

Standard Recovery Diodes Stud Version, 150A

FEATURES

- Alloy diode
- Popular series for rough service
- Stud cathode and stud anode version
- RoHS compliant
- Designed and qualified for industrial level
- Glass passivated chip

TYPICAL APPLICATIONS

- Welders
- Power supplies
- Motor controls
- Battery chargers
- General industrial current rectification
- Freewheeling diodes
- High power drives



DO-205AA(DO-8)

PRODUCT SUMMARY

$I_{F(AV)}$	150A
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MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	150D(R)	UNIT
$I_{F(AV)}$	T_C	150	A
		125	°C
I_{FSM}	50 HZ	3000	A
	60 HZ	3141	
I^2t	50 HZ	45	kA^2s
	60 HZ	40.9	
V_{RRM}	Range	400 to 1600	V
T_J		-40 to 175	°C

ELECTRICAL SPECIFICATIONS

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} , MAXIMUM AT $T_J = 175\text{ °C}$ mA
150D(R)	04	400	500	15
	06	600	700	
	08	800	900	
	12	1200	1300	
	16	1600	1700	

FORWARD CONDUCTION					
PARAMETER	SYMBOL	TEST CONDITIONS		150D(R)	UNIT
Maximum average forward current at maximum case temperature	$I_{F(AV)}$	180° conduction, half sine wave		150	A
				125	°C
Maximum RMS forward current	$I_{F(RMS)}$	DC at 110°C		235.5	A
Maximum peak, one cycle forward, non-repetitive surge current	I_{FSM}	t = 10ms	No voltage reapplied	3000	A
		t = 8.3ms		3141	
		t = 10ms	100% V_{RRM} reapplied	2519	
		t = 8.3ms		2635	
Maximum I^2t for fusing	I^2t	t = 10ms	No voltage reapplied	45	kA ² s
		t = 8.3ms		40.9	
		t = 10ms	100% V_{RRM} reapplied	31.7	
		t = 8.3ms		28.8	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reapplied		450	kA ² \sqrt{s}
Maximum value of threshold voltage	$V_{F(TO)}$	$T_J = T_J$ Maximum		0.8	V
Maximum value of forward slope resistance	r_F			0.97	mΩ
Maximum forward voltage drop	V_{FM}	$I_{pk} = 600A, T_J = 25^\circ C, t_p = 10ms$ sinusoidal wave		1.45	V

FORWARD CONDUCTION				
PARAMETER	SYMBOL	TEST CONDITIONS	150D(R)	UNIT
Maximum junction operating and storage temperature range	T_J, T_{stg}		- 40 to 175	°C
Maximum thermal resistance, junction to case	R_{thJC}	DC operation	0.3	K/W
Maximum thermal resistance case to heatsink	R_{thCS}	Mounting surface, smooth, flat and greased	0.1	
Maximum allowable mounting torque (+0% , -20%)		Not lubricated threads	17	Nm
		Lubricated threads	14.5	
Approximate weight		Ceramic housing	100	g
		Glass-metal seal	95	
Case style		(JEDEC) see dimensions - link at the end of datasheet	DO-205AA (DO-8)	

△ R_{thJC} CONDUCTION				
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDUCTIONS	UNITS
180°	0.031	0.023	$T_J = T_J$ maximum	K/W
120°	0.038	0.040		
90°	0.048	0.053		
60°	0.071	0.075		
30°	0.120	0.121		

Note

- The table above shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC

Fig.1 Current ratings characteristics

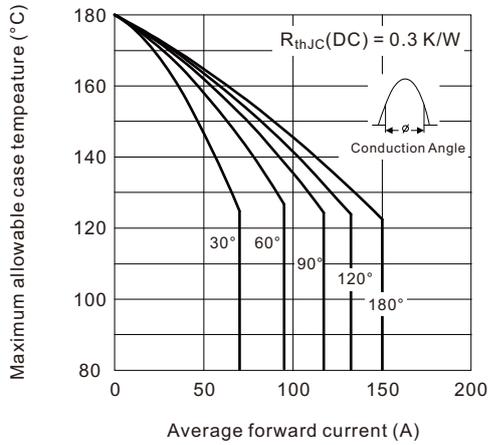


Fig.2 Current ratings characteristics

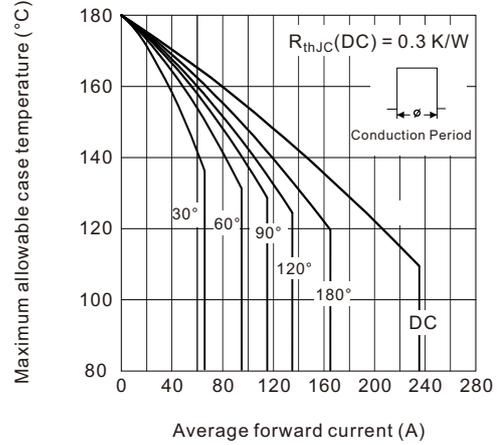


Fig.3 Forward power loss characteristics

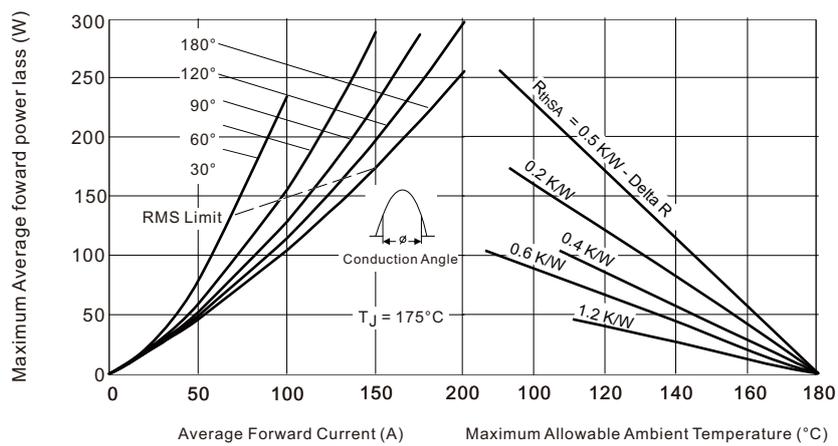


Fig.4 Forward power loss characteristics

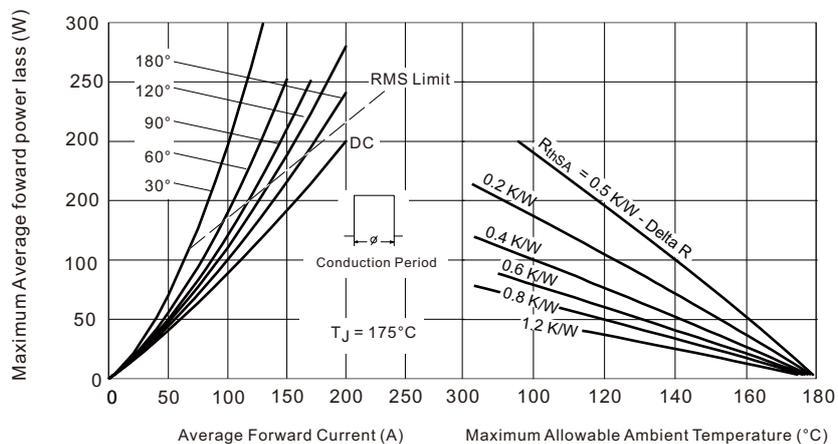


Fig.5 Maximum non-repetitive surge current

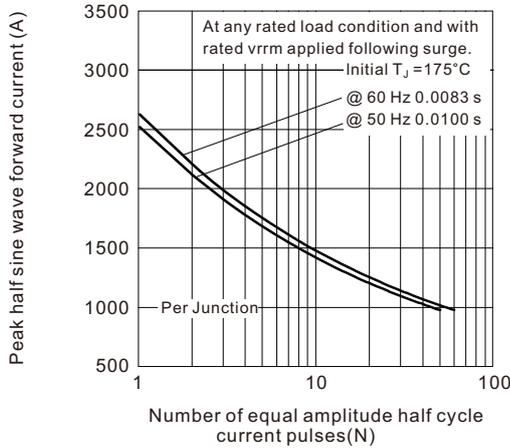


Fig.6 Maximum non-repetitive surge current

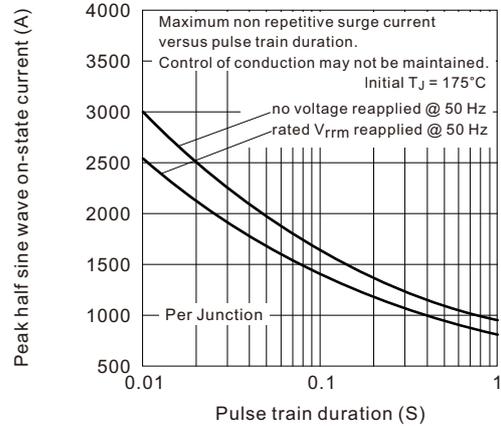


Fig.7 Forward voltage drop characteristics

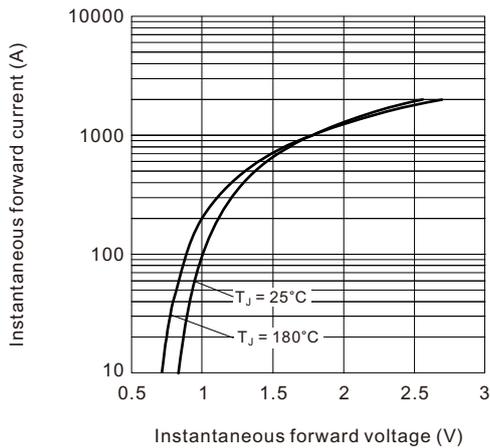
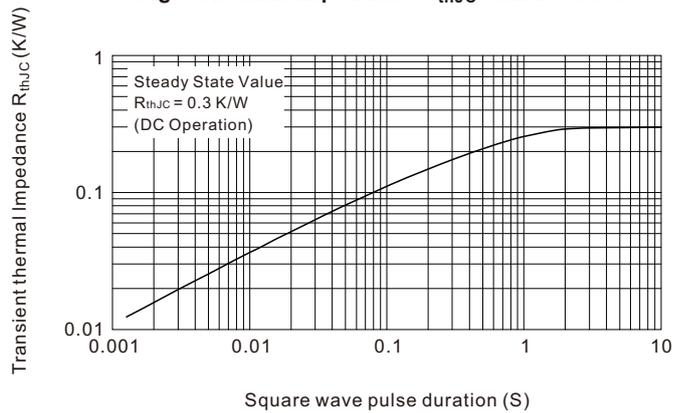


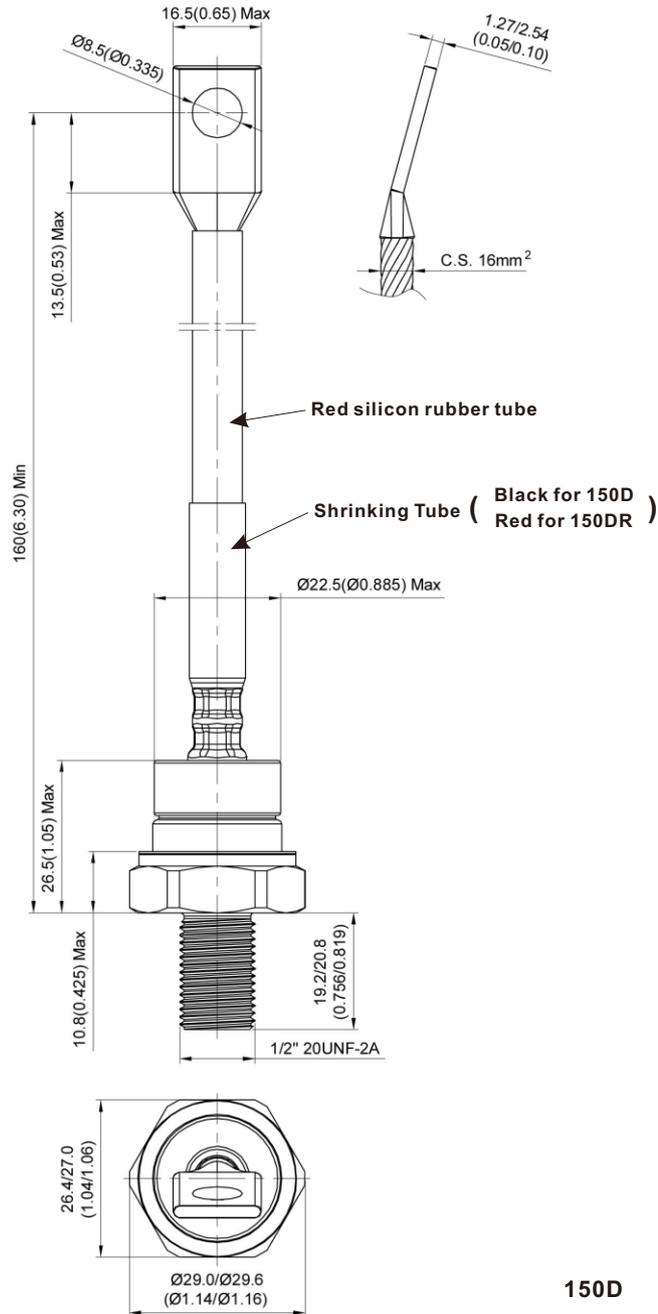
Fig.8 Thermal Impedance R_{thJC} characteristic



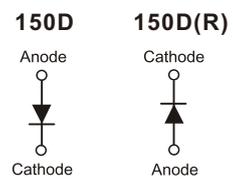
ORDERING INFORMATION TABLE

Device code	150	D	R	10	B	M
	①	②	③	④	⑤	⑥
①	-	Current rating, 150 = 150A				
②	-	D = Standard Recovery Diode				
③	-	None = Stud normal polarity (cathode to stud)	R = Stud reverse polarity (anode to stud)			
④	-	Voltage code $\times 100 = V_{RRM}$ (see Voltage Ratings table)				
⑤	-	None = DO-8, Ceramic housing type with insulated tube	B = DO-8, Glass-Metal Seal Type			
⑥	-	None = standard device, 1/2"-20UNF-2A	M = Metric device, M12 x 1.75 , with insulated tube			

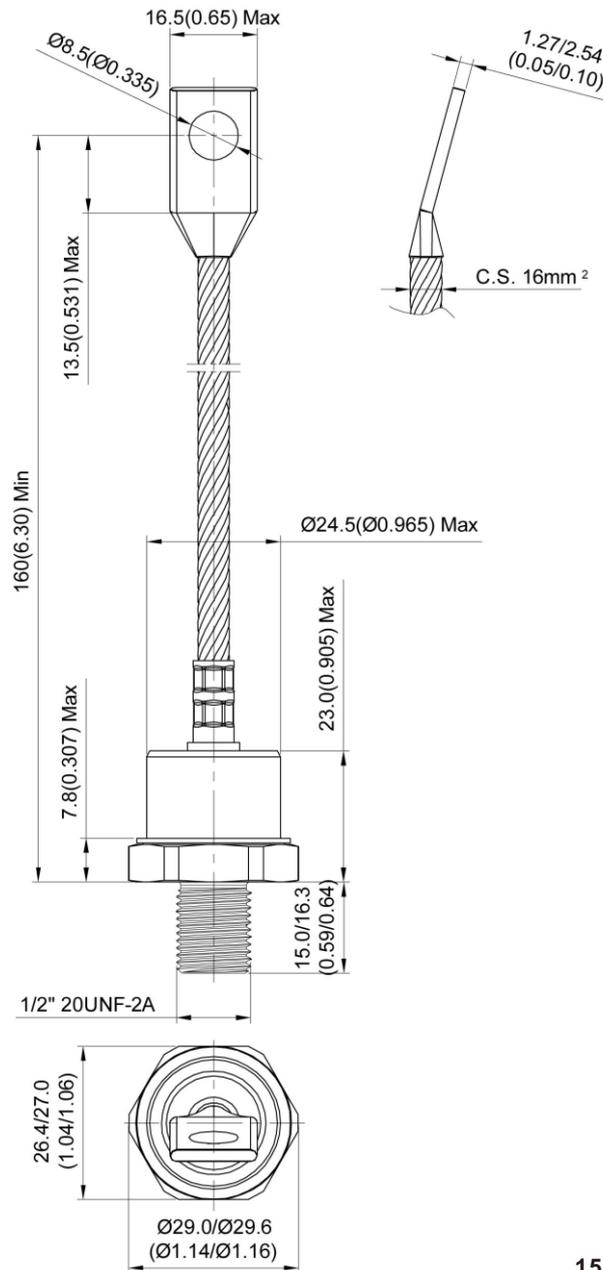
DO-205AA (DO-8), Ceramic housing



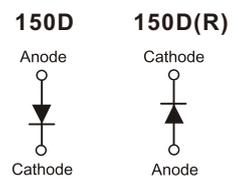
All dimensions in millimeters (inches)



DO-205AA (DO-8), GLASS - METAL SEAL



All dimensions in millimeters (inches)



DO-205AA (DO-8), GLASS - METAL SEAL (Metric stud)

