DRD4650C14

Rectifier Diode

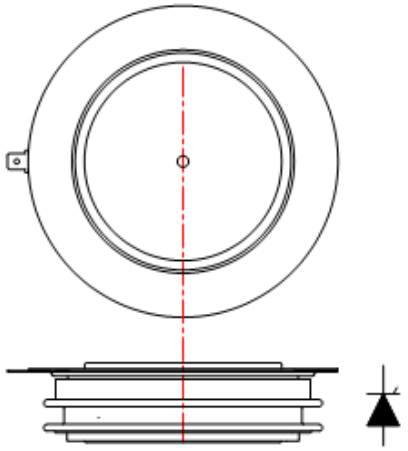
DS5995-1 March 2011 (LN28181)

FEATURES

- Double Side Cooling
- High Surge Capability

KEY PARAMETERS

V_{RRM}	**1400V**
$I_{F(AV)}$	**4650A**
I_{FSM}	**45000A**



Outline type code: C

(See Package Details for further information)

Fig. 1 Package outline

VOLTAGE RATINGS

Part and Ordering Number	Repetitive Peak Voltages V_{RRM} V	Conditions
DRD4650C14 DRD4650C12 DRD4650C10 DRD4650C08 DRD4650C06	1400 1200 1000 800 600	$V_{RSM} = V_{RRM}+100V$

ORDERING INFORMATION

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

For example:

DRD4650C14 for a 1400V device

CURRENT RATINGS

T_{case} = 75°C unless stated otherwise

Symbol	Parameter	Test Conditions	Max.	Units
Double Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	5510	A
$I_{F(RMS)}$	RMS value	-	8650	A
I_F	Continuous (direct) on-state current	-	7790	A

T_{case} = 100°C unless stated otherwise

Symbol	Parameter	Test Conditions	Max.	Units
Double Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	4650	A
$I_{F(RMS)}$	RMS value	-	7300	A
I_F	Continuous (direct) on-state current	-	6580	A

SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) on-state current	10ms half sine, T_{case} = 190°C	45.0	kA
I^2t	I^2t for fusing	V_R = 0	10.13	MA^2s

THERMAL AND MECHANICAL RATINGS

Symbol	Parameter	Test Conditions		Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance – junction to case	Double side cooled	DC	-	0.0125	°C/W
$R_{th(c-h)}$	Thermal resistance – case to heatsink	Double side cooled	DC	-	0.004	°C/W
T_{vj}	Virtual junction temperature	Blocking V_{DRM} / $_{VRRM}$		-40	190	°C
T_{stg}	Storage temperature range			-40	190	°C
F_m	Clamping force			40	50	kN

CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
V_{FM}	Forward voltage	At 3000A peak, T_{case} = 25°C	-	1.05	V
I_{RM}	Peak reverse current	At $V_{DRM,}$ T_{case} = 190°C	-	250	mA
Q_S	Total stored charge	I_F = 4000A, dI_{RR}/dt =10A/µs T_{case} = 190°C, V_R =100V	-	4500	µC
V_{TO}	Threshold voltage	At T_{vj} = 190°C	-	0.76	V
r_T	Slope resistance	At T_{vj} = 190°C	-	0.051	mΩ

CURVES

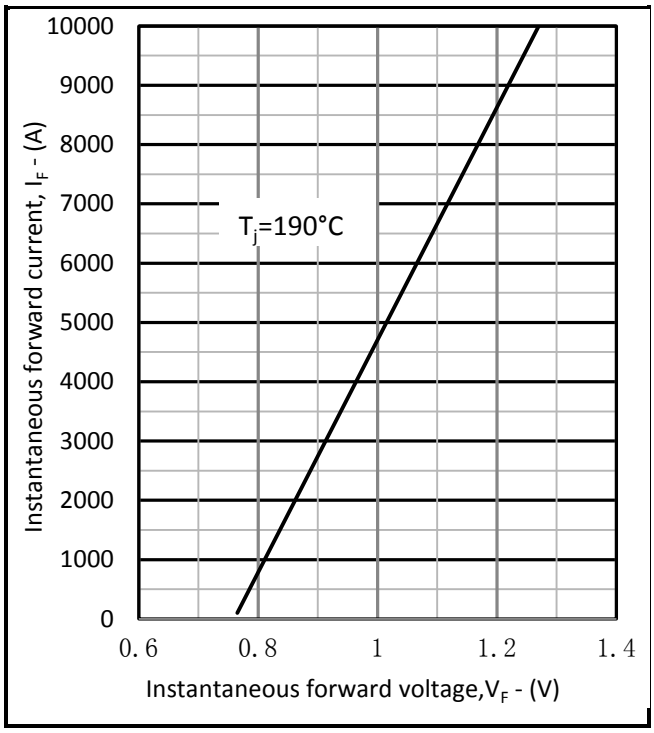


Fig.2 Maximum forward characteristics

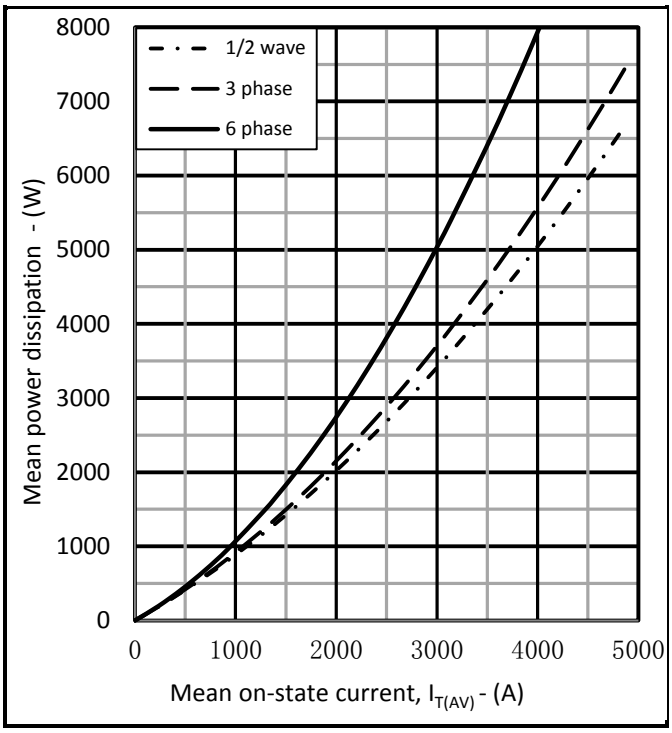


Fig.3 Dissipation curves

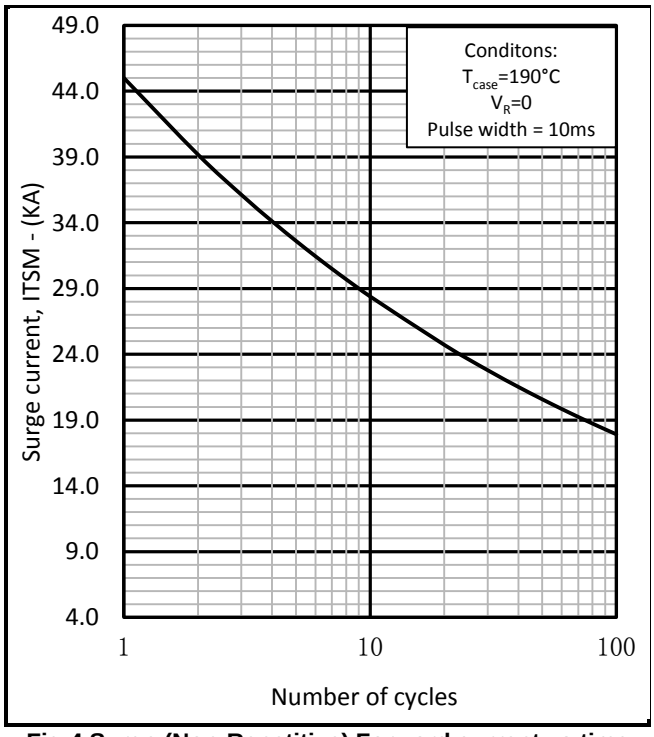


Fig.4 Surge (Non-Repetitive) Forward current vs time

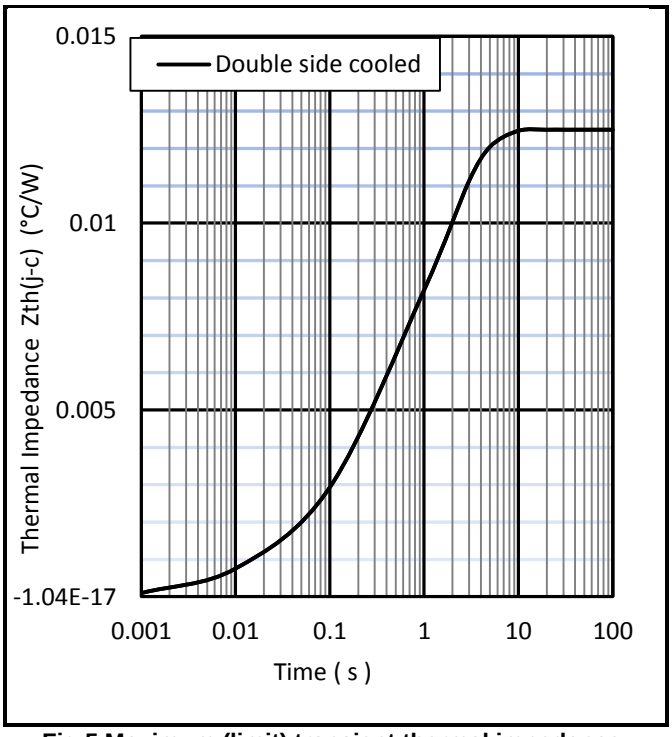
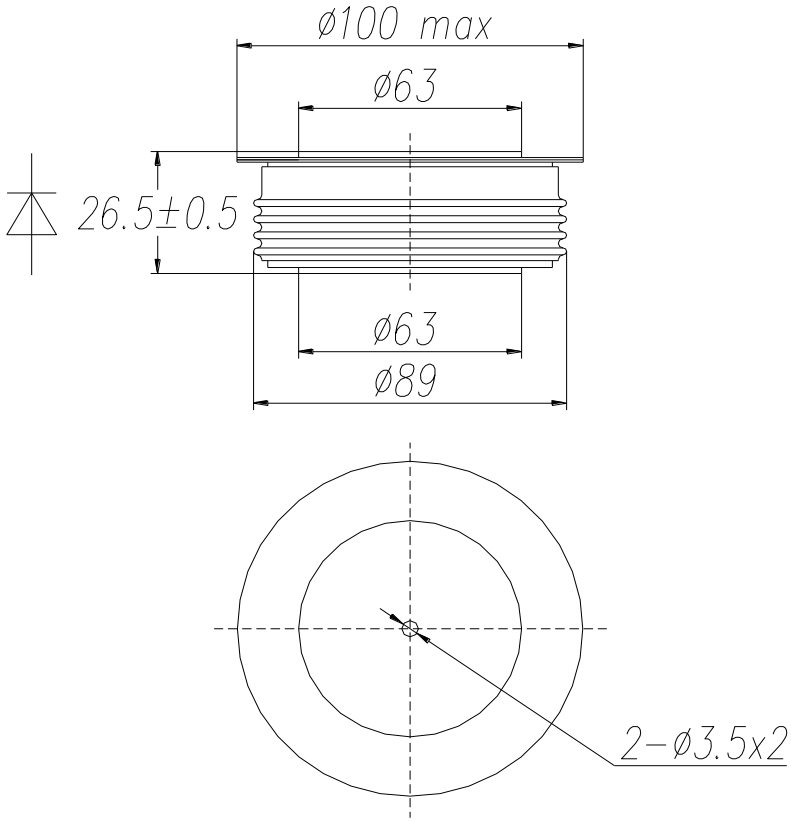


Fig.5 Maximum (limit) transient thermal impedance-junction to case

PACKAGE DETAILS

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



Package outline type code: C

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

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