Standard Recovery Diodes (Hockey PUK Version), 800A

FEATURES

- Wide current range
- High voltage ratings up to 2400 V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style DO-200AA(A-PUK), Nell's A-type Capsule
- Lead (Pb)-free

DO-200AA(A-PUK)
(Nell's A-type Capsule)

TYPICAL APPLICATIONS

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

PRODUCT SUMMARY	
$I_{F(AV)}$	800A

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	**TEST CONDITIONS**	**VALUES**	**UNIT**
$I_{F(AV)}$		800	A
	T_{hs}	55	°C
$I_{F(RMS)}$		1435	A
	T_{hs}	25	°C
I_{FSM}	50 HZ	8250	A
	60 HZ	8638	
I^2t	50 HZ	340	kA^2s
	60 HZ	310	
V_{RRM}		400 to 2400	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**
D800A	04	400	500	15
	08	800	900	
	12	1200	1300	
	16	1600	1700	
	20	2000	2100	
	24	2400	2500	

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			800 (425)	A
					55 (85)	°C
Maximum RMS forward current	$I_{F(RMS)}$	25°C heatsink temperature double side cooled			1435	A
Maximum peak, one cycle non-reptitive surge current	I_{FSM}	t = 10ms	No voltage reapplied	Sinusoidal half wave, initial $T_J = T_J$ maximum	8250	A
		t = 8.3ms			8638	
		t = 10ms	100%V_{RRM} reapplied		6930	
		t = 8.3ms			7256	
Maximum I^2t for fusing	I^2t	t = 10ms	No voltage reapplied		340	kA^2s
		t = 8.3ms			310	
		t = 10ms	100%V_{RRM} reapplied		240	
		t = 8.3ms			218	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied			3403	$kA^2\sqrt{s}$
Maximum value of threshold voltage	$V_{F(TO)}$	I_{PK} = 2510A, $T_J = T_J$ maximum			0.83	V
Maximum value of forward slope resistance	r_t	I_{PK} = 2510A, $T_J = T_J$ maximum			0.53	mΩ
Maximum forward voltage drop	V_{FM}	I_{pk} = 1930A, $T_J = T_J$ maximum, t_p = 10 ms sinusoidal wave			1.85	V

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}		-40 to 200	
Maximum thermal resistance, junction to heatsink	R_{thJ-hs}	DC operation single side cooled	0.160	K/W
		DC operation double side cooled	0.080	
Mounting force, ±10%			4900 (500)	N (kg)
Approximate weight			70	g
Case style		DO-200AA (A-PUK), Nell's A-type Capsule		

⏢ R_{thJC} CONDUCTION

CONDUCTION ANGEL	SINUSOIDAL CONDUCTION		RECTANGULAR CONDUCTION		TEST CONDUCTIONS	UNITS
	SINGLE SIDE	DOUBLE SIDE	SINGLE SIDE	DOUBLE SIDE		
180°	0.017	0.018	0.011	0.012	$T_J = T_J$ maximum	K/W
120°	0.020	0.020	0.020	0.020		
90°	0.025	0.025	0.027	0.027		
60°	0.037	0.036	0.038	0.038		
30°	0.064	0.062	0.065	0.062		

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

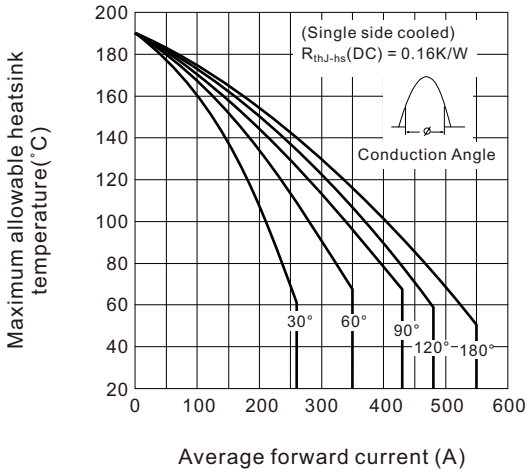


Fig.2 Current ratings characteristics

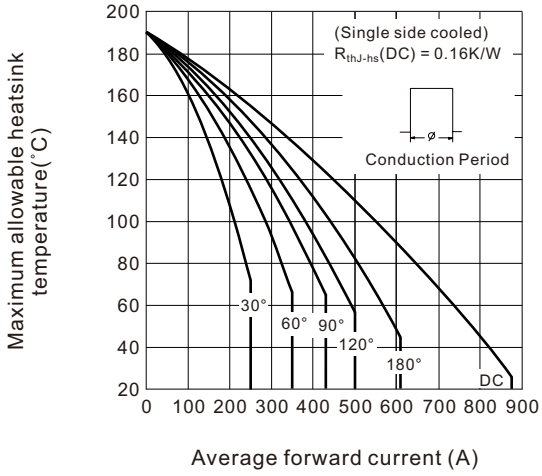


Fig.3 Current ratings characteristics

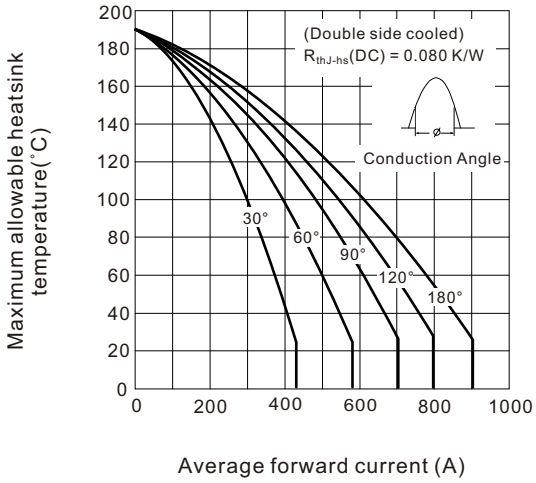


Fig.4 Current ratings characteristics

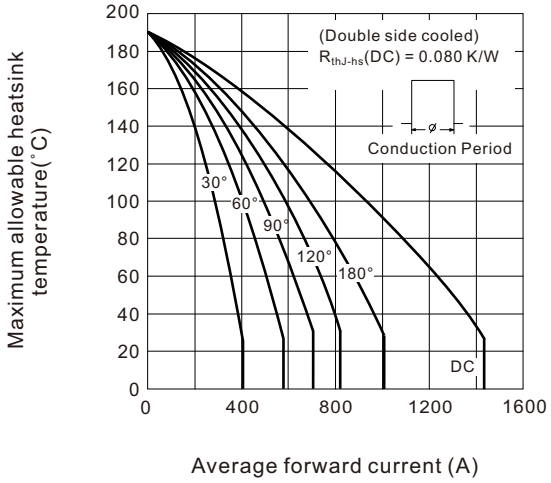


Fig.5 Forward power loss characteristics

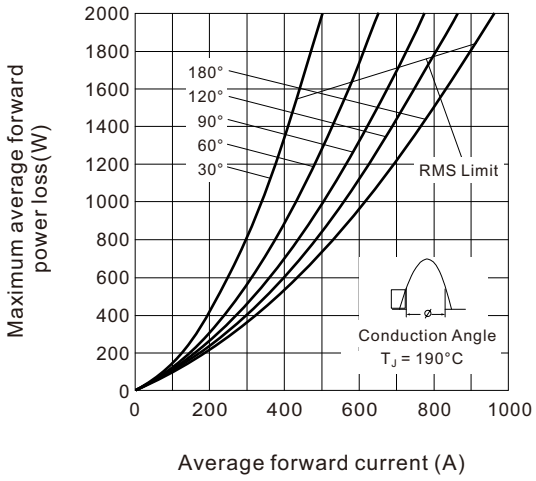


Fig.6 Forward power loss characteristics

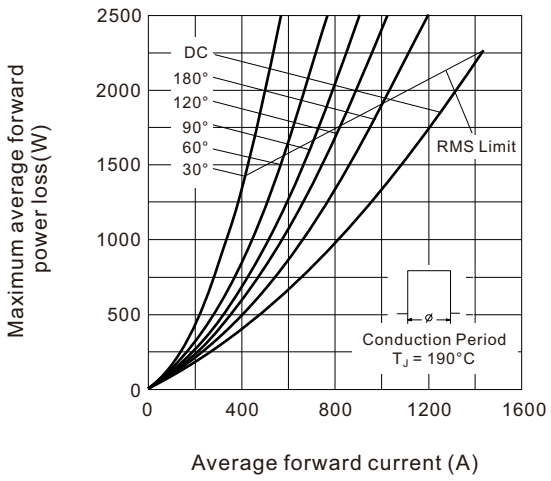


Fig.7 Maximum non-repetitive surge current single and double side cooled

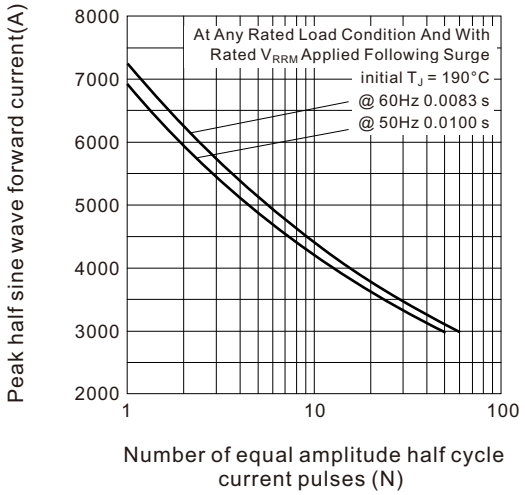


Fig.8 Maximum non-repetitive surge current single and double side cooled

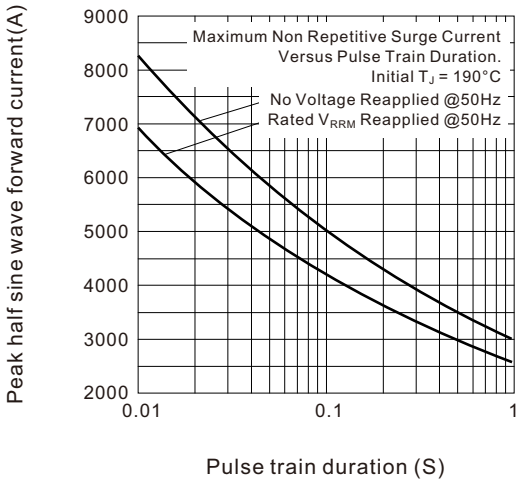


Fig.9 Forward voltage drop characteristcs

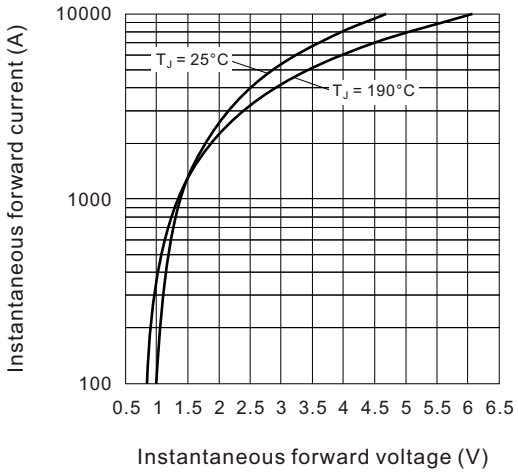
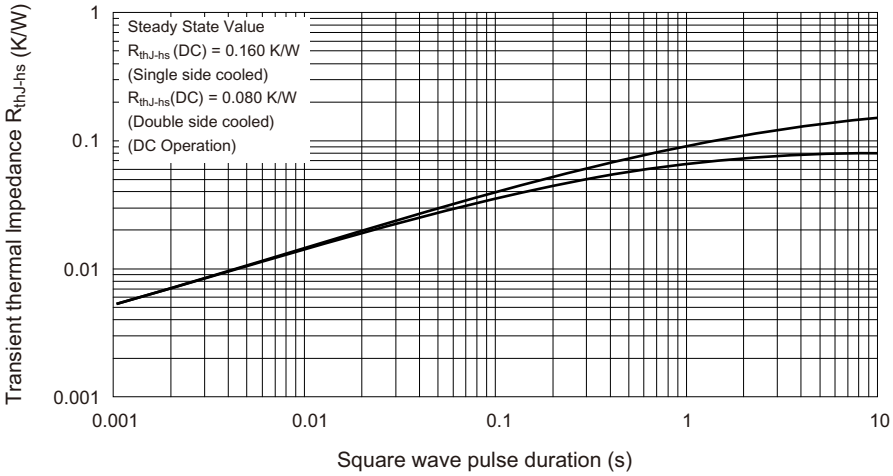


Fig.10 Thermal Impedance $R_{thJ\text{-}hs}$ characteristics



ORDERING INFORMATION TABLE

Device code	D	800	A	20
	1	2	3	4

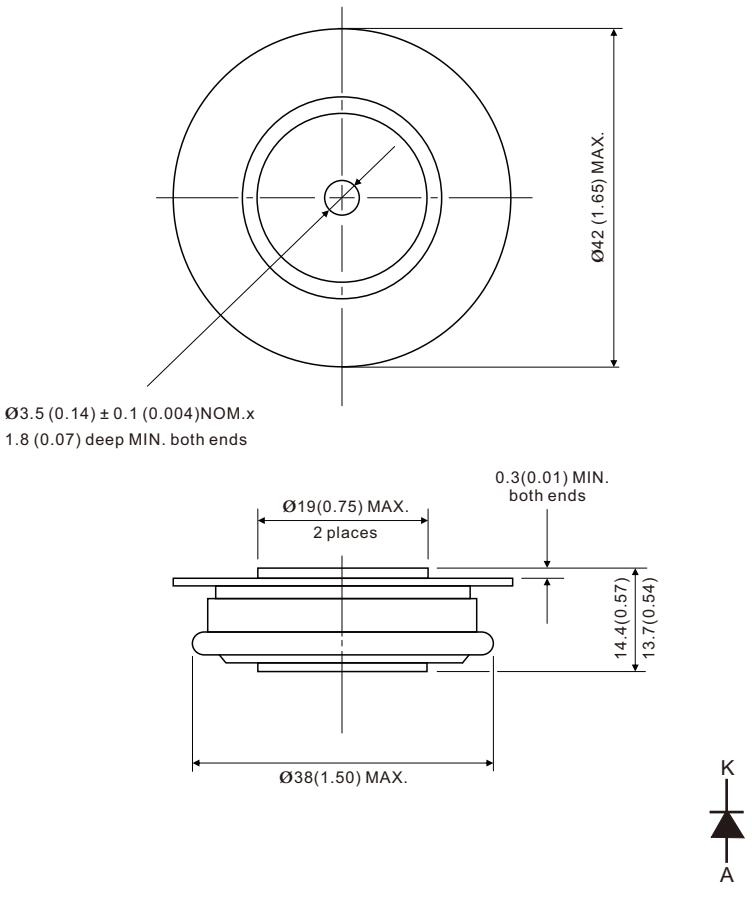
1 - "D" for standard recovery diode

2 - Maximum average forward current, "800" for 800A

3 - Case style : "A" for Nell's A-type Capsule, DO-200AA (A-PUK)

4 - Voltage code, code x 100 = V_{RRM}

DO-200AA (A-PUK), Nell's A-type Capsule



All dimensions in millimeters (inches)