

**FEATURES**

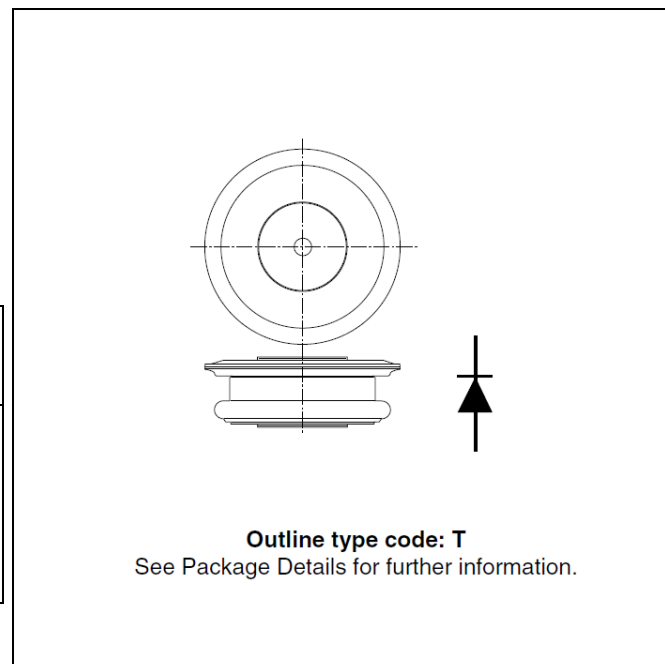
- Double Side Cooling
- High Surge Capability

**KEY PARAMETERS**

$V_{RRM}$	<b>1400V</b>
$I_{F(AV)}$	<b>866A</b>
$I_{FSM}$	<b>8000A</b>

**VOLTAGE RATINGS**

Part and Ordering Number	Repetitive Peak Voltages $V_{RRM}$ V	Conditions
DRD710T14 DRD710T12 DRD710T10	1400 1200 1000	$V_{RSM} = V_{RRM} + 100V$


**Fig. 1 Package outline**
**ORDERING INFORMATION**

When ordering, select the required part number shown in the Voltage Ratings selection table.

For example:

**DRD710T12** for a 1200V device

## CURRENT RATINGS

$T_{case} = 75^{\circ}C$  unless stated otherwise

Symbol	Parameter	Test Conditions	Max.	Units
<b>Double Side Cooled</b>				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	866	A
$I_{F(RMS)}$	RMS value	-	1360	A
$I_F$	Continuous (direct) on-state current	-	1236	A
<b>Single Side Cooled (Anode side)</b>				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	556	A
$I_{F(RMS)}$	RMS value	-	873	A
$I_F$	Continuous (direct) on-state current	-	721	A

$T_{case} = 100^{\circ}C$  unless stated otherwise

Symbol	Parameter	Test Conditions	Max.	Units
<b>Double Side Cooled</b>				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	710	A
$I_{F(RMS)}$	RMS value	-	1115	A
$I_F$	Continuous (direct) on-state current	-	994	A
<b>Single Side Cooled (Anode side)</b>				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	449	A
$I_{F(RMS)}$	RMS value	-	705	A
$I_F$	Continuous (direct) on-state current	-	569	A

**SURGE RATINGS**

Symbol	Parameter	Test Conditions	Max.	Units
$I_{FSM}$	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 1750^{\circ}C$ $V_R = 50\% V_{RRM} - \frac{1}{4}$ sine	6.5	kA
$I^2t$	$I^2t$ for fusing		$211 \times 10^3$	MA <sup>2</sup> s
$I_{FSM}$	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 175^{\circ}C$ $V_R = 0$	8.0	kA
$I^2t$	$I^2t$ for fusing		0.32	MA <sup>2</sup> s

**THERMAL AND MECHANICAL RATINGS**

Symbol	Parameter	Test Conditions	Min.	Max.	Units	
$R_{th(j-c)}$	Thermal resistance – junction to case	Double side cooled	DC	-	0.07	$^{\circ}C/W$
		Single side cooled	Anode DC	-	0.14	$^{\circ}C/W$
			Cathode DC	-	0.14	$^{\circ}C/W$
$R_{th(c-h)}$	Thermal resistance – case to heatsink	Clamping force 43kN	Double side	-	0.02	$^{\circ}C/W$
		(with mounting compound)	Single side	-	0.04	$^{\circ}C/W$
$T_{vj}$	Virtual junction temperature	On-state (conducting)		-	185	$^{\circ}C$
		Reverse (blocking)		-	175	$^{\circ}C$
$T_{stg}$	Storage temperature range			-55	200	$^{\circ}C$
$F_m$	Clamping force			3.5	5.0	kN

## CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
$V_{FM}$	Forward voltage	At 600A peak, $T_{case} = 25^{\circ}C$	-	1.2	V
$I_{RM}$	Peak reverse current	At $V_{RRM}$ , $T_{case} = 175^{\circ}C$	-	30	mA
$V_{TO}$	Threshold voltage	At $T_{vj} = 175^{\circ}C$	-	0.76	V
$r_T$	Slope resistance	At $T_{vj} = 175^{\circ}C$	-	0.32	m $\Omega$

## CURVES

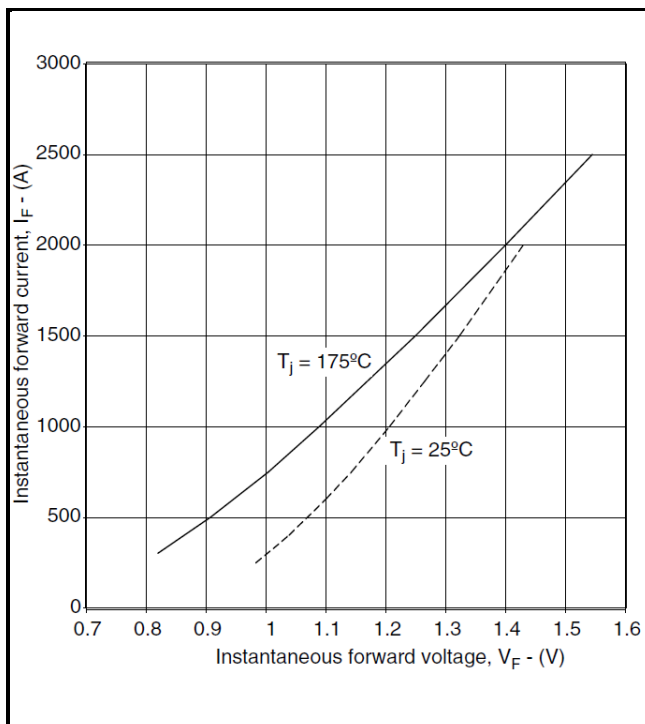


Fig.2 Maximum & minimum on-state characteristics

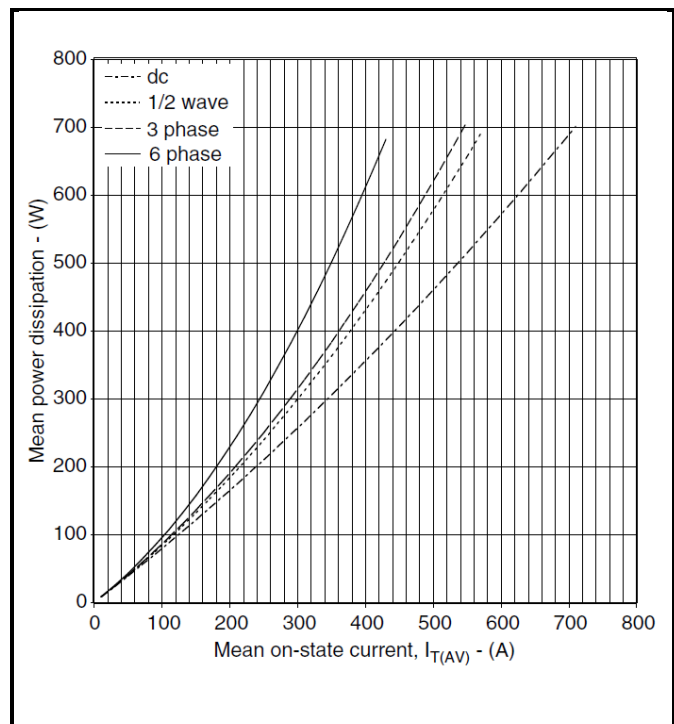


Fig.3 Dissipation curves

### $V_{TM}$ EQUATION

$$V_{TM} = A + B \ln(I_T) + C \cdot I_T + D \cdot \sqrt{I_T}$$

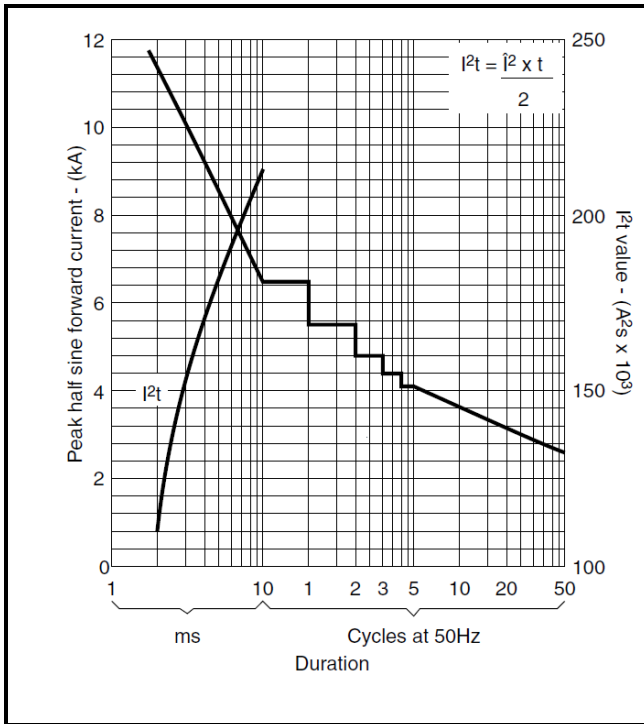
Where  $A = 0.137416$

$B = 0.109992$

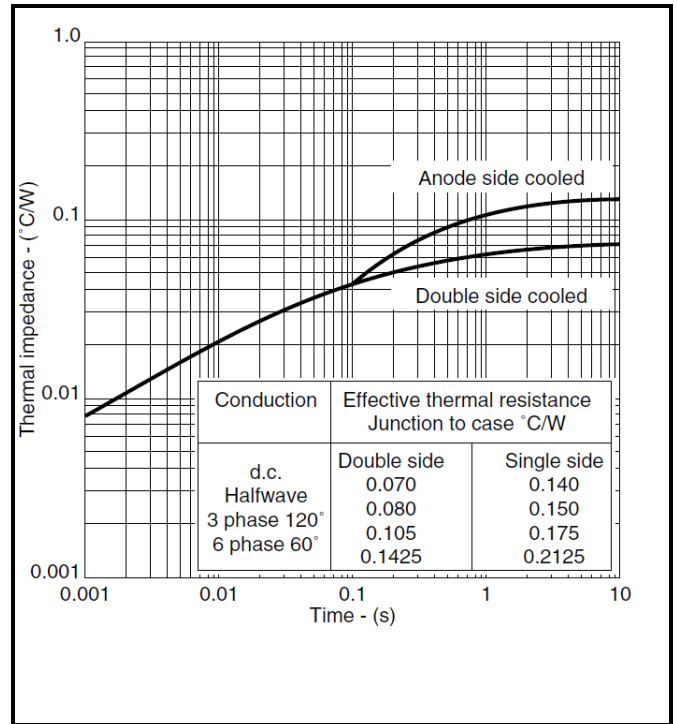
$C = 0.000248$

$D = -0.00172841$

these values are valid for  $T_j = 175^{\circ}C$  for  $I_F$  500A to 2500A



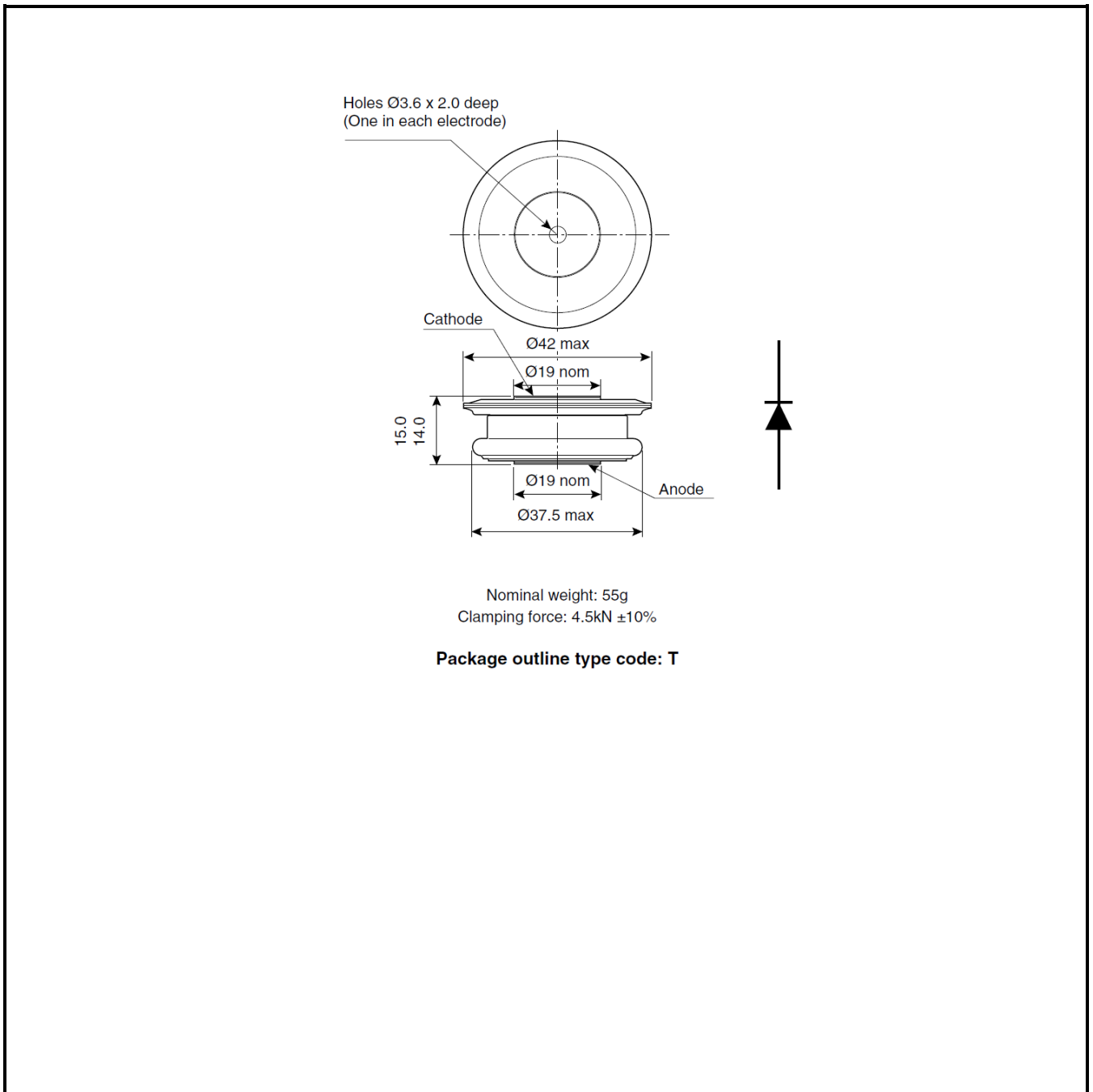
**Fig.4 Surge (Non-Repetitive) Forward current vs time**



**Fig.5 Maximum (limit) transient thermal impedance-junction to case**

**PACKAGE DETAILS**

For further package information, please contact Customer Services. All dimensions in mm, unless stated otherwise. DO NOT SCALE.



**Note:**  
Some packages may be supplied with gate and or tags.

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