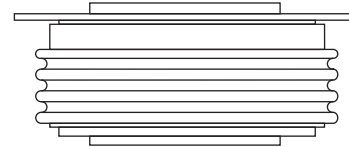


## Standard Recovery Diodes (Hockey PUK Version), 4535A

### FEATURES

- Wide current range
- Voltage ratings: 200V to 600V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style DO-220AC(K-PUK), Nell's D-type Capsule
- Lead (Pb)-free



DO-220AC(K-PUK)  
(Nell's D-type Capsule)

### TYPICAL APPLICATIONS

- Converters
- Power supplies
- Machine tool controls
- High power drives
- Medium traction applications

PRODUCT SUMMARY	
$I_{F(AV)}$	4535A

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	TEST CONDITIONS	VALUES	UNIT
$I_{F(AV)}$		4535	A
	$T_{hs}$	55	°C
$I_{F(RMS)}$		8200	A
	$T_{hs}$	25	°C
$I_{FSM}$	50 HZ	44000	A
	60 HZ	46070	
$I^2t$	50 HZ	9680	kA <sup>2</sup> s
	60 HZ	8808	
$V_{RRM}$		200 to 600	V
$T_J$	Typical	-40 to 190	°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
D4535D	02	200	300	50
	04	400	500	
	06	600	700	

FORWARD CONDUCTION					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNIT
Maximum average forward current at heatsink temperature	$I_{F(AV)}$	180° conduction, half sine wave Double side (single side) cooled		4535(2300)	A
				55(85)	°C
Maximum RMS forward current	$I_{F(RMS)}$	25°C heatsink temperature double side cooled		8200	A
Maximum peak, one cycle non-repetitive surge current	$I_{FSM}$	t = 10ms	No voltage reappplied	44000	A
		t = 8.3ms		46070	
		t = 10ms	100% $V_{RRM}$ reappplied	36960	
		t = 8.3ms		38700	
Maximum $I^2t$ for fusing	$I^2t$	t = 10ms	No voltage reappplied	9680	kA <sup>2</sup> s
		t = 8.3ms		8808	
		t = 10ms	100% $V_{RRM}$ reappplied	6830	
		t = 8.3ms		6215	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reappplied		96800	kA <sup>2</sup> √s
Maximum value of threshold voltage	$V_{F(TO)}$	$I_{FM} = 13630A, T_J = T_J$ maximum		0.770	V
Maximum value of forward slope resistance	$r_t$			0.055	mΩ
Maximum forward voltage drop	$V_{FM}$	$I_{pk} = 6400A$	$T_J = T_J$ maximum	1.10	V
		$I_{pk} = 13630A$		1.40	

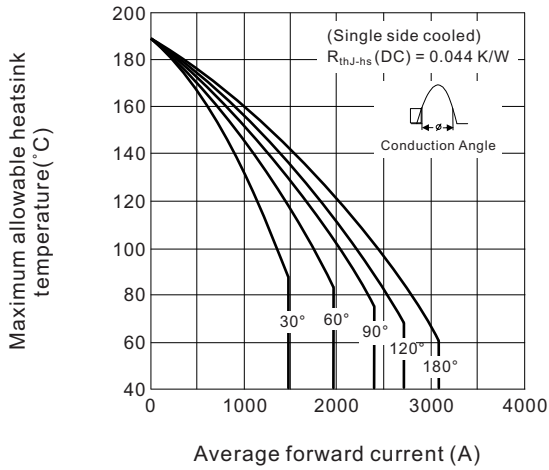
THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNIT
Maximum junction operating temperature range	$T_J$		-40 to 190	°C
Maximum storage temperature range	$T_{stg}$		-55 to 200	
Maximum thermal resistance, junction to heatsink	$R_{thJ-hs}$	DC operation single side cooled	0.044	K/W
		DC operation double side cooled	0.022	
Mounting force, ±10%			22250 (2250)	N (kg)
Approximate weight			425	g
Case style		TO-200AC (K-PUK), Nell's D-type Capsule		

△ $R_{thJC}$ CONDUCTION						
CONDUCTION ANGEL	SINUSOIDAL CONDUCTION		RECTANGULAR CONDUCTION		TEST CONDUCTIONS	UNITS
	SINGLE SIDE	DOUBLE SIDE	SINGLE SIDE	DOUBLE SIDE		
180°	0.002	0.002	0.001	0.001	$T_J = T_J$ maximum	K/W
120°	0.002	0.002	0.002	0.002		
90°	0.003	0.003	0.003	0.003		
60°	0.004	0.004	0.004	0.004		
30°	0.007	0.007	0.007	0.007		

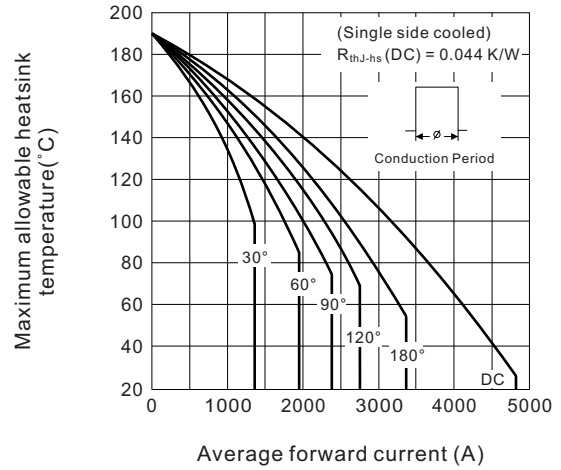
**Note**

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

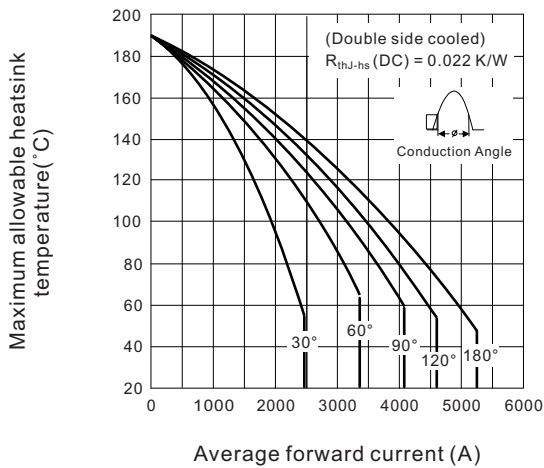
**Fig.1 Current ratings characteristics**



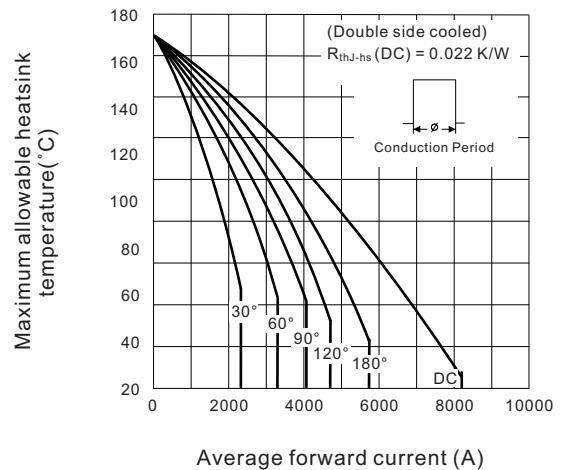
**Fig.2 Current ratings characteristics**



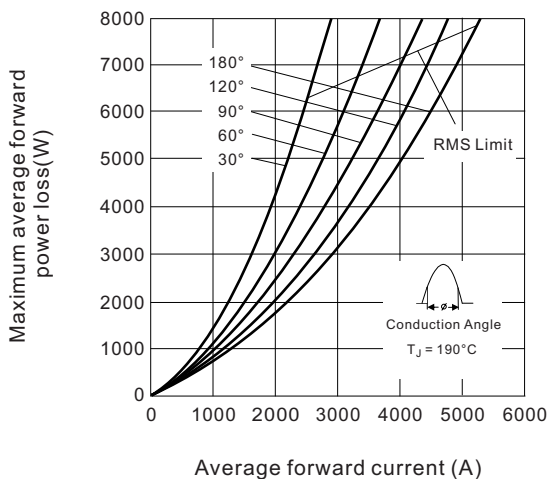
**Fig.3 Current ratings characteristics**



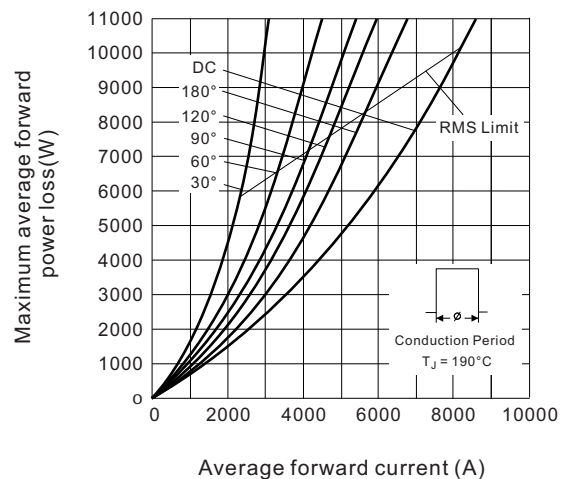
**Fig.4 Current ratings characteristics**



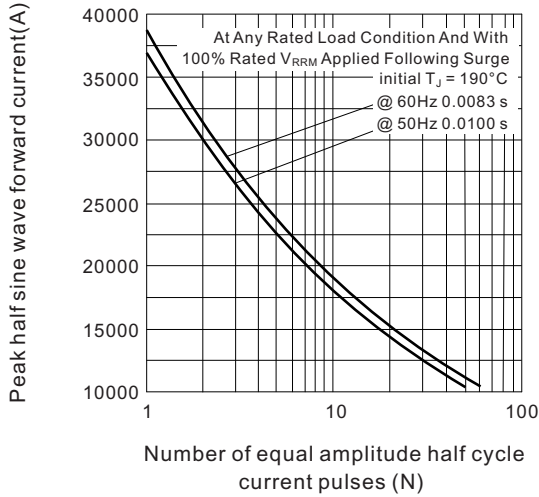
**Fig.5 Forward power loss characteristics**



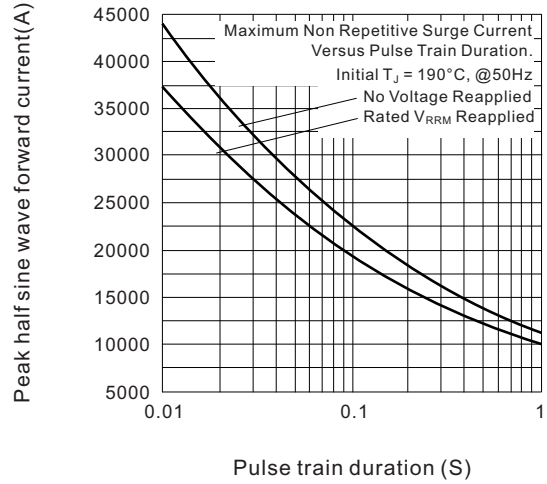
**Fig.6 Forward power loss characteristics**



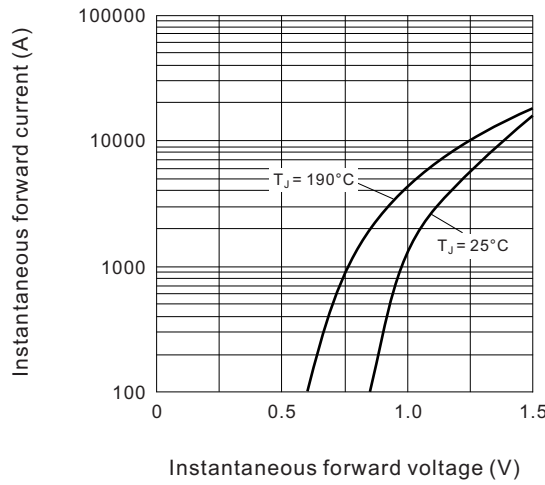
**Fig.7 Maximum non-repetitive surge current single and double side cooled**



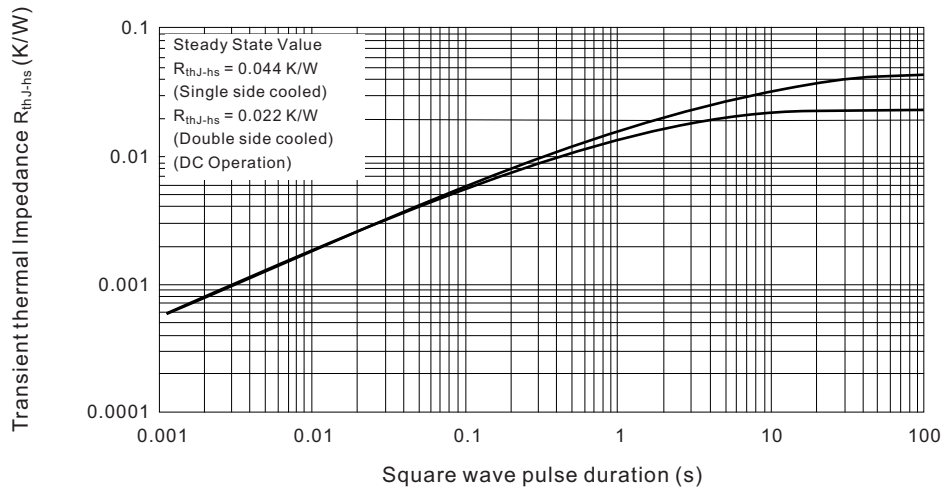
**Fig.8 Maximum non-repetitive surge current single and double side cooled**



**Fig.9 Forward voltage drop characteristics**



**Fig.10 Thermal Impedance  $R_{thJ-hs}$  characteristics**

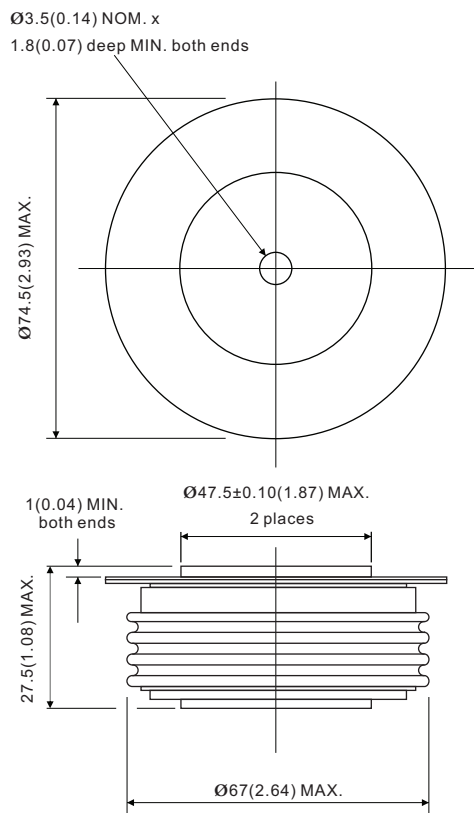


### ORDERING INFORMATION TABLE

Device code	<b>D</b>	<b>4535</b>	<b>D</b>	<b>06</b>
	①	②	③	④

- ① - "D" for standard recovery diode
- ② - Maximum average forward current, "4535" for 4535A
- ③ - Case style : "D" for Nell's D-type Capsule, DO-200AC (K-PUK)
- ④ - Voltage code, code x 100 =  $V_{RRM}$

#### DO-220AC (K-PUK), Nell's D-type Capsule



All dimensions in millimeters (inches)

