DSF8045SK

Fast Recovery Diode

DS4146-8 July 2014 LN(31792)

APPLICATIONS

- Snubber Diode For GTO Applications

KEY PARAMETERS

V_{RRM}	4500V
$I_{F(AV)}$	430A
I_{FSM}	3500A
Q_r	440μC
t_{rr}	3.07μs

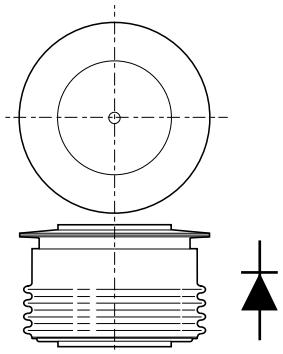
FEATURES

- Double side cooling
- High surge capability
- Low recovery charge

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V_{RRM} V	Conditions
DSF8045SK45	4500	$V_{RSM} = V_{RRM} + 100V$
DSF8045SK44	4400	
DSF8045SK43	4300	
DSF8045SK42	4200	
DSF8045SK41	4100	
DSF8045SK40	4000	

Lower voltage grades available.



Outline type code: K.
See Package Details for further information.

Fig. 1 Package outline

ORDERING INFORMATION

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

DSF8045SK43

Note: Please use the complete part number when ordering and quote this number in any future correspondance relating to your order.

CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units
Double Side Cooled				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, T_{case} = 65°C	430	A
$I_{F(RMS)}$	RMS value	T_{case} = 65°C	680	A
I_F	Continuous (direct) forward current	T_{case} = 65°C	600	A
Single Side Cooled (Anode side)				
$I_{F(AV)}$	Mean forward current	Half wave resistive load, T_{case} = 65°C	285	A
$I_{F(RMS)}$	RMS value	T_{case} = 65°C	445	A
I_F	Continuous (direct) forward current	T_{case} = 65°C	380	A

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; with 0% V_{RRM}, T_j = 150°C	3.5	kA
I^2t	I^2t for fusing		61.25×10^3	A^2s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; with 50% V_{RRM}, T_j = 150°C	2.8	kA
I^2t	I^2t for fusing		39.2×10^3	A^2s

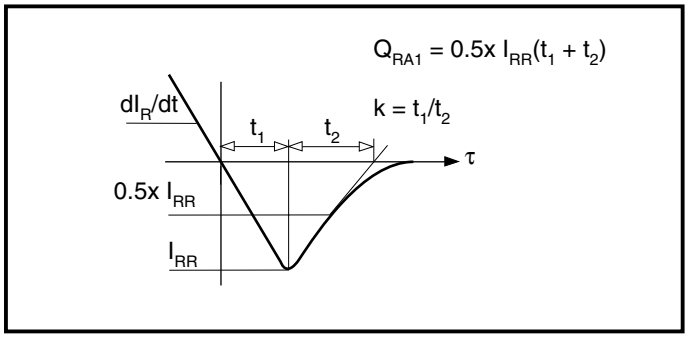
THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions		Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance - junction to case	Double side cooled	dc	-	0.048	°C/W
		Single side cooled	Anode dc	-	0.09	°C/W
			Cathode dc	-	0.103	°C/W
$R_{th(c-h)}$	Thermal resistance - case to heatsink	Clamping force 8.0kN with mounting compound	Double side	-	0.01	°C/W
			Single side	-	0.02	°C/W
T_{vj}	Virtual junction temperature	Forward (conducting)		-	150	°C
T_{stg}	Storage temperature range			-55	175	°C
-	Clamping force			7.0	9.0	kN

CHARACTERISTICS

Symbol	Parameter	Conditions	Typ.	Max.	Units
V_{FM}	Forward voltage	At 1000A peak, T_{case} = 25°C	-	4.0	V
I_{RRM}	Peak reverse current	At V_{RRM}, T_{case} = 150°C	-	50	mA
t_{rr}	Reverse recovery time	I_F = 1000A, di_{RR}/dt = 100A/µs T_{case} = 150°C, V_R = 100V	-	3.07	µs
Q_{RA1}	Recovered charge (50% chord)		-	440	µC
I_{RM}	Reverse recovery current		-	240	A
K	Soft factor		-	-	-
V_{TO}	Threshold voltage	At T_{vj} = 150°C	-	1.7	V
r_T	Slope resistance	At T_{vj} = 150°C	-	2.1	mΩ
V_{FRM}	Forward recovery voltage	di/dt = 1000A/µs, T_j = 125°C	-	300	V

DEFINITION OF K FACTOR AND Q_{RA1}



CURVES

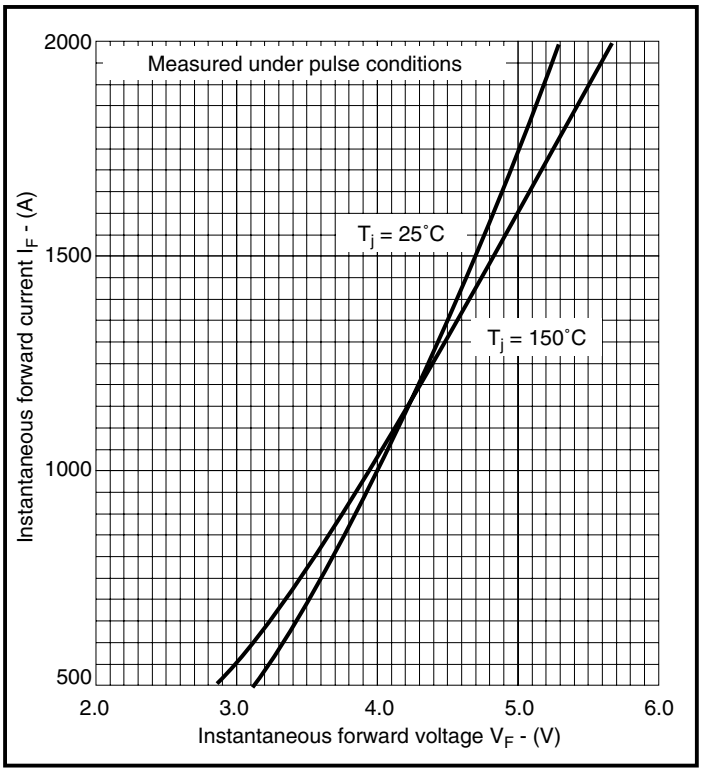


Fig.2 Maximum (limit) forward characteristics

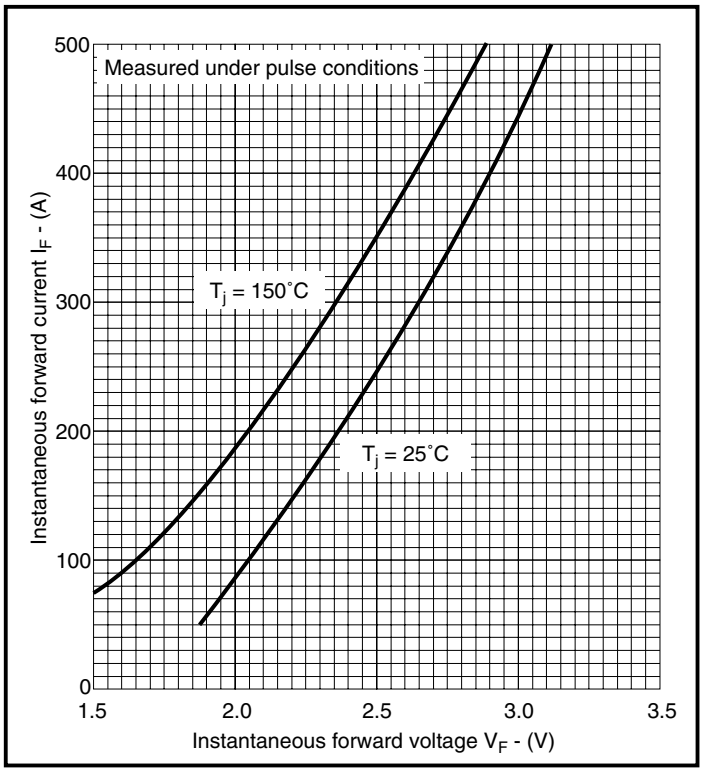


Fig.3 Maximum (limit) forward characteristics

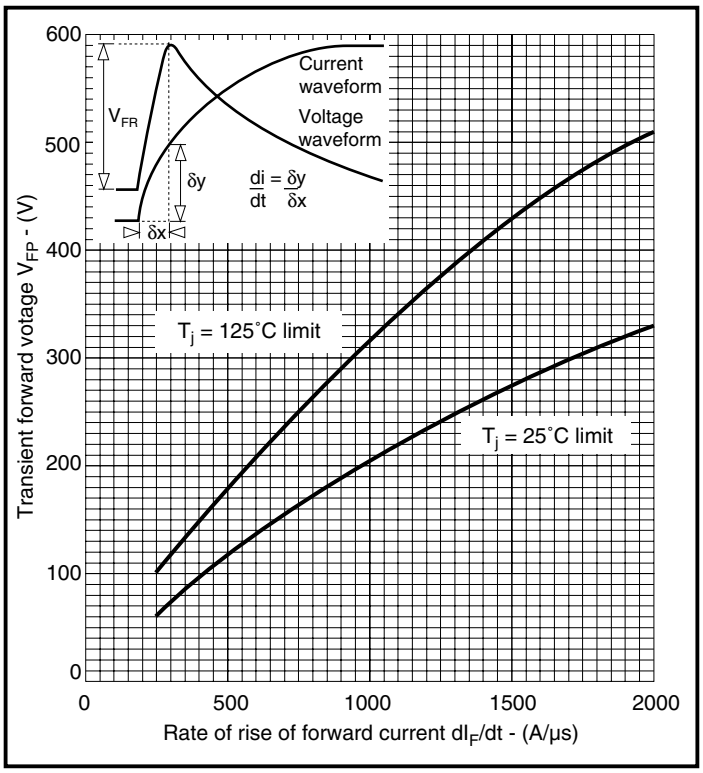


Fig.4 Transient forward voltage vs rate of rise of forward current

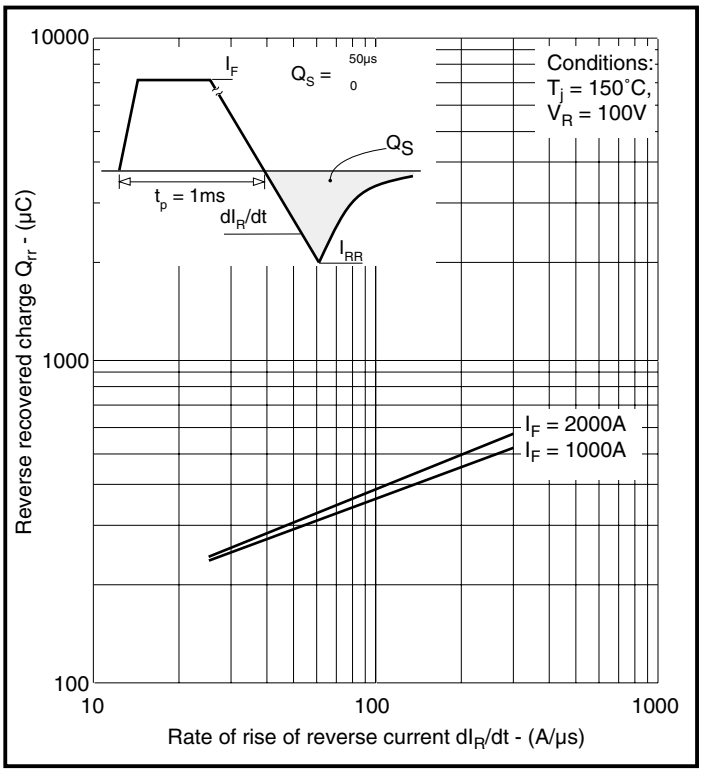


Fig.5 Recovered charge

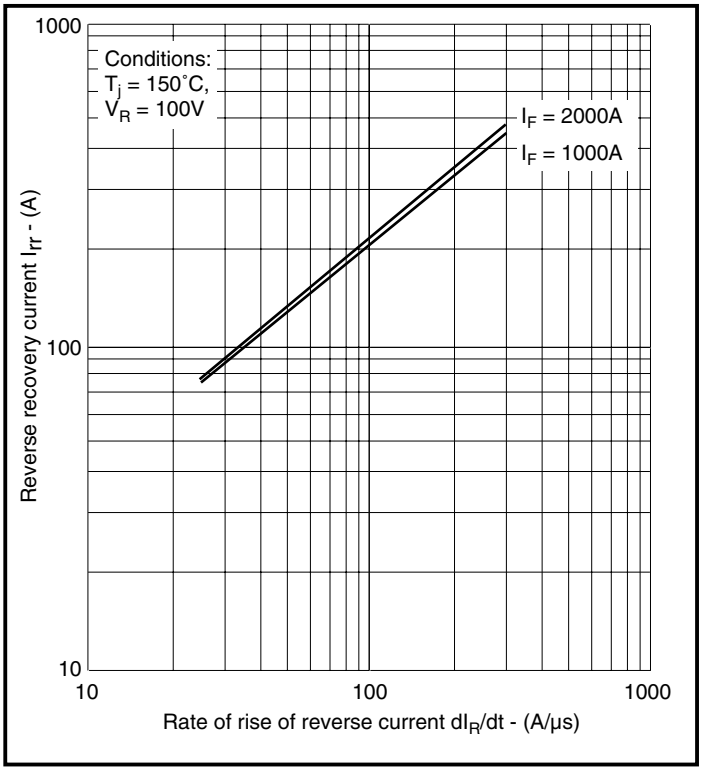


Fig.6 Typical reverse recovery current vs rate of rise of forward current

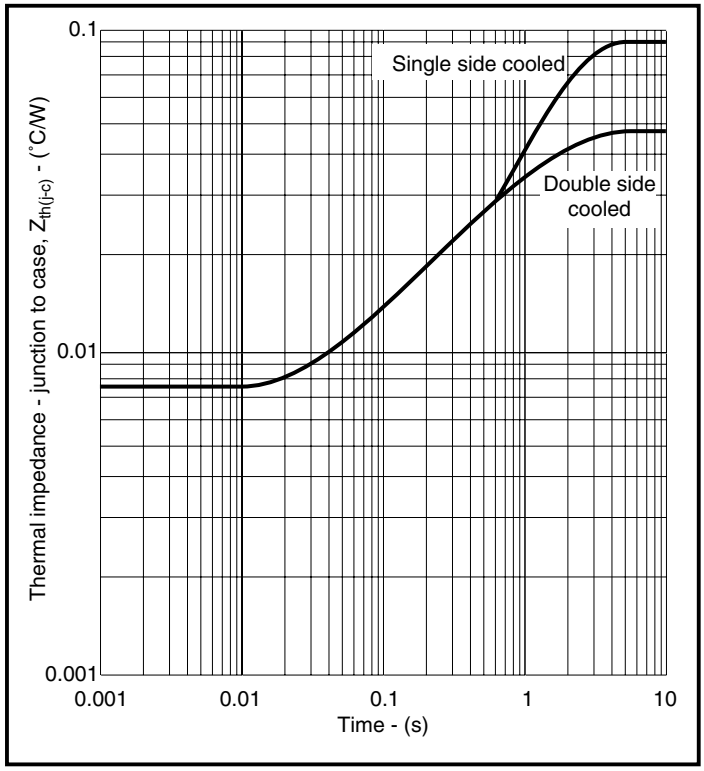
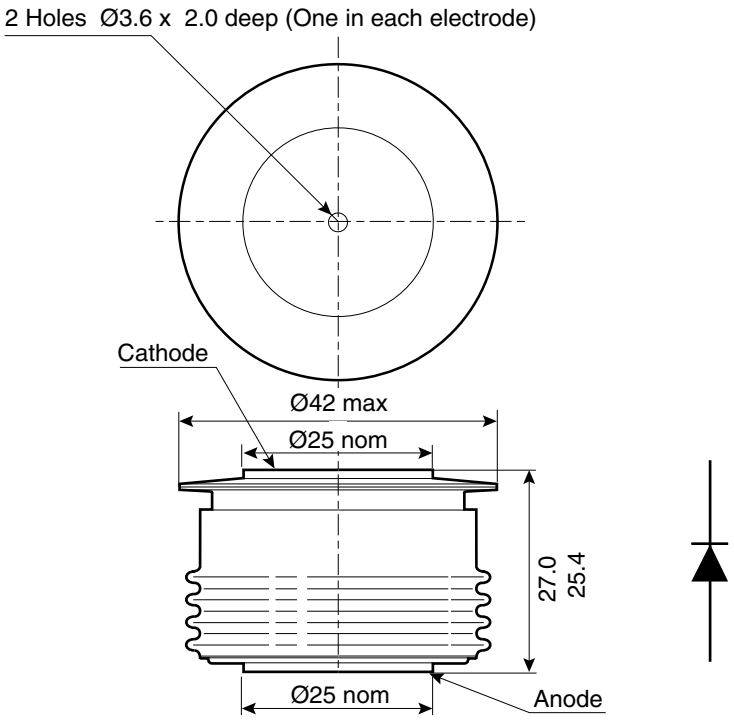


Fig.7 Maximum (limit) transient thermal impedance - junction to case - (˚C/W)

PACKAGE DETAILS

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



Nominal weight: 160g
Clamping force: 8kN ±10%

Package outline type code: K

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