Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

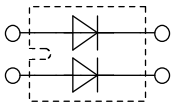
HiPerFRED

High Performance Fast Recovery Diode
Low Loss and Soft Recovery
Parallel legs

V_{RRM} = 400 V
I_{FAV} = 2x 30 A
t_{rr} = 30 ns

Part number

DSEP2x31-04A



Backside: isolated

E72873

Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low Irm-values
- Very soft recovery behaviour
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low Irm reduces:
  - Power dissipation within the diode
  - Turn-on loss in the commutating switch

Applications:

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)

Package:

- Housing: SOT-227B (minibloc)
- Industry standard outline
- Cu base plate internal DCB isolated
- Isolation Voltage 3000 V
- Epoxy meets UL 94V-0
- RoHS compliant

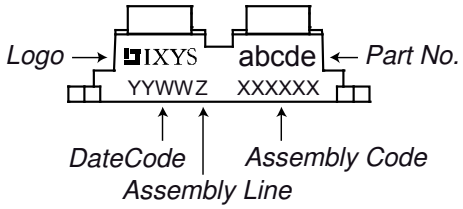
Ratings

Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RRM}	*max. repetitive reverse voltage*		T_{VJ} = 25°C			400	V
I_R	*reverse current*	V_R = 400 V	T_{VJ} = 25°C			250	µA
		V_R = 400 V	T_{VJ} = 150°C			1	mA
V_F	*forward voltage*	I_F = 30 A	T_{VJ} = 25°C			1.47	V
		I_F = 60 A				1.67	V
		I_F = 30 A	T_{VJ} = 150°C			1.07	V
		I_F = 60 A				1.28	V
I_{FAV}	*average forward current*	rectangular d = 0.5	T_C = 105°C			30	A
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 150°C			0.88	V
r_F	*slope resistance* }					6.5	mΩ
R_{thJC}	*thermal resistance junction to case*					1.15	K/W
T_{VJ}	*virtual junction temperature*			-40		150	°C
P_{tot}	*total power dissipation*		T_C = 25°C			100	W
I_{FSM}	*max. forward surge current*	t = 10 ms (50 Hz), sine	T_{VJ} = 45°C			280	A
I_{RM}	*max. reverse recovery current*		T_{VJ} = 25°C		11		A
		I_F = 30 A; V_R = 200 V	T_{VJ} = 100°C		18		A
t_{rr}	*reverse recovery time*	$-di_F/dt$ = 400 A/µs	T_{VJ} = 25°C		20		ns
			T_{VJ} = 100°C		65		ns
C_J	*junction capacitance*	V_R = 200 V; f = 1 MHz	T_{VJ} = 25°C		44		pF

Recommended replacement:
DPF60X400NA, DSEI2x31-04C

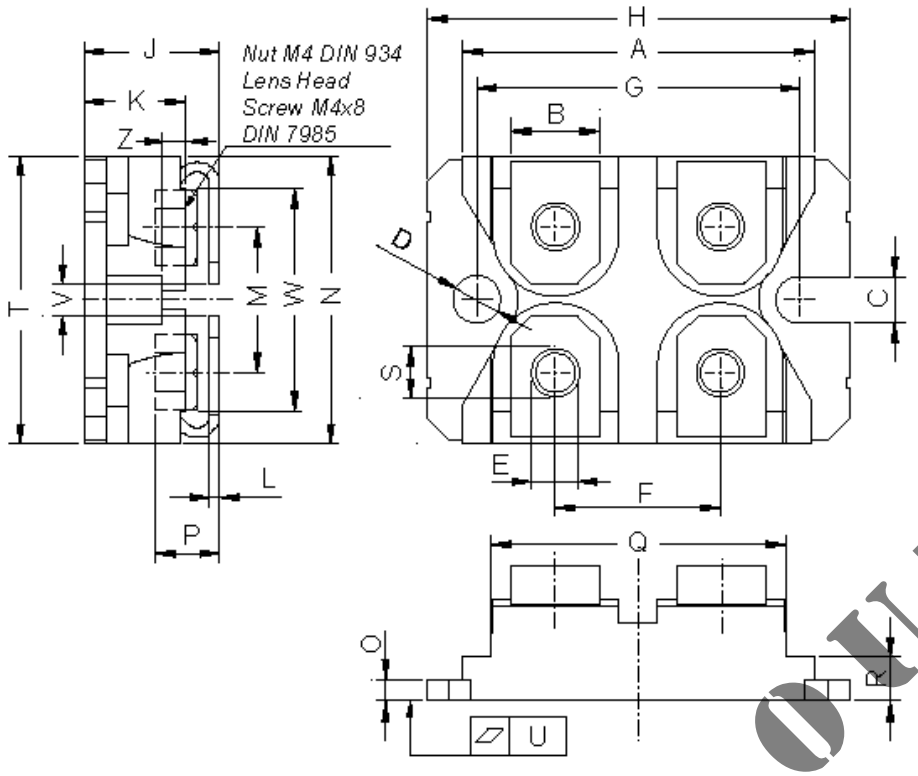
Symbol	Definition	Conditions		Ratings min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per terminal				100	A
R_{thCH}	*thermal resistance case to heatsink*				0.10		K/W
T_{stg}	*storage temperature*			-40		150	°C
Weight					30		g
M_D	*mounting torque*			1.1		1.5	Nm
M_T	*terminal torque*			1.1		1.5	Nm
V_{ISOL}	*isolation voltage*	t = 1 second		3000			V
		t = 1 minute		2500			V
$d_{Spp/App}$	*creepage | striking distance on surface | through air*	*terminal to terminal*	10.5	3.2			mm
$d_{Spb/Apb}$	*creepage | striking distance on surface | through air*	*terminal to backside*	8.6	6.8			mm

Product Marking



Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Code Key
Standard	DSEP2x31-04A	DSEP2x31-04A	Tube	10	479020

Outlines SOT-227B (minibloc)



Dim.	Millimeter		Inches	
	min	max	min	max
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.488	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.74	0.84	0.029	0.033
M	12.50	13.10	0.492	0.516
N	25.15	25.42	0.990	1.001
O	1.95	2.13	0.077	0.084
P	4.95	6.20	0.195	0.244
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.167
S	4.55	4.85	0.179	0.191
T	24.59	25.25	0.968	0.994
U	-0.05	0.10	-0.002	0.004
V	3.20	5.50	0.126	0.217
W	19.81	21.08	0.780	0.830
Z	2.50	2.70	0.098	0.106

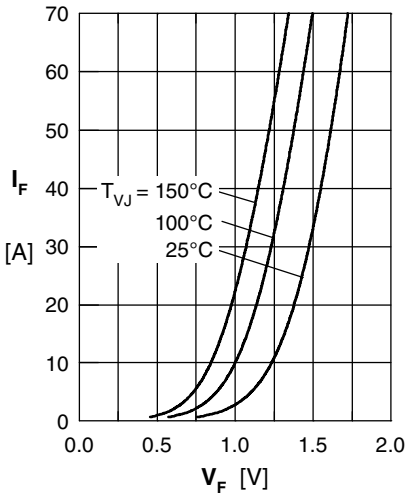


Fig. 1 Forward current I_F vs. V_F

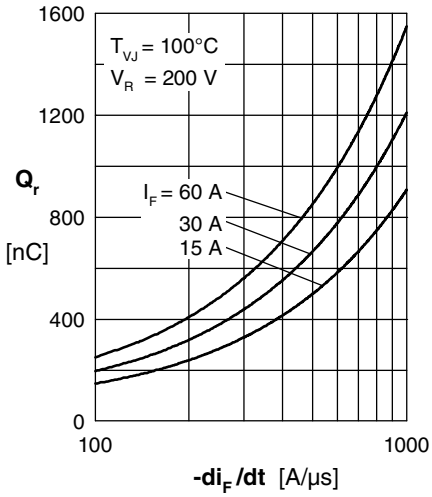


Fig. 2 Reverse recovery charge Q_r versus $-di_F/dt$

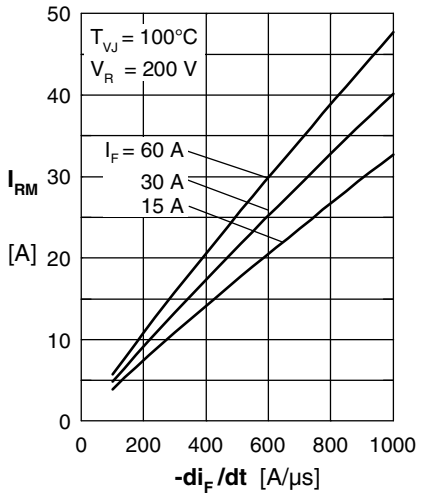


Fig. 3 Peak reverse current I_{RM} versus $-di_F/dt$

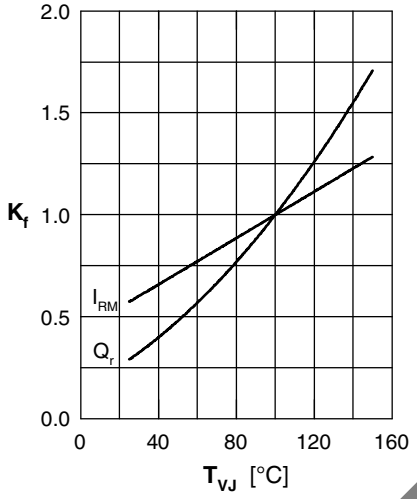


Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

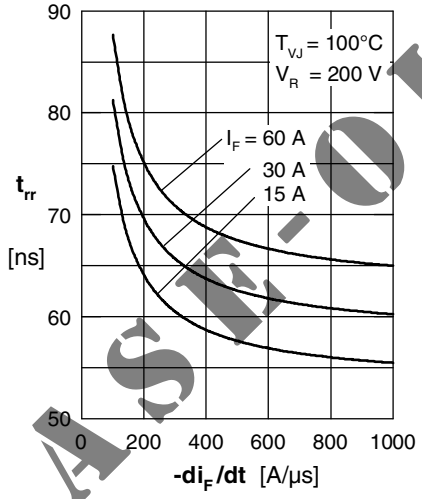


Fig. 5 Recovery time t_{rr} versus $-di_F/dt$

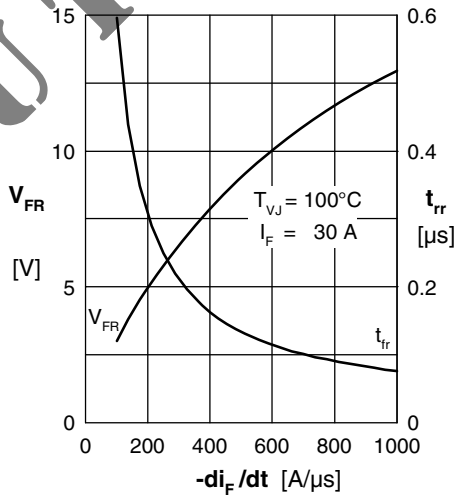


Fig. 6 Peak forward voltage V_{FR} and tfr versus di_F/dt

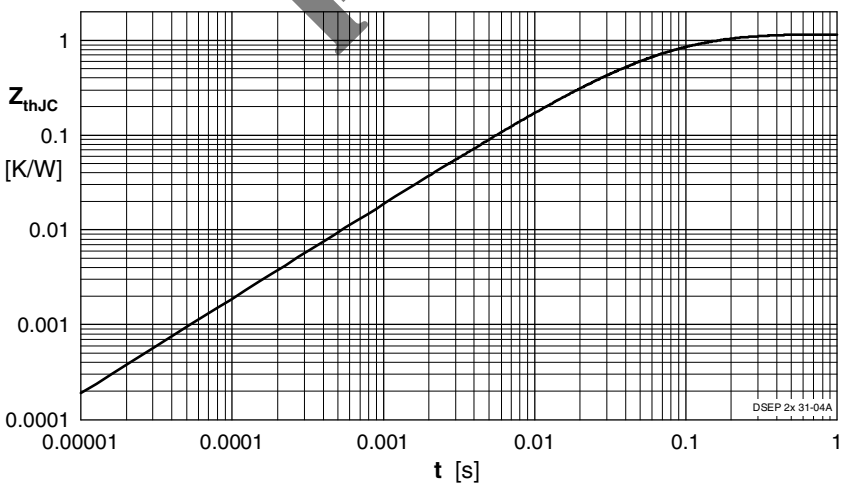


Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.436	0.0055
2	0.482	0.0092
3	0.117	0.0007
4	0.115	0.0418