

## SCD150N/R.xx



### Power Rectifier Diodes

#### FEATURES

- Diffused diode
- High voltage ratings up to 1600 V
- High surge current capabilities
- Stud cathode and stud anode version
- Hermetic metal case
- Designed and qualified for industrial level
- Material categorization: for definitions of compliance please see



RoHS  
COMPLIANT

#### TYPICAL APPLICATIONS

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

#### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	150 A
Package	DO-8 (DO-205AA)
Circuit configuration	Single

#### MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		150	A
	$T_c$	125	°C
$I_{F(RMS)}$		235	A
$I_{FSM}$	50 Hz	3000	
	60 Hz	3140	
$I^2t$	50 Hz	45	kA <sup>2</sup> s
	60 Hz	41	
$V_{RRM}$	Range	400 to 1600	V
$T_J$		-40 to +180	°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 $T_J = T_J$ MAXIMUM mA
SCD150N/R.xx	04	400	500	15
	08	800	900	
	12	1200	1300	
	16	1600	1700	

FORWARD CONDUCTION						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum average forward current at 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	A	
Maximum peak, one cycle forward, non-repetitive surge current	$I_{FSM}$	t = 10 ms	No voltage reapplied	Sinusoidal half wave, initial $T_J = T_J$ maximum		3000
		t = 8.3 ms				3140
Maximum $I^2t$ for fusing	$I^2t$	t = 10 ms	No voltage reapplied	Sinusoidal half wave, initial $T_J = T_J$ maximum	45	
		t = 8.3 ms			41	
Slope resistance	$r_f$	$T_J = T_J$ maximum		0.97	mΩ	
Threshold voltage	$V_{F(T0)}$			0.80	V	
Maximum forward voltage drop	$V_{FM}$	$I_{pk} = 600$ A, $T_J = 25$ °C, $t_p = 10$ ms sinusoidal wave		1.47		

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction operating and storage temperature range	$T_J, T_{Stg}$			-40 to +180	°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 tightening on hexagon		17	N · m
		Lubricated threads tightening on hexagon		14.5	
		Not lubricated threads tightening on nut		14	
		Lubricated threads tightening on nut		12	
Approximate weight		130 g			
Case style		See dimensions - link at the end of datasheet		DO-8 (DO-205AA)	

$\Delta R_{thJC}$ CONDUCTION				
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	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

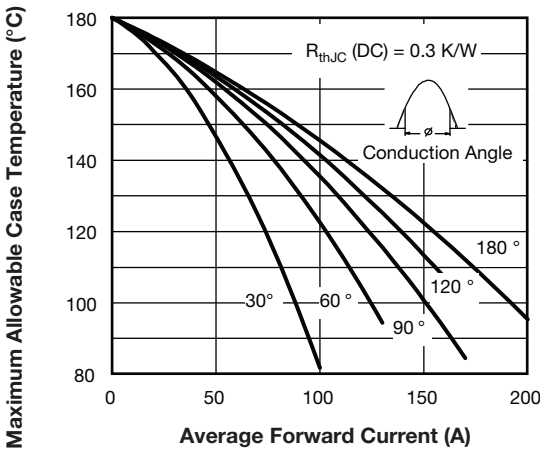


Fig. 1 - Current Ratings Characteristics

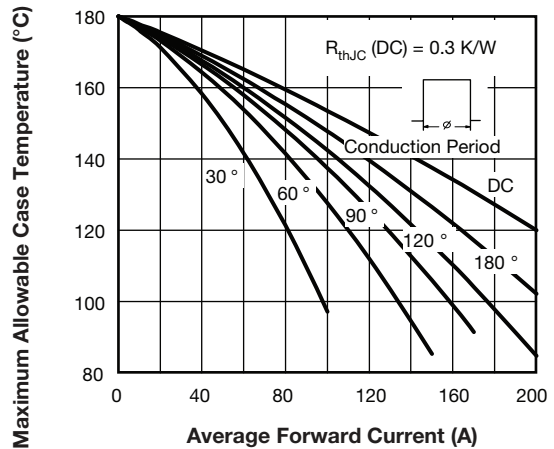


Fig. 2 - Current Ratings Characteristics

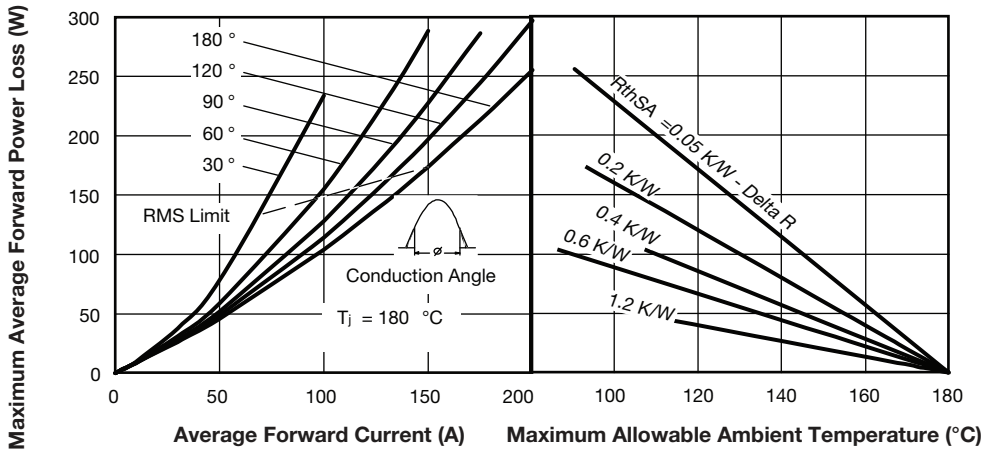


Fig. 3 - Forward Power Loss Characteristics

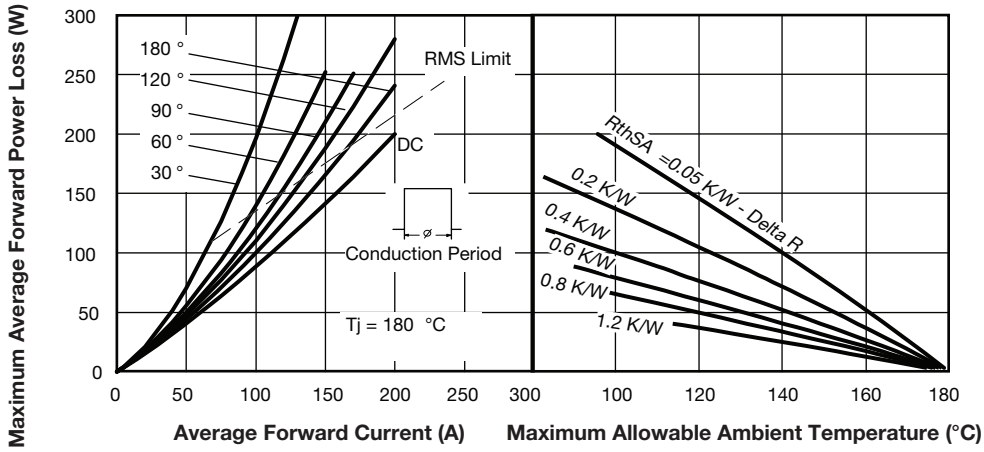


Fig. 4 - Forward Power Loss Characteristics

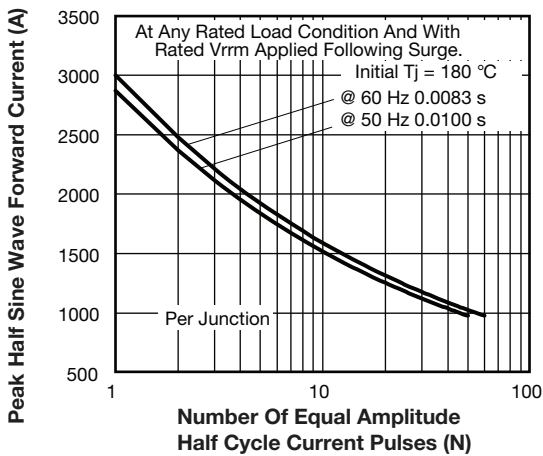


Fig. 5 - Maximum Non-Repetitive Surge Current

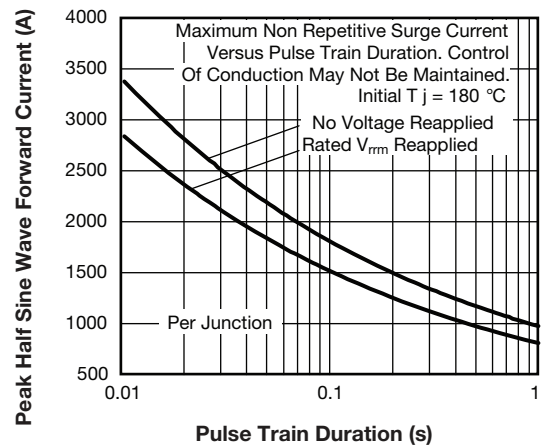


Fig. 6 - Maximum Non-Repetitive Surge Current

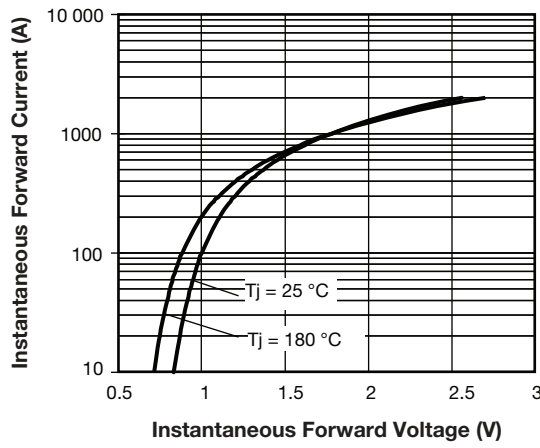


Fig. 7 - Forward Voltage Drop Characteristics

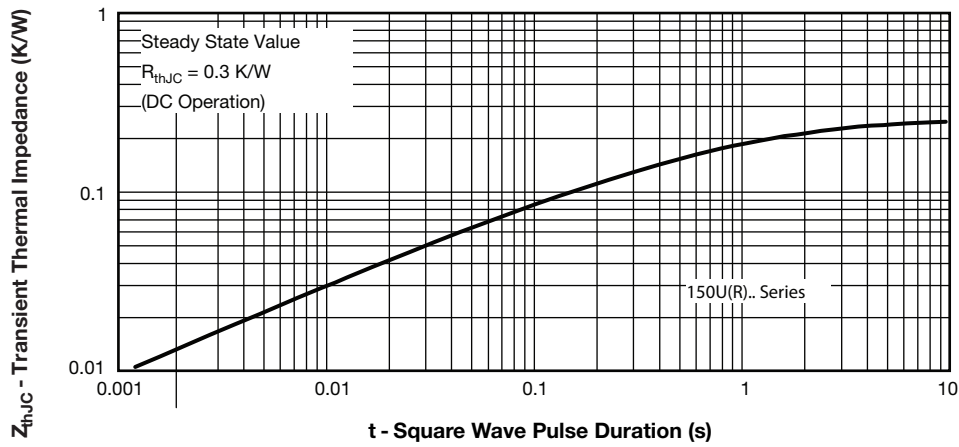


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristic

