

FEATURES

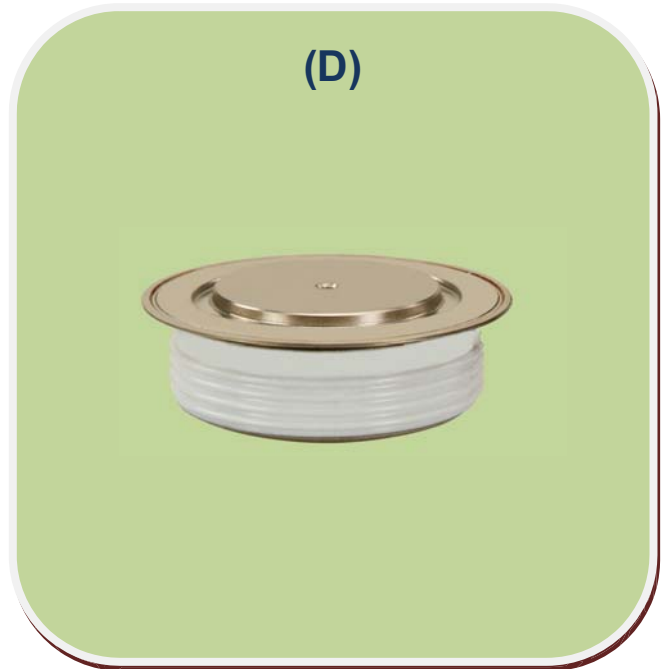
- Wide current range
- High Voltage rating up to 4200 V
- High surge current capabilities
- Diffused junction

TYPICAL APPLICATIONS

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

TECHNICAL DATA

DEVICE TYPE	V _{RRM} (V)	V _{RSM} (V)
DS2001SD36	3600	3700
DS2001SD38	3800	3900
DS2001SD40	4000	4100
DS2001SD42	4200	4300



CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
I _{FAVM}	Average On - State Current	T _c 100 °C -	1800	A
I _{FAVM}	Average On - State Current	T _c 55 °C -	2500	A
I _{F(RMS)}	RMS ON- State Current	T _c 55 °C -	4000	A
I _{FSM}	SURGE Current	T _v 25 °C, t _p = 10ms -	35000	A
		T _{vj} Max. t _p = 10ms -	27000	A
I ² t	for Fusing	T _v 25 °C, t _p = 10ms -	6125	10 ³ A ² s
	RMS value	T _{vj} Max. t _p = 10ms -	3781	10 ³ A ² s

Symbol	Parameter	Conditions	Max.	Units
Double Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	1225	A
$I_{F(RMS)}$	RMS value	-	1923	A
I_F	Continuous (direct) forward current	-	1720	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	820	A
$I_{F(RMS)}$	RMS value	-	1287	A
I_F	Continuous (direct) forward current	-	1050	A

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 150^{\circ}C$	20.0	kA
I^2t	I^2t for fusing	$V_R = 50\% V_{RRM}$ - 1/4 sine	2.0×10^6	A ² s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; $T_{case} = 150^{\circ}C$	25.0	kA
I^2t	I^2t for fusing	$V_R = 0$	3.125×10^6	A ² s

THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions	Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	Double side cooled	dc	-	0.016 °C/W
		Single side cooled	Anode dc	-	0.0329 °C/W
			Cathode dc	-	0.0320 °C/W
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 19.5kN with mounting compound	Double side	-	0.0025 °C/W
			Single side	-	0.0050 °C/W
T_{vj}	Virtual junction temperature	Forward (conducting)	-	160	°C
		Reverse (blocking)	-	150	°C
T_{stg}	Storage temperature range		-40	160	°C
-	Clamping force		20.0	22.0	kN

CHARACTERISTICS

Symbol	Parameter	Conditions		Units.
V_F	Forward Voltage	$I_f = 7.4 \text{ kA}$ -	2.82 max	V
		$I_f = 1.5 \text{ kA}$ -	1.32 max	V
V_{TO}	Threshold voltage	At $T_{vj} = T_{vj \text{ max}}$	0.85	V
I_{RR}	Peak recovery current	At $T_{vj} = T_{vj \text{ max}}, V_R = V_{RRM}$	100	mA
r_T	Slope resistance	At T_{vj}	0.253	m Ω

CURVES

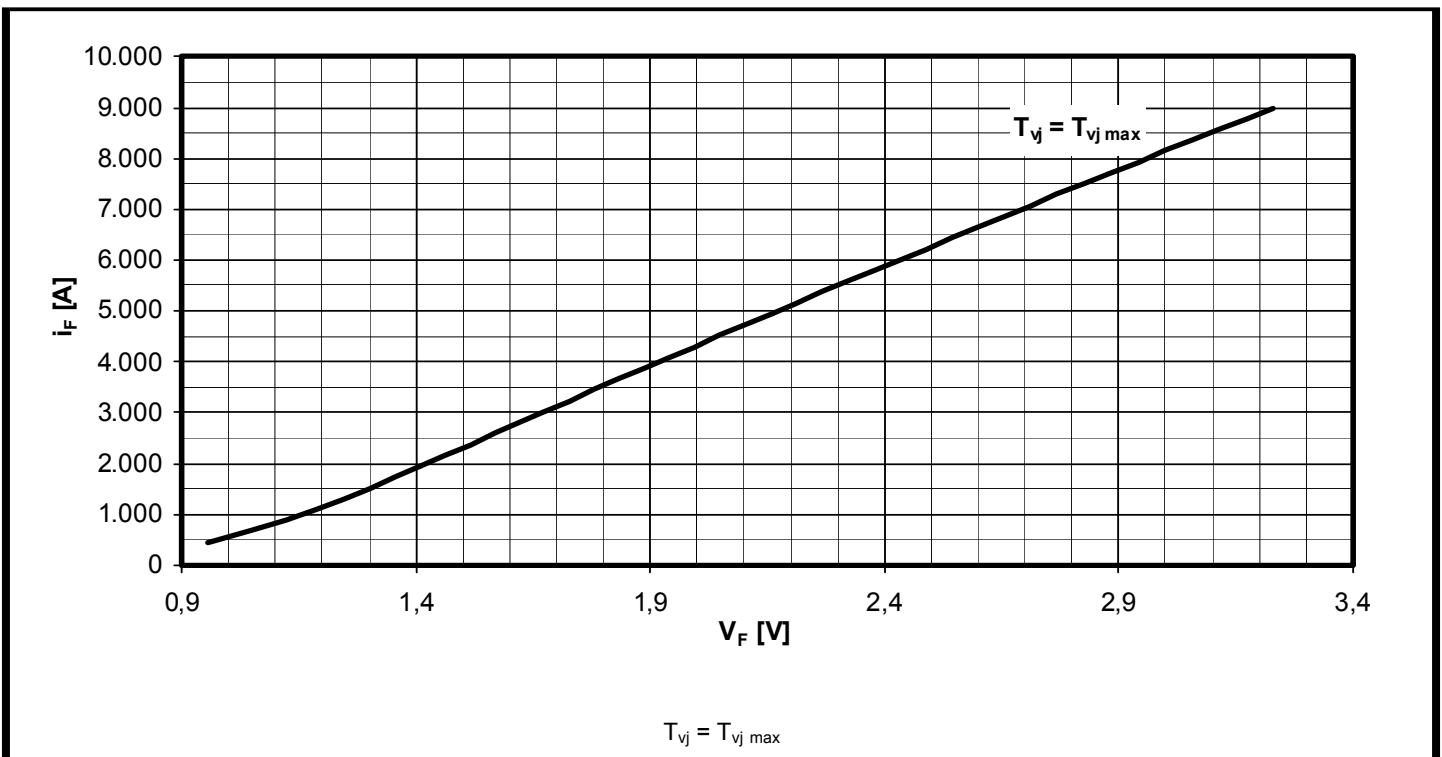


Fig.1 Maximum (limit) forward characteristics

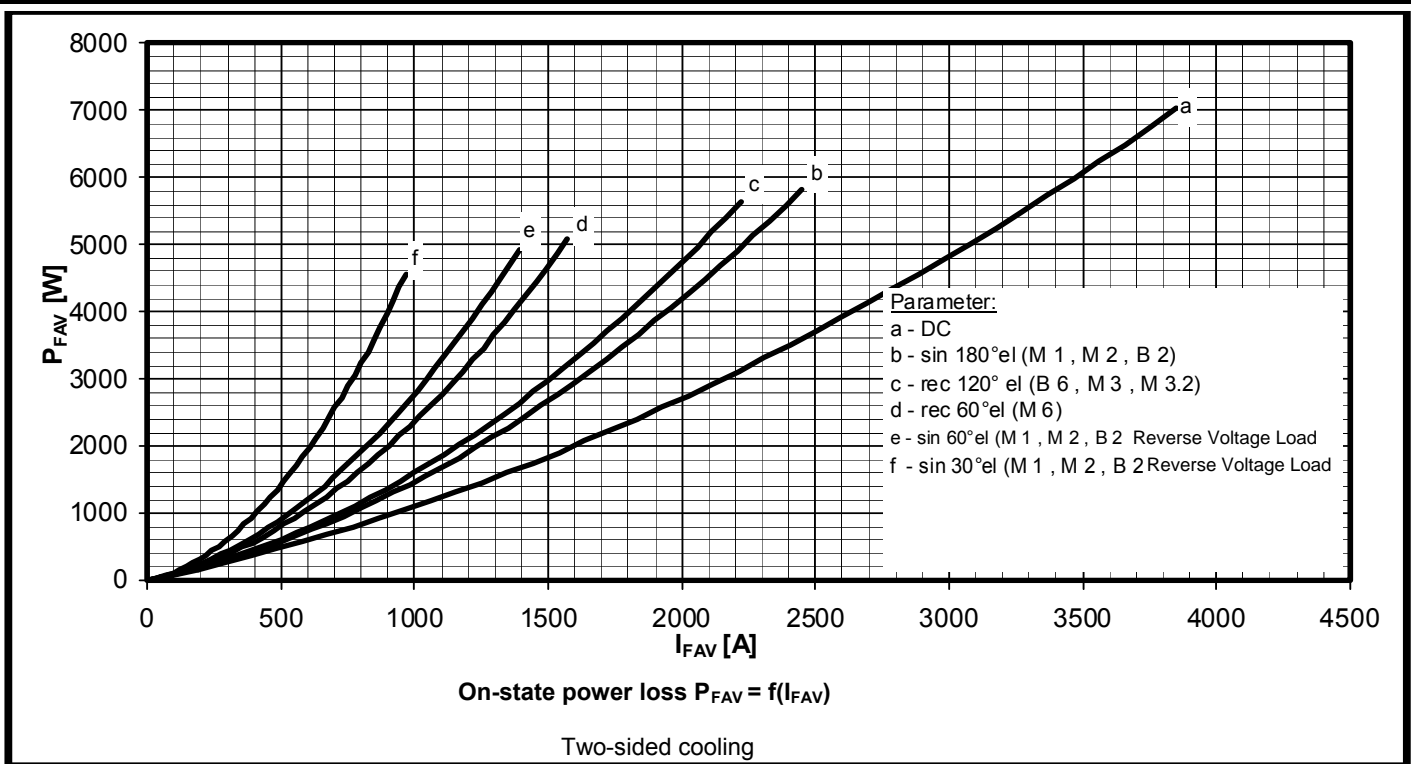


Fig.2 Maximum (limit) forward characteristics

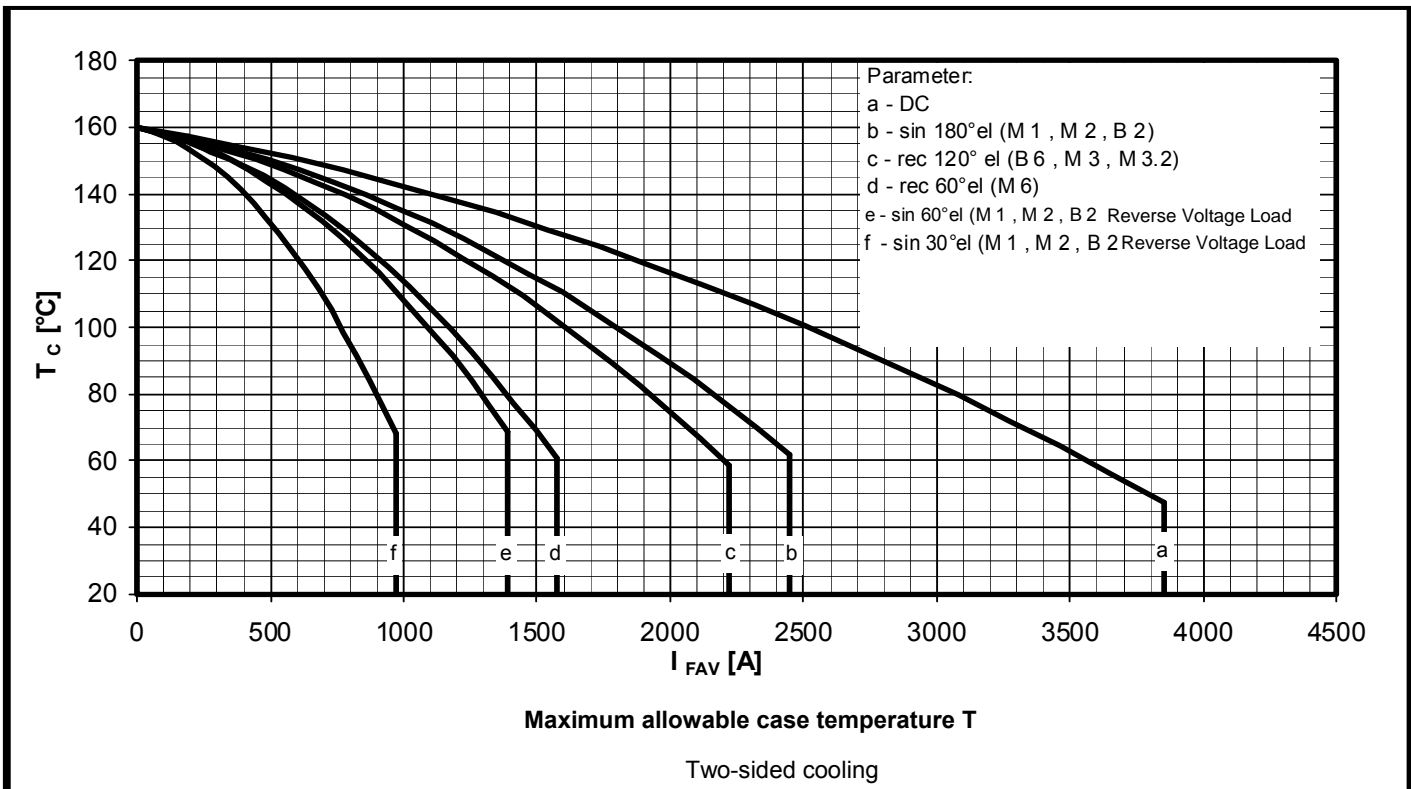
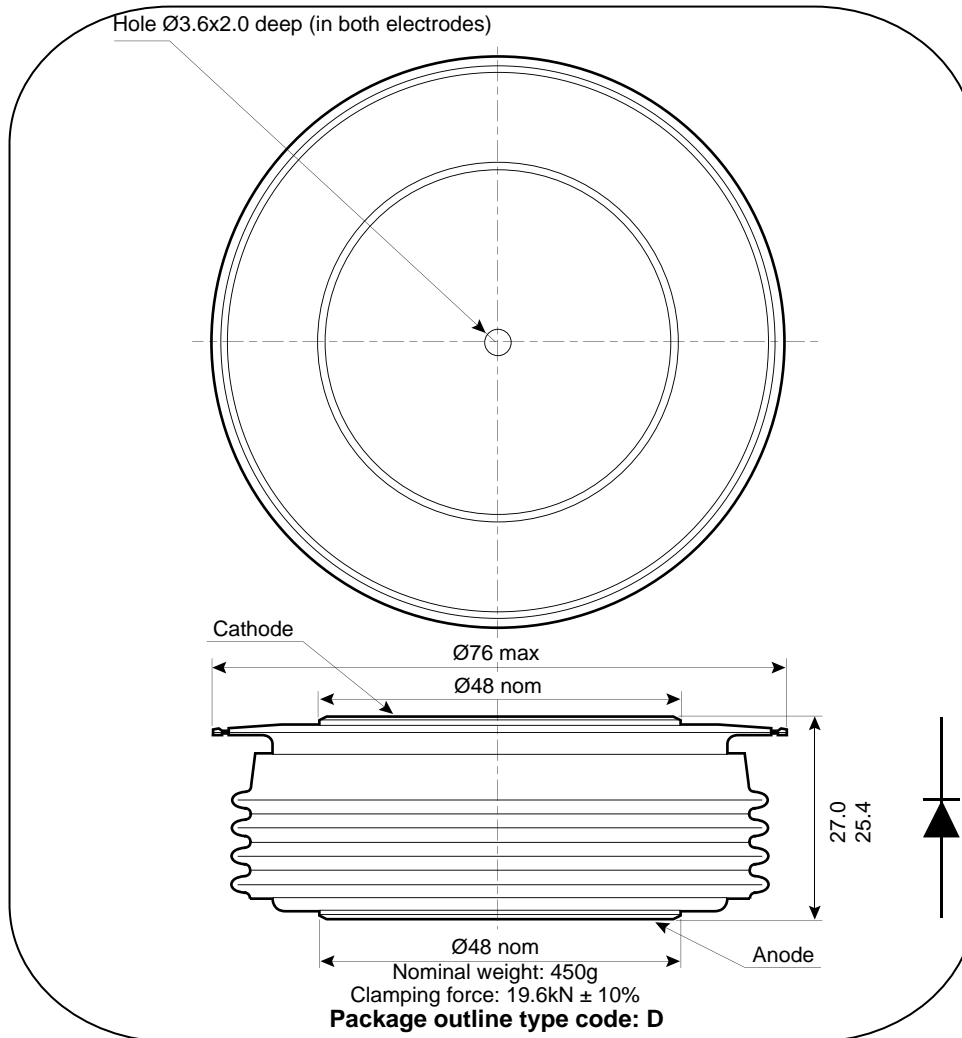


Fig.3 Maximum (limit) forward characteristics

PACKAGE OUTLINE



All dimensions are in mm.

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