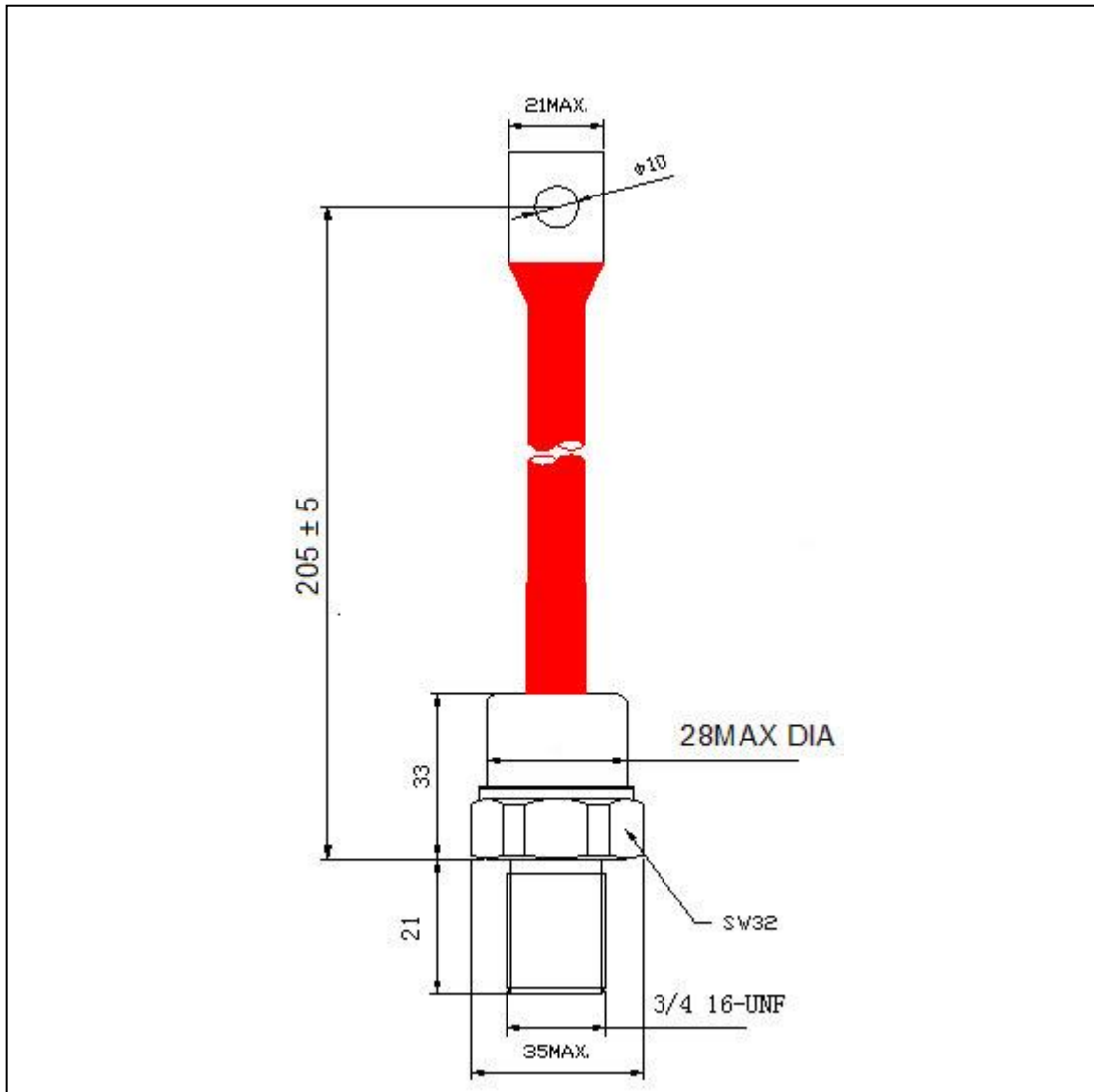


Fig.1-Current Ratings Characteristics

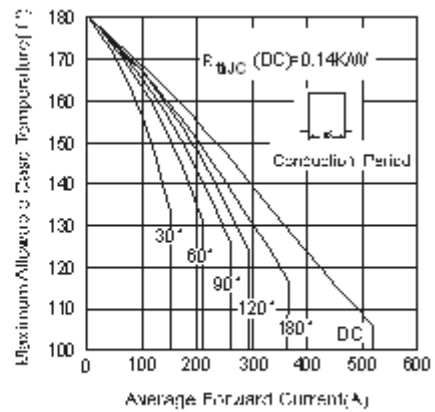


Fig.2-Current Ratings Characteristics

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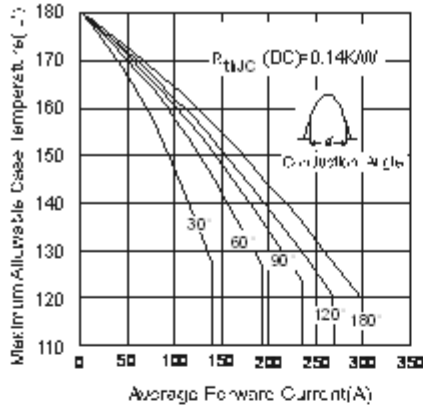


Fig.3-Current Ratings Characteristics

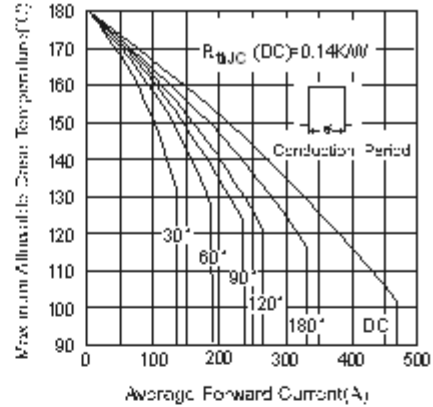


Fig.4-Current Ratings Characteristics

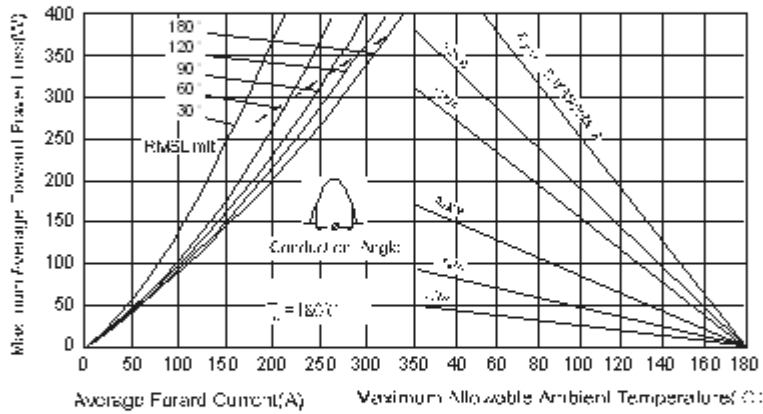


Fig.5-Forward Power Loss Characteristics

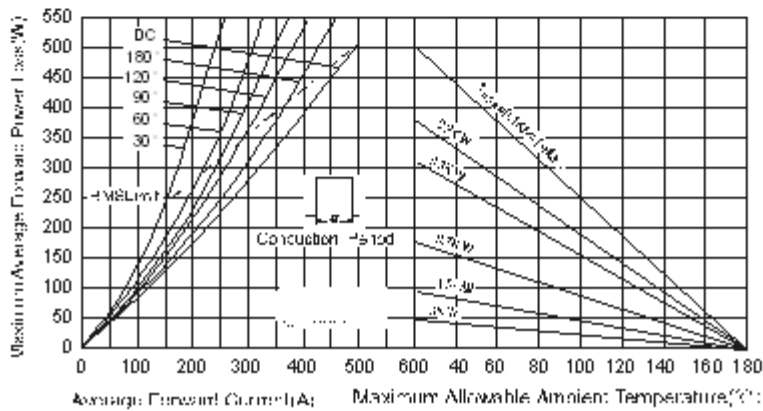


Fig.6-Forward Power Loss Characteristics

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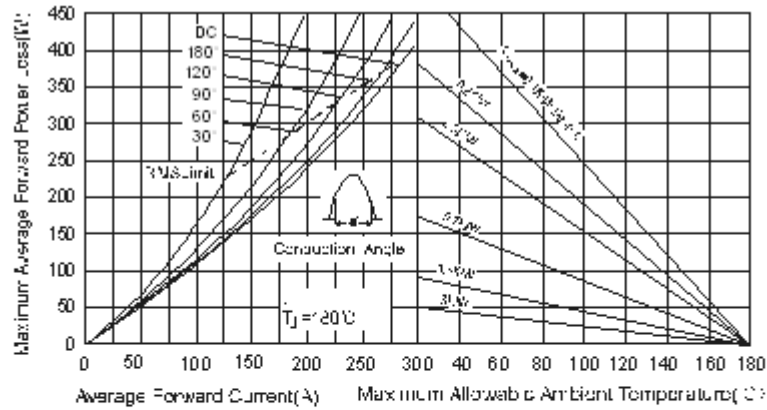


Fig. 7 - Forward Power Loss Characteristics

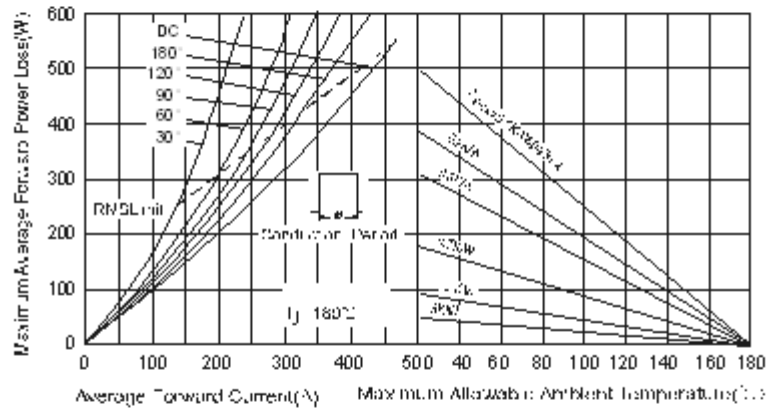


Fig. 8 - Forward Power Loss Characteristics

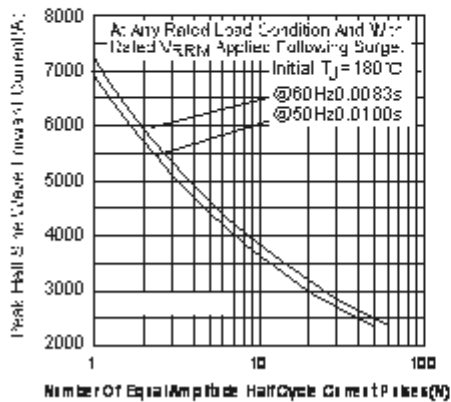


Fig. 9 - Maximum Non-Repetitive Surge Current

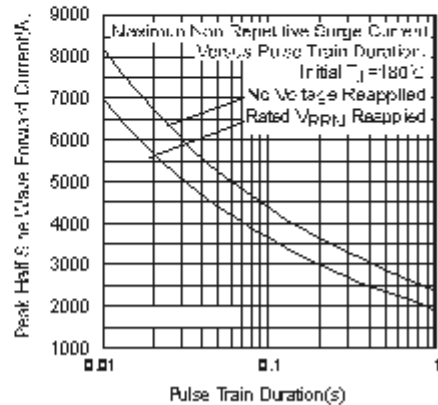


Fig. 10 - Maximum Non-Repetitive Surge Current

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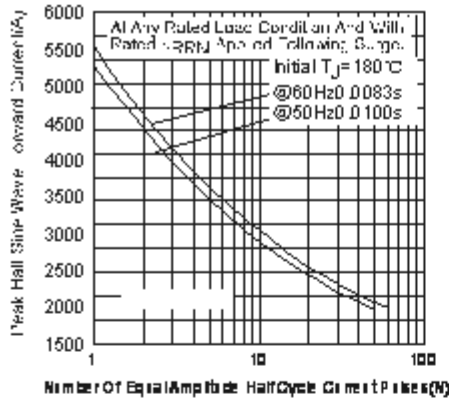


Fig.11-Maximum Non-Repetitive Surge Current

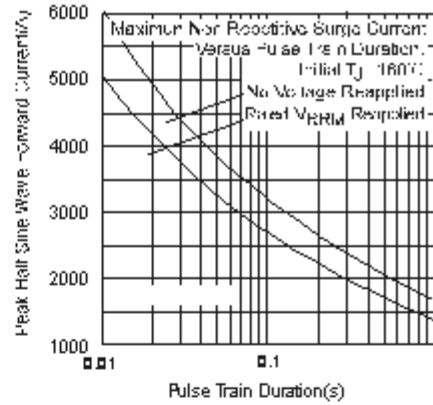


Fig.12-Maximum Non-Repetitive Surge Current

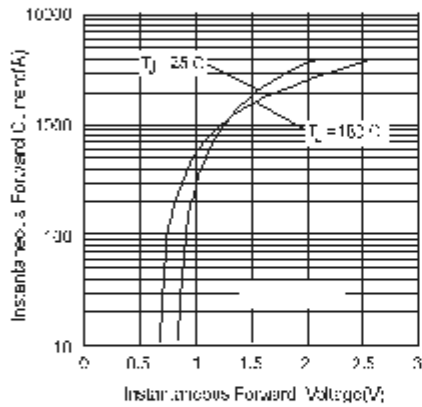


Fig.13-Forward Voltage Drop Characteristics

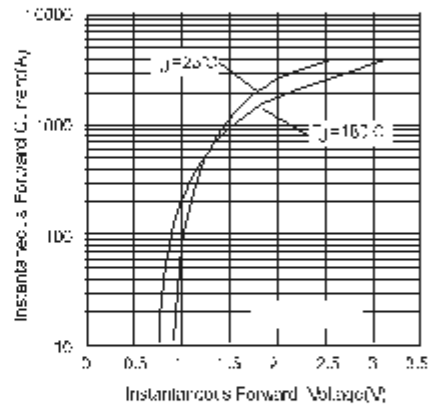


Fig.14-Forward Voltage Drop Characteristics

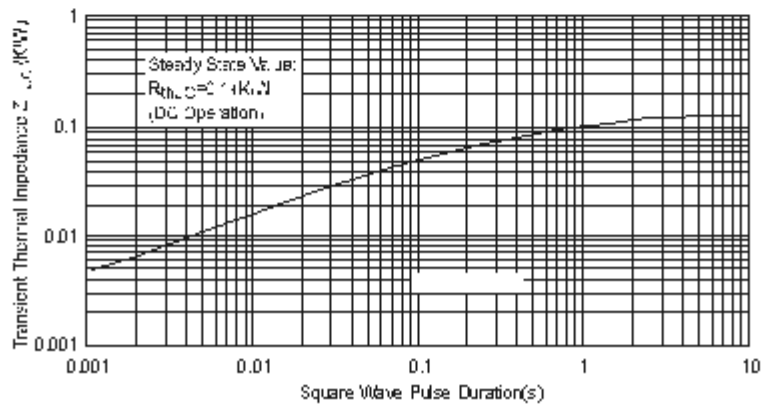


Fig.15-Thermal Impedance Z_{thJC} Characteristics

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