



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



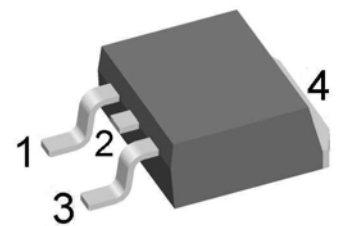
HiPerFRED²

V_{RRM}	=	400 V
I_{FAV}	= 2x	10 A
t_{rr}	=	45 ns

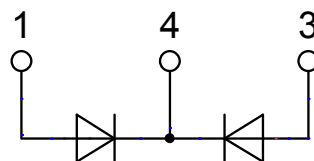
High Performance Fast Recovery Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DPG20C400PC



Backside: cathode



Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low I_{rm} -values
- Very soft recovery behaviour
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low I_{rm} 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)

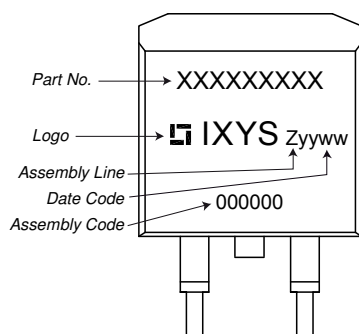
Package: TO-263 (D2Pak)

- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

Fast Diode				Ratings				
Symbol	Definition	Conditions		min.	typ.	max.	Unit	
V _{RSM}	max. non-repetitive reverse blocking voltage	T _{VJ} = 25°C				400	V	
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				400	V	
I _R	reverse current, drain current	V _R = 400 V	T _{VJ} = 25°C			1	μA	
		V _R = 400 V	T _{VJ} = 150°C			0.15	mA	
V _F	forward voltage drop	I _F = 10 A	T _{VJ} = 25°C			1.32	V	
		I _F = 20 A				1.51	V	
		I _F = 10 A	T _{VJ} = 150°C			1.03	V	
		I _F = 20 A				1.24	V	
I _{FAV}	average forward current	T _C = 150°C rectangular d = 0.5	T _{VJ} = 175°C			10	A	
V _{FO}	threshold voltage	} for power loss calculation only		T _{VJ} = 175°C		0.77	V	
r _F	slope resistance					19.8	mΩ	
R _{thJC}	thermal resistance junction to case					2.3	K/W	
R _{thCH}	thermal resistance case to heatsink				0.25		K/W	
P _{tot}	total power dissipation	T _C = 25°C				65	W	
I _{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; V _R = 0 V		T _{VJ} = 45°C		150	A	
C _J	junction capacitance	V _R = 200 V f = 1 MHz		T _{VJ} = 25°C	12		pF	
I _{RM}	max. reverse recovery current	I _F = 10 A; V _R = 270 V -di _F /dt = 200 A/μs		T _{VJ} = 25°C	4		A	
				T _{VJ} = 125°C	6		A	
t _{rr}	reverse recovery time			T _{VJ} = 25°C	45		ns	
				T _{VJ} = 125°C	65		ns	

Package TO-263 (D2Pak)			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			35	A
T_{VJ}	virtual junction temperature		-55		175	°C
T_{op}	operation temperature		-55		150	°C
T_{stg}	storage temperature		-55		150	°C
Weight				2		g
F_c	mounting force with clip		20		60	N

Product Marking



Part number

D = Diode
 P = HiPerFRED
 G = extreme fast
 20 = Current Rating [A]
 C = Common Cathode
 400 = Reverse Voltage [V]
 PC = TO-263AB (D2Pak) (2)

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DPG20C400PC	DPG20C400PC	Tape & Reel	800	507327

Similar Part	Package	Voltage class
DPG20C400PB	TO-220AB (3)	400
DPG20C400PN	TO-220ABFP (3)	400

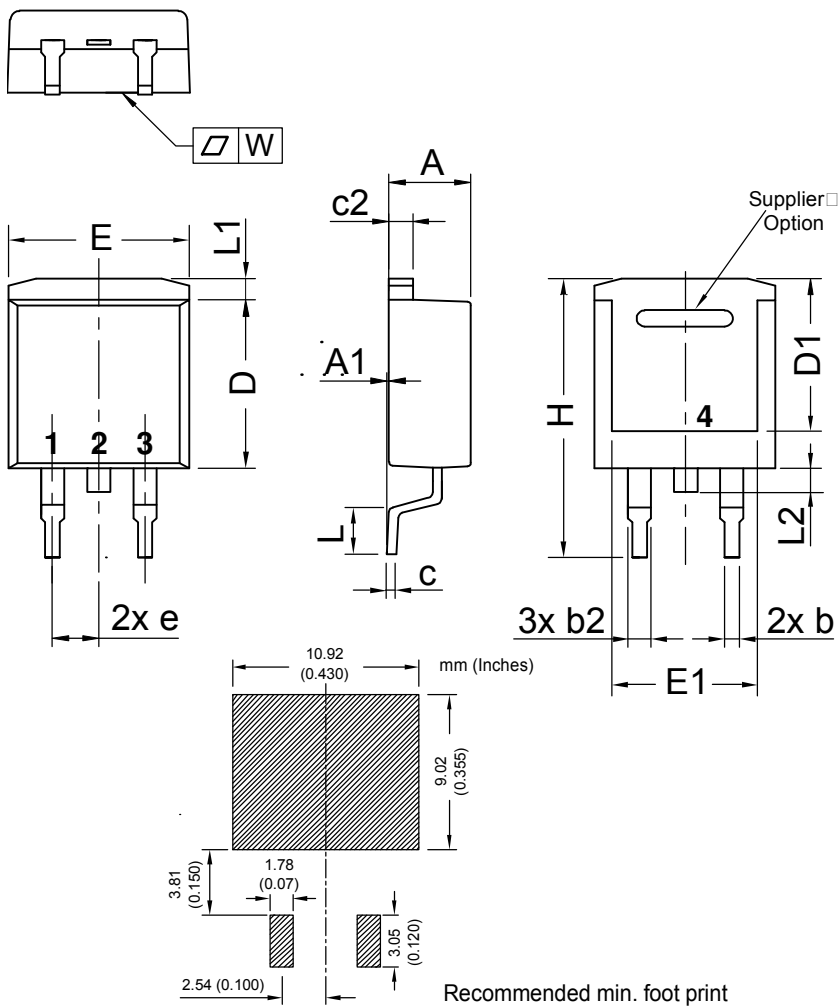
Equivalent Circuits for Simulation

* on die level

$T_{VJ} = 175\text{ °C}$

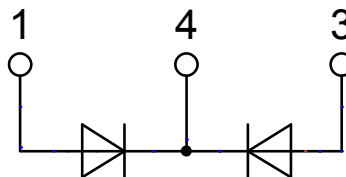
			Fast Diode
$V_{0\text{ max}}$	threshold voltage	0.77	V
$R_{0\text{ max}}$	slope resistance *	16.6	mΩ

Outlines TO-263 (D2Pak)



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	8.50	0.245	0.335
e	2.54 BSC		0.100 BSC	
e1	4.28		0.169	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002

All dimensions conform with and/or within JEDEC standard.



Fast Diode

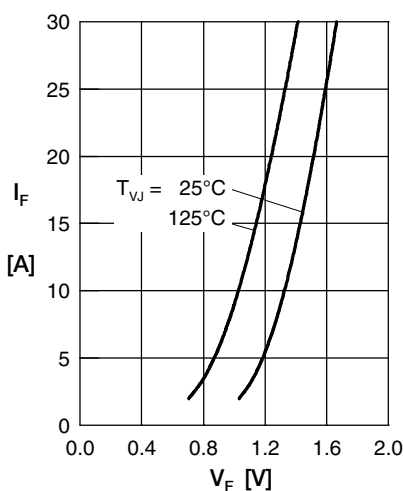


Fig. 1 Forward current I_F versus V_F

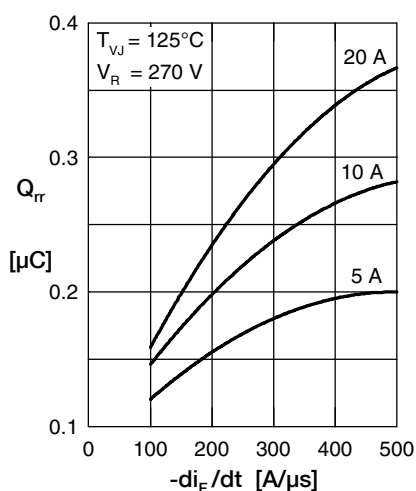


Fig. 2 Typ. reverse recov. charge Q_{rr} versus $-di_F/dt$

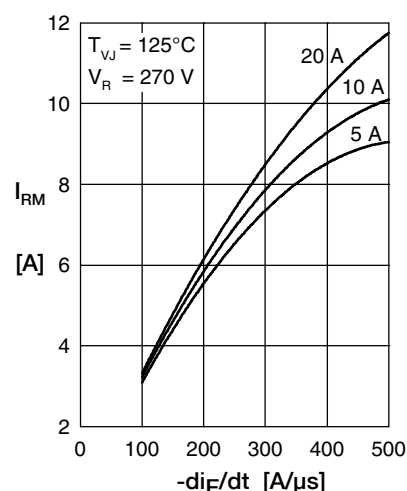


Fig. 3 Typ. reverse recov. current I_{RM} versus $-di_F/dt$

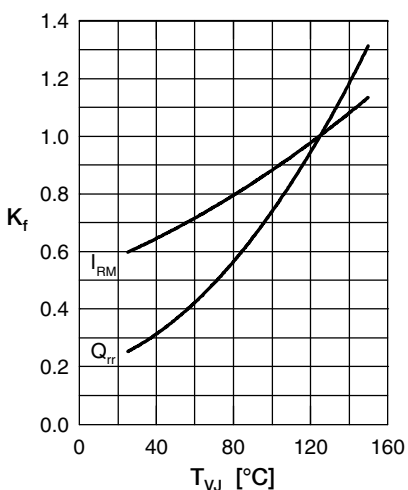


Fig. 4 Typ. dynamic parameters Q_{rr} , I_{RM} versus T_{VJ}

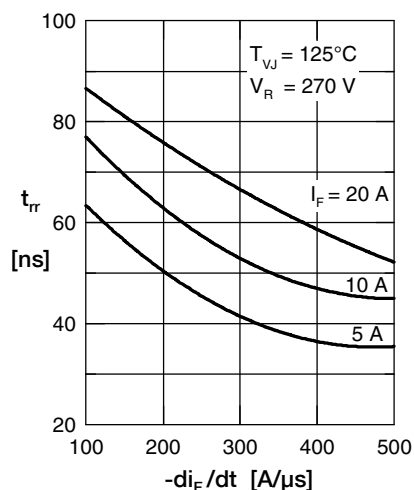


Fig. 5 Typ. reverse recov. time t_{rr} versus $-di_F/dt$

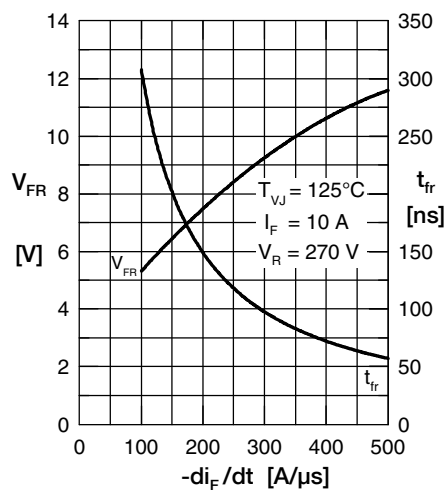


Fig. 6 Typ. forward recov. voltage V_{FR} and t_{fr} versus di_F/dt

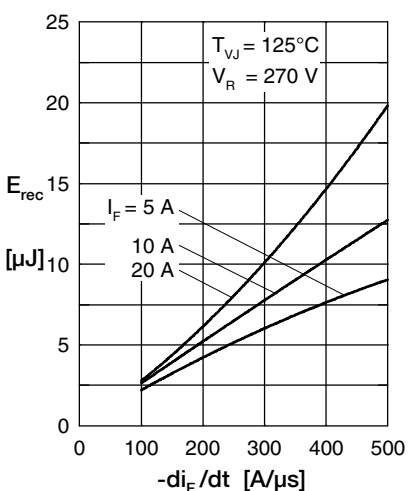


Fig. 7 Typ. recovery energy E_{rec} versus $-di_F/dt$

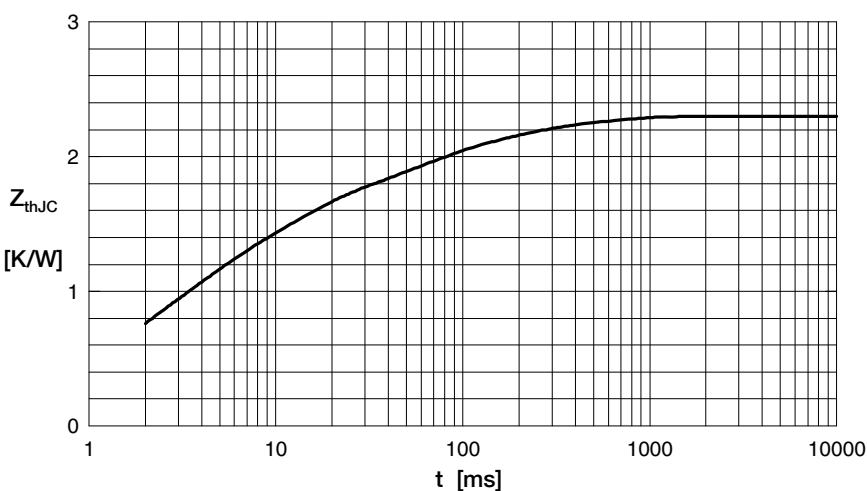


Fig. 8 Transient thermal resistance junction to case