

### APPLICATIONS

- Freewheel Diode.
- Antiparallel Diode.
- Inverters.
- Choppers.

### KEY PARAMETERS

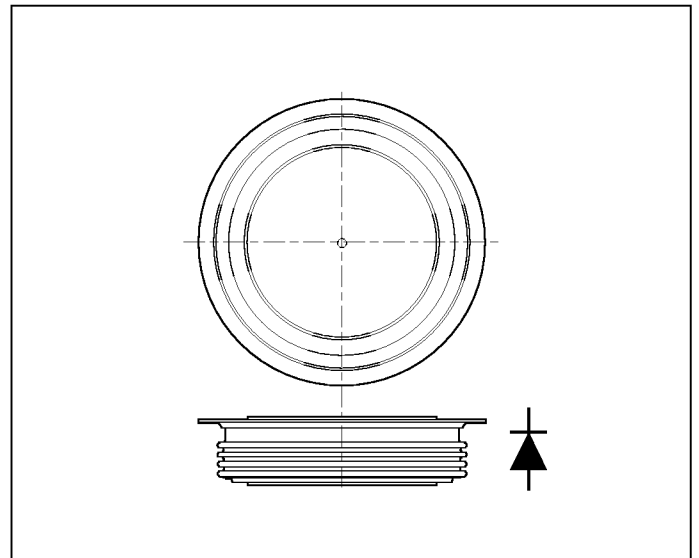
$V_{RRM}$	6000V
$I_{F(AV)}$	1690A
$I_{FSM}$	16000A
$Q_r$	1200 $\mu$ C
$t_{rr}$	6.5 $\mu$ s

### FEATURES

- Double Side Cooling.
- High Surge Capability.
- Low Recovery Charge.

### VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage $V_{RRM}$	Conditions
DSF21060SV60	6000	$V_{RSM} = V_{RRM} + 100V$
DSF21060SV59	5900	
DSF21060SV58	5800	
DSF21060SV57	5700	
DSF21060SV56	5600	
DSF21060SV55	5500	



Outline type code: V. Turn to page 8 for further information.

### CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
<b>Double Side Cooled</b>				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, $T_{case} = 65^{\circ}C$	1690	A
$I_{F(RMS)}$	RMS value	$T_{case} = 65^{\circ}C$	2655	A
$I_F$	Continuous (direct) forward current	$T_{case} = 65^{\circ}C$	2460	A
<b>Single Side Cooled (Anode side)</b>				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, $T_{case} = 65^{\circ}C$	1090	A
$I_{F(RMS)}$	RMS value	$T_{case} = 65^{\circ}C$	1710	A
$I_F$	Continuous (direct) forward current	$T_{case} = 65^{\circ}C$	1520	A

DSF21060SV

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine; with 0% $V_{RRM}$ , $T_j = 125^{\circ}C$	12.8	kA
$I^2t$	$I^2t$ for fusing		$819.2 \times 10^3$	$A^2s$
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine; with 50% $V_{RRM}$ , $T_j = 125^{\circ}C$	16.0	kA
$I^2t$	$I^2t$ for fusing		$1280 \times 10^3$	$A^2s$
$I_{FSM}$	Surge (non-repetitive) forward current	10ms half sine; with 100% $V_{RRM}$ , $T_j = 125^{\circ}C$	-	kA
$I^2t$	$I^2t$ for fusing		-	$A^2s$

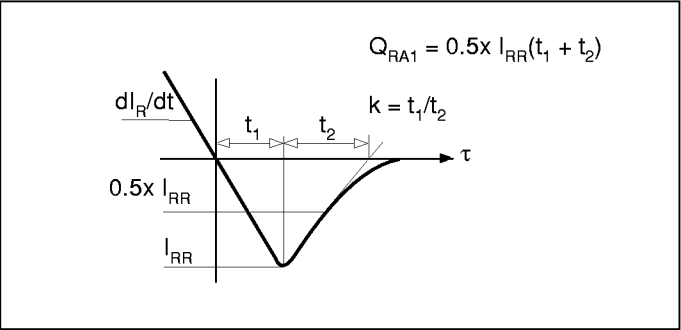
THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions		Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	Double side cooled	dc	-	0.0075	$^{\circ}C/W$
		Single side cooled	Anode dc	-	0.015	$^{\circ}C/W$
			Cathode dc	-	0.015	$^{\circ}C/W$
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 40.0kN with mounting compound	Double side	-	0.002	$^{\circ}C/W$
			Single side	-	0.004	$^{\circ}C/W$
$T_{vj}$	Virtual junction temperature	Forward (conducting)		-	130	$^{\circ}C$
$T_{stg}$	Storage temperature range			-55	150	$^{\circ}C$
-	Clamping force			36.0	44.0	kN

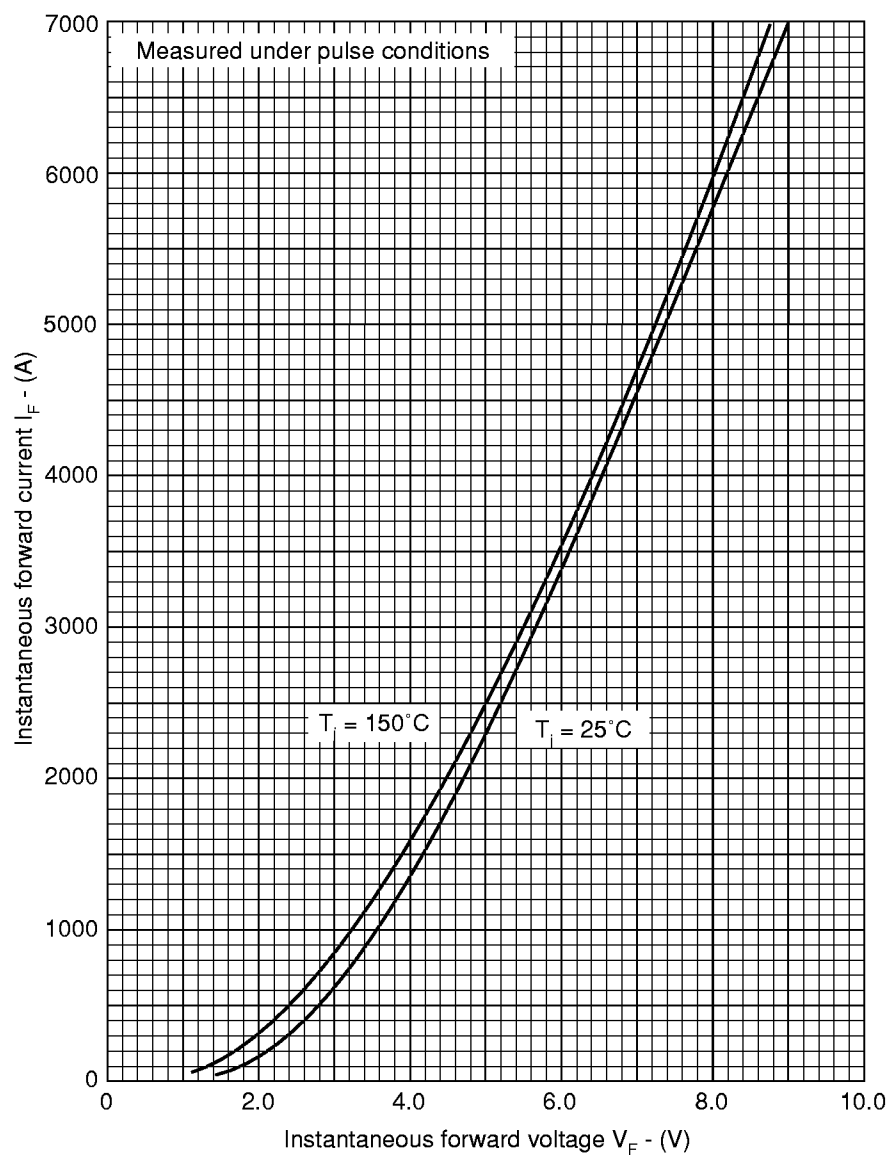
CHARACTERISTICS

Symbol	Parameter	Conditions	Typ.	Max.	Units
$V_{FM}$	Forward voltage	At 600A peak, $T_{case} = 25^{\circ}C$	-	3.0	V
$I_{RRM}$	Peak reverse current	At $V_{RRM}$ , $T_{case} = 125^{\circ}C$	-	75	mA
$t_{rr}$	Reverse recovery time	$I_F = 1000A$ , $di_{RR}/dt = 100A/\mu s$ $T_{case} = 125^{\circ}C$ , $V_R = 100V$	-	6.5	$\mu s$
$Q_{RA1}$	Recovered charge (50% chord)		-	1500	$\mu C$
$I_{RM}$	Reverse recovery current		-	460	A
K	Soft factor		1.8	-	-
$V_{TO}$	Threshold voltage	At $T_{vj} = 125^{\circ}C$	-	1.625	V
$r_T$	Slope resistance	At $T_{vj} = 125^{\circ}C$	-	0.66	$m\Omega$
$V_{FRM}$	Forward recovery voltage	$di/dt = 1000A/\mu s$ , $T_j = 100^{\circ}C$	140	-	V

DEFINITION OF K FACTOR AND  $Q_{RA1}$



CURVES



**FIG. 1 MAXIMUM (LIMIT) FORWARD CHARACTERISTICS**

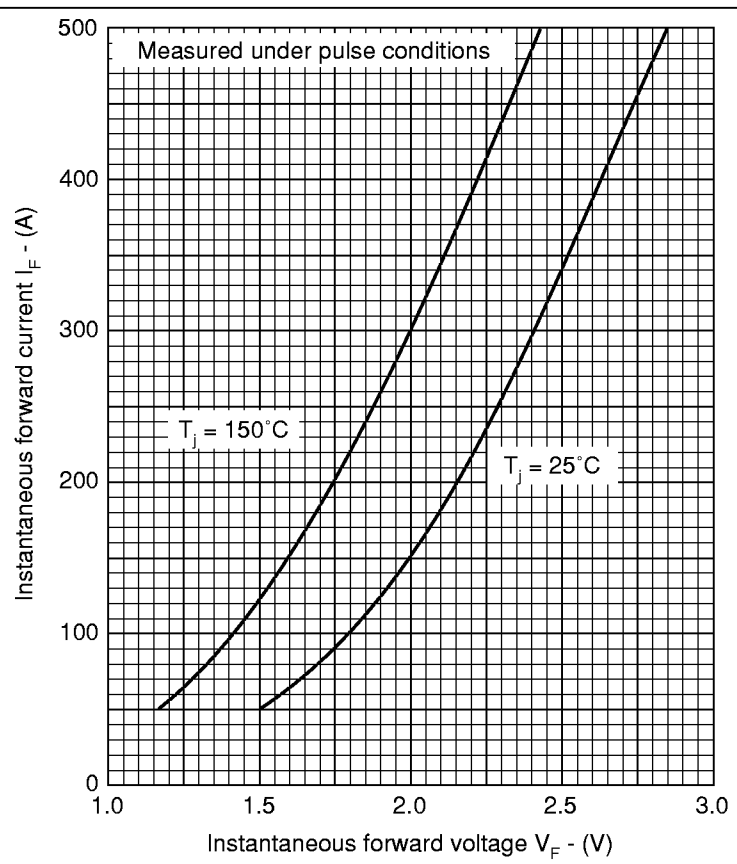


FIG. 2 MAXIMUM (LIMIT) FORWARD CHARACTERISTICS

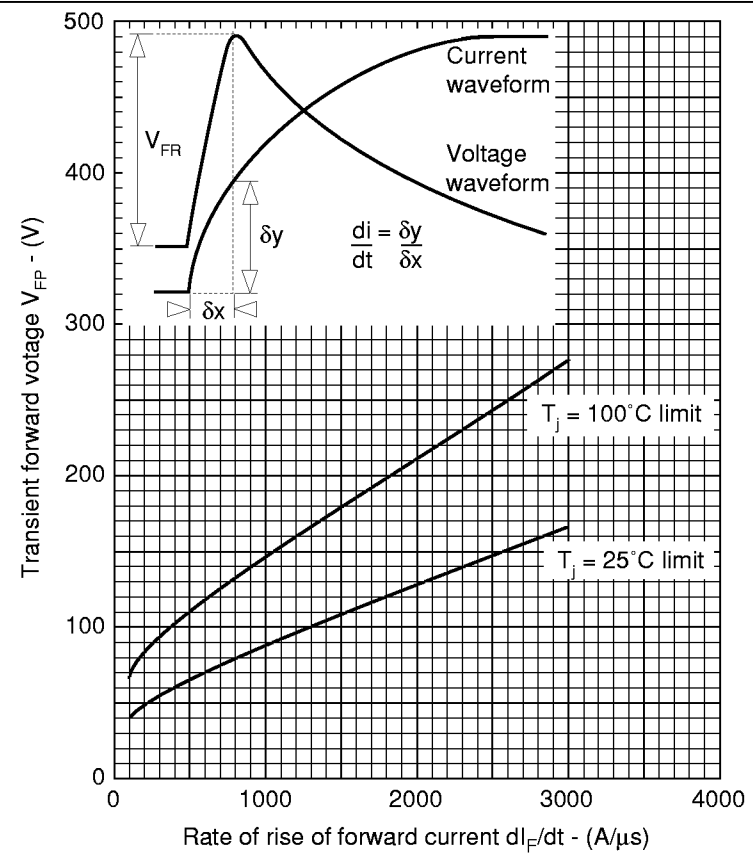


FIG. 3 TRANSIENT FORWARD VOLTAGE vs RATE OF RISE OF FORWARD CURRENT

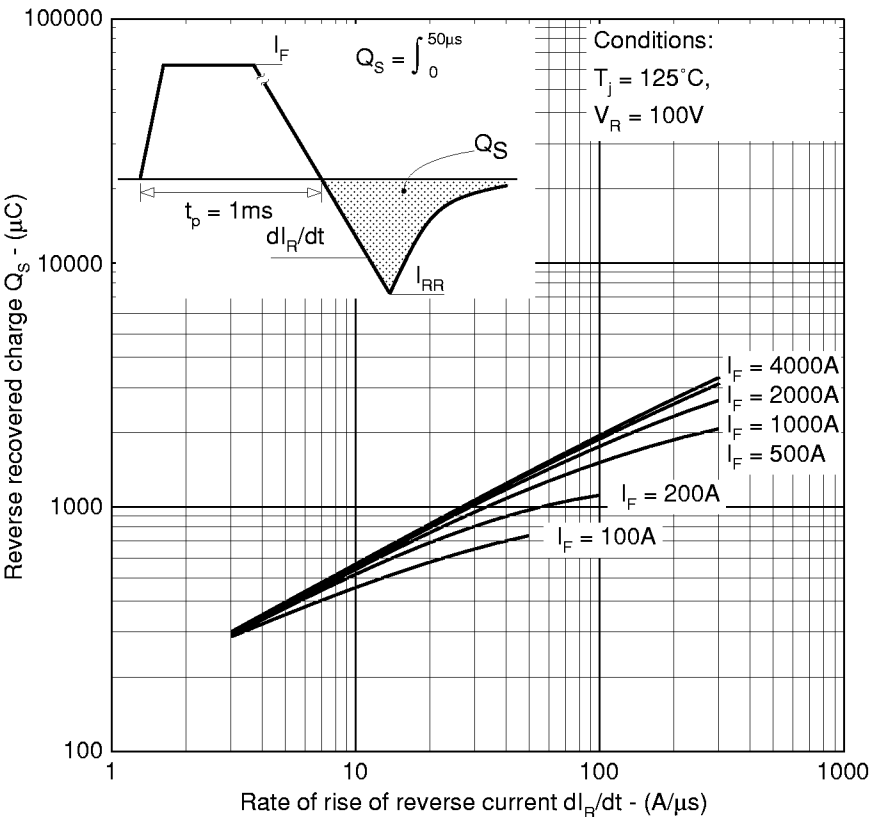


FIG. 4 RECOVERED CHARGE

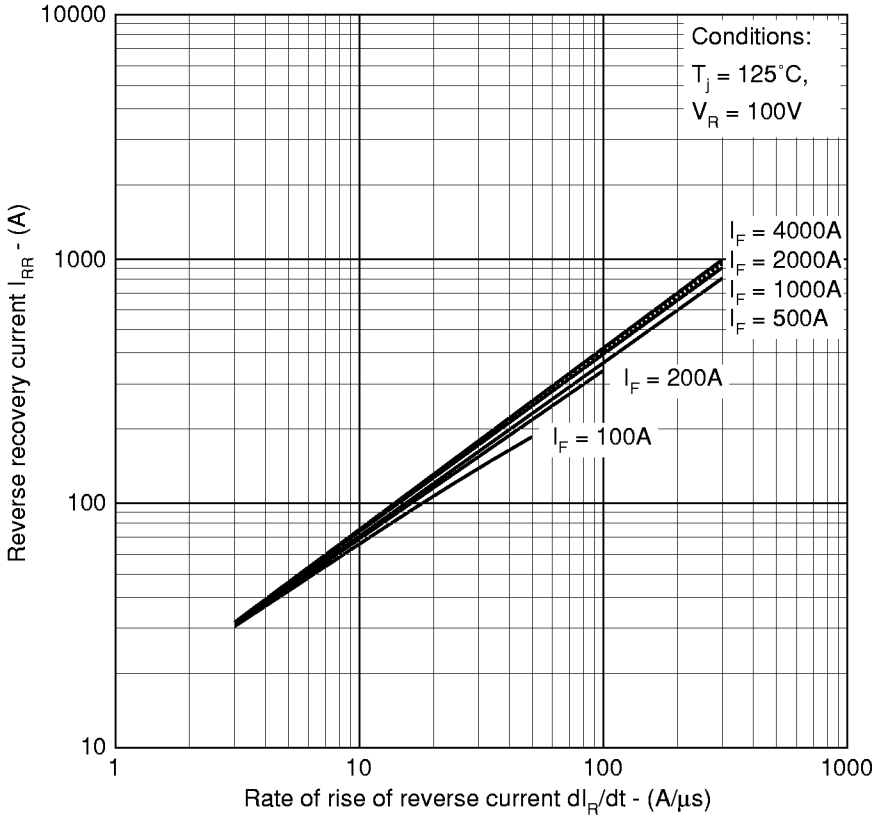
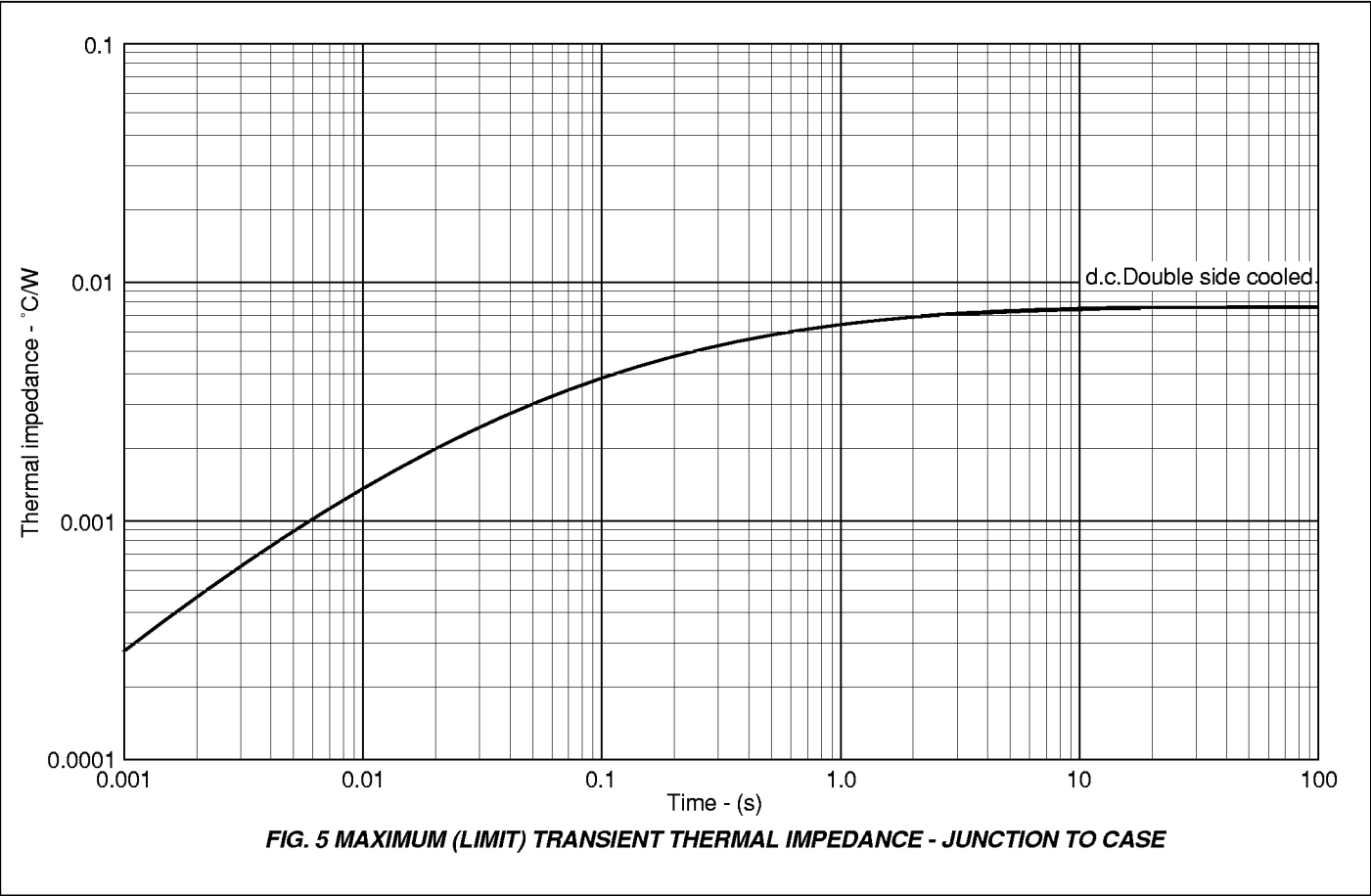


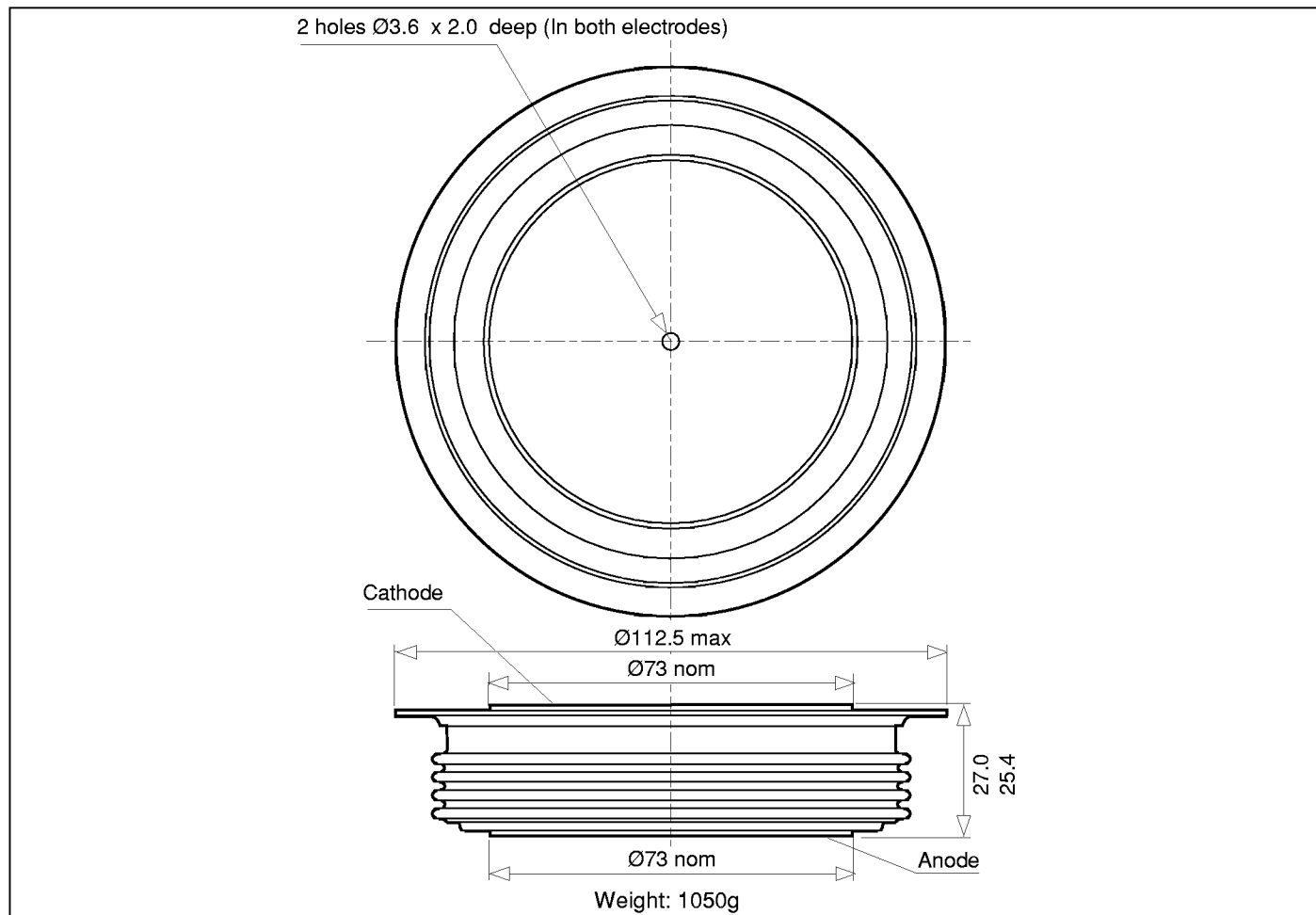
FIG. 5 TYPICAL REVERSE RECOVERY CURRENT vs RATE OF RISE OF REVERSE CURRENT



## DSF21060SV

### PACKAGE DETAILS - V

For further package information, please contact your local Customer Service Centre. All dimensions in mm, unless stated otherwise. DO NOT SCALE.



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