

DSF8025SE / DSF8025SG

Fast Recovery Diode

Replaces March 2000 version, DS4146-5.1

FDS4146-6.0 January 2004

APPLICATIONS

- Induction Heating
- A.C. Motor Drives
- Inverters And Choppers
- Welding
- High Frequency Rectification
- UPS

FEATURES

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

VOLTAGE RATINGS

Type Number	Repetitive Peak Reverse Voltage V _{RRM} V	Conditions
DSF8025SE25	2500	$V_{RSM} = V_{RRM} + 100V$
DSF8025SG25		now nnw
DSF8025SE24	2400	
DSF8025SG24		
DSF8025SE23	2300	
DSF8025SG23		
DSF8025SE22	2200	
DSF8025SG22		
DSF8025SE21	2100	
DSF8025SG21		
DSF8025SE20	2000	
DSF8025SG20		

Lower voltage grades available.

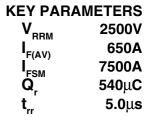
ORDERING INFORMATION

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

DSF8025SE23 for 2300V product in an 'E' outline,

DSF8025SG23 for 2300V product in an 'G' outline,

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



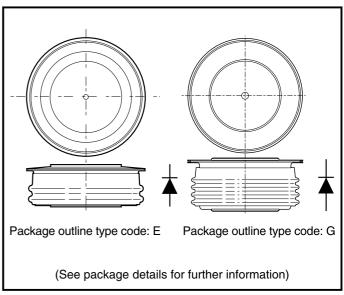


Fig. 1 Package outlines



CURRENT RATINGS

Symbol	Parameter	Conditions	Max.	Units			
Double Sid	Double Side Cooled						
I _{F(AV)}	Mean forward current	Half wave resistive load, T _{case} = 65°C	650	А			
I _{F(RMS)}	RMS value	T _{case} = 65°C	1020	Α			
I _F	Continuous (direct) forward current	$T_{case} = 65^{\circ}C$	785	А			
Single Side	Single Side Cooled (Anode side)						
I _{F(AV)}	Mean forward current	Half wave resistive load, T _{case} = 65°C	385	А			
I _{F(RMS)}	RMS value	$T_{case} = 65^{\circ}C$	604	А			
I _F	Continuous (direct) forward current	$T_{case} = 65^{\circ}C$	465	А			

SURGE RATINGS

Symbol	Parameter	Conditions	Max.	Units
I _{FSM}	Surge (non-repetitive) forward current	10ms half sine; with 0% V _{RRM.} T _i = 150°C	7.5	kA
l ² t	I ² t for fusing	Toms hall sine, with 0 % v _{RRM} , 1 _j = 130 C	281 x 10 ³	A ² s
I _{FSM}	Surge (non-repetitive) forward current	10ms half sine; with 50% V _{RRM.} T _i = 150°C	6.0	kA
l ² t	I ² t for fusing	101113 Hall Sille, With 50 /6 V _{RRM} , 1 _j = 150 C	180 x 10 ³	A²s

THERMAL AND MECHANICAL DATA

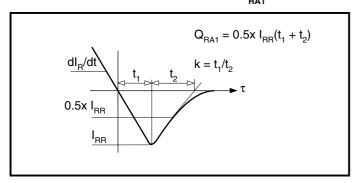
Symbol	Parameter	Conditions		Min.	Max.	Units
R _{th(j-e)}	Thermal resistance - junction to case	Double side cooled	dc	-	0.047	°C/W
		Single side cooled	Anode dc	-	0.094	°C/W
			Cathode dc	-	0.094	°C/W
R _{th(c-h)}	Thermal resistance - case to heatsink	Clamping force 8.0kN with mounting compound	Double side	-	0.018	°C/W
			Single side	-	0.036	°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

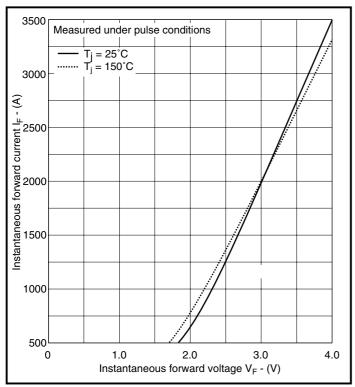
Symbol	Parameter	Conditions	Тур.	Max.	Units
V _{FM}	Forward voltage	At 1000A peak, T _{case} = 25°C	-	2.3	V
I _{RM}	Peak reverse current	At V _{RRM} , T _{case} = 150°C	-	50	mA
t _{rr}	Reverse recovery time		-	5.0	μs
Q _{RA1}	Recovered charge (50% chord)	$I_{\rm F} = 1000$ A, $di_{\rm RR}/dt = 100$ A/ μ s	-	540	μС
I _{RR}	Reverse recovery current	$T_{case} = 150^{\circ}C, V_{R} = 100V$	-	235	Α
К	Soft factor		1.8	-	-
V _{TO}	Threshold voltage	At T _{vj} = 150°C	-	1.48	٧
r _T	Slope resistance	At T _{vj} = 150°C	-	0.8	mΩ
V _{FRP}	Peak forward recovery voltage	di/dt = 1000A/μs, T _j = 125°C	70	-	٧

DEFINITION OF K FACTOR AND $\boldsymbol{Q}_{\text{RA1}}$





CURVES



Measured under pulse conditions

Tj = 25°C

Tj = 150°C

(V)

Human and the pulse conditions

Tj = 25°C

Tj = 150°C

100

1.00

1.25

1.50

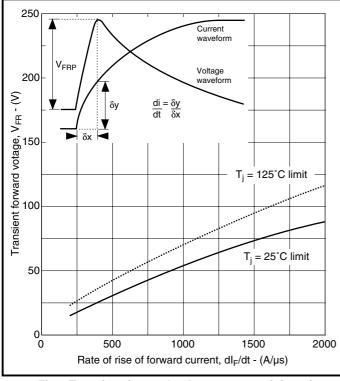
1.75

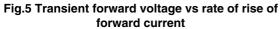
2.00

Instantaneous forward voltage V_F - (V)

Fig.2 Maximum (limit) forward characteristics

Fig.3 Maximum (limit) forward characteristics





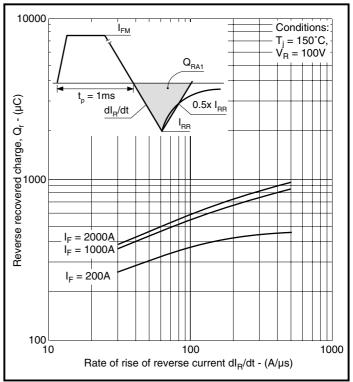
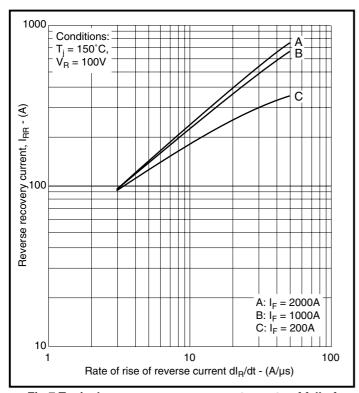
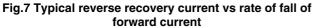


Fig.6 Recovered charge







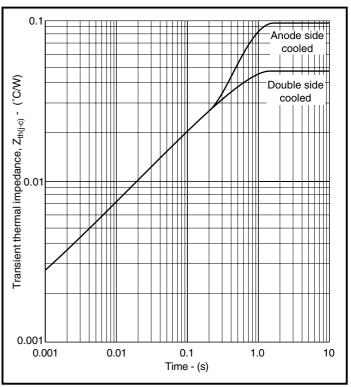


Fig.8 Maximum (limit) transient thermal impedance - junction to case - (°C/W)



PACKAGE DETAILS

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

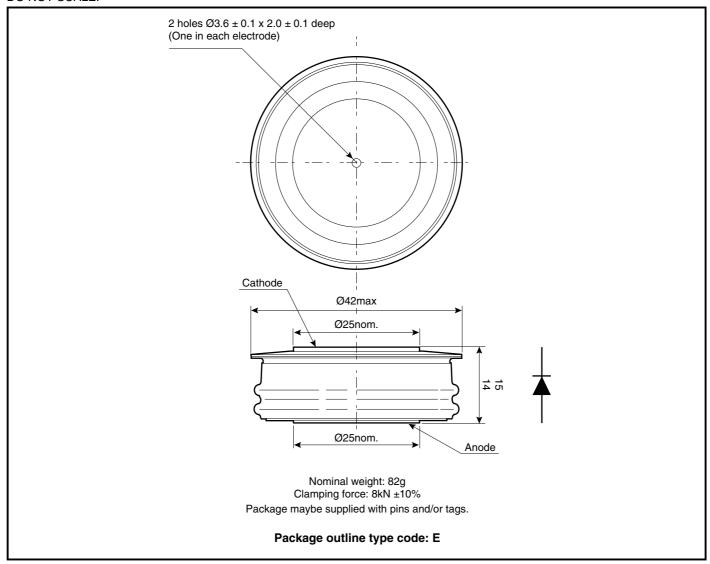


Fig. 9 Package details - E



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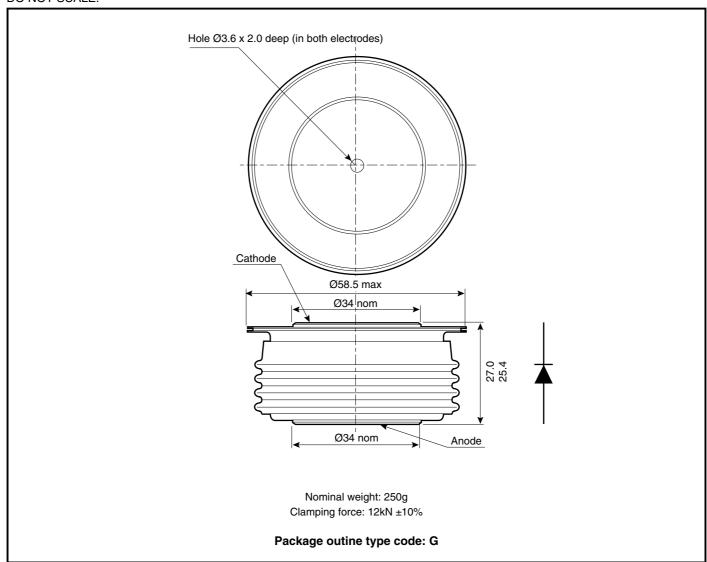


Fig. 10 Package details - G

POWER ASSEMBLY CAPABILITY

The Power Assembly group was set up to provide a support service for those customers requiring more than the basic semiconductor, and has developed a flexible range of heatsink and clamping systems in line with advances in device voltages and current capability of our semiconductors.

We offer an extensive range of air and liquid cooled assemblies covering the full range of circuit designs in general use today. The Assembly group offers high quality engineering support dedicated to designing new units to satisfy the growing needs of our customers.

Using the latest CAD methods our team of design and applications engineers aim to provide the Power Assembly Complete Solution (PACs).

HEATSINKS

The Power Assembly group has its own proprietary range of extruded aluminium heatsinks which have been designed to optimise the performance of Dynex semiconductors. Data with respect to air natural, forced air and liquid cooling (with flow rates) is available on request.

For further information on device clamps, heatsinks and assemblies, please contact your nearest sales representative or Customer Services.

Stresses above those listed in this data sheet may cause permanent damage to the device. In extreme conditions, as with all semiconductors, this may include potentially hazardous rupture of the package. Appropriate safety precautions should always be followed.



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