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

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Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

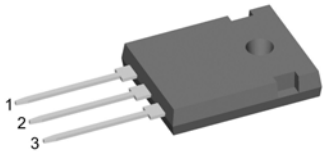
HiPerFRED²

V_{RRM} = 300 V
I_{FAV} = 2x 30 A
t_{rr} = 35 ns

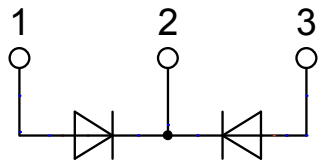
High Performance Fast Recovery Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DPG60C300HB



Backside: cathode



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)

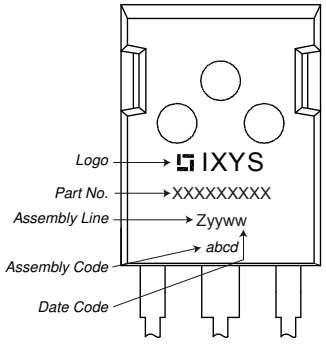
Package: TO-247

- 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			300	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			300	V
I_R	*reverse current, drain current*	V_R = 300 V	T_{VJ} = 25°C			1	µA
		V_R = 300 V	T_{VJ} = 150°C			0.1	mA
V_F	*forward voltage drop*	I_F = 30 A	T_{VJ} = 25°C			1.34	V
		I_F = 60 A				1.63	V
		I_F = 30 A	T_{VJ} = 150°C			1.06	V
		I_F = 60 A				1.39	V
I_{FAV}	*average forward current*	T_C = 140°C	T_{VJ} = 175°C			30	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.70	V
r_F	*slope resistance* }					10.5	mΩ
R_{thJC}	*thermal resistance junction to case*					0.95	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.25		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			160	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine; V_R = 0 V	T_{VJ} = 45°C			360	A
C_J	*junction capacitance*	V_R = 150 V f = 1 MHz	T_{VJ} = 25°C		42		pF
I_{RM}	*max. reverse recovery current*		T_{VJ} = 25°C		3		A
		I_F = 30 A; V_R = 200 V	T_{VJ} = 125°C		7		A
t_{rr}	*reverse recovery time*	$-di_F/dt$ = 200 A/µs	T_{VJ} = 25°C		35		ns
			T_{VJ} = 125°C		55		ns

Package TO-247			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per terminal [1]			50	A
T_{VJ}	*virtual junction temperature*		-55		175	°C
T_{op}	*operation temperature*		-55		150	°C
T_{stg}	*storage temperature*		-55		150	°C
Weight				6		g
M_D	*mounting torque*		0.8		1.2	Nm
F_C	*mounting force with clip*		20		120	N

Product Marking



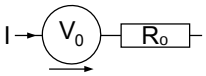
Part number

D = Diode
P = HiPerFRED
G = extreme fast
60 = Current Rating [A]
C = Common Cathode
300 = Reverse Voltage [V]
HB = TO-247AD (3)

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DPG60C300HB	DPG60C300HB	Tube	30	502163

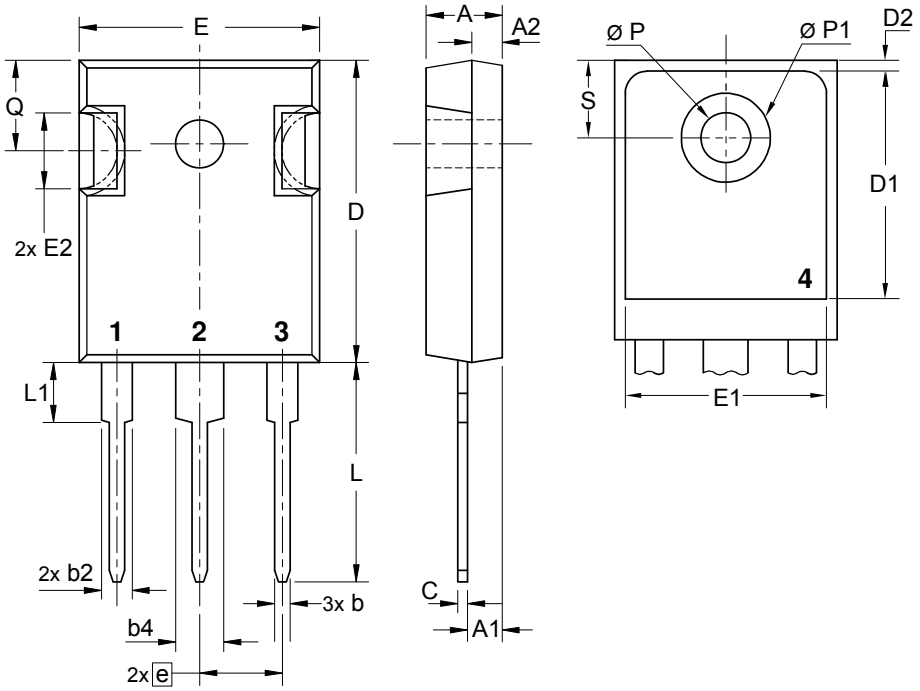
Similar Part	Package	Voltage class
DPG60C300QB	TO-3P (3)	300
DPG60C300HJ	ISOPLUS247 (3)	300
DPG60C300PC	TO-263AB (D2Pak) (2)	300
DPF60C300HB	TO-247AD (3)	300
DPG80C300HB	TO-247AD (3)	300

Equivalent Circuits for Simulation ** on die level* T_{VJ} = 175 °C

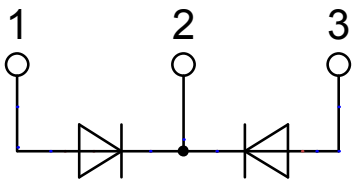


		Fast Diode	
$V_{0\,max}$	*threshold voltage*	0.7	V
$R_{0\,max}$	*slope resistance **	7.9	mΩ

Outlines TO-247



Sym.	Inches		Millimeter	
	min.	max.	min.	max.
A	0.185	0.209	4.70	5.30
A1	0.087	0.102	2.21	2.59
A2	0.059	0.098	1.50	2.49
D	0.819	0.845	20.79	21.45
E	0.610	0.640	15.48	16.24
E2	0.170	0.216	4.31	5.48
e	0.215 BSC		5.46 BSC	
L	0.780	0.800	19.80	20.30
L1	-	0.177	-	4.49
Ø P	0.140	0.144	3.55	3.65
Q	0.212	0.244	5.38	6.19
S	0.242 BSC		6.14 BSC	
b	0.039	0.055	0.99	1.40
b2	0.065	0.094	1.65	2.39
b4	0.102	0.135	2.59	3.43
c	0.015	0.035	0.38	0.89
D1	0.515	-	13.07	-
D2	0.020	0.053	0.51	1.35
E1	0.530	-	13.45	-
Ø P1	-	0.29	-	7.39



Fast Diode

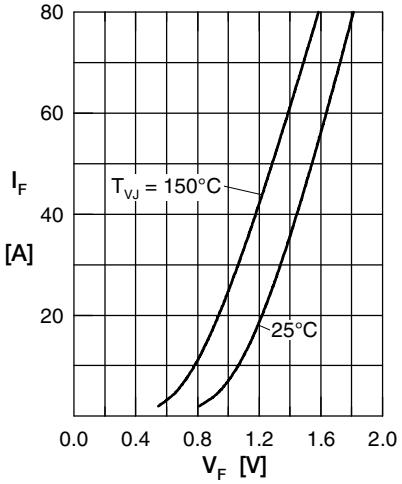


Fig. 1 Forward current I_F versus V_F

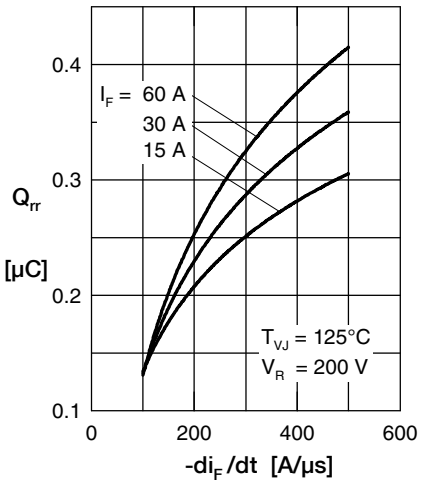


Fig. 2 Typ. reverse recov. charge Q_{rr} versus $-di_F/dt$

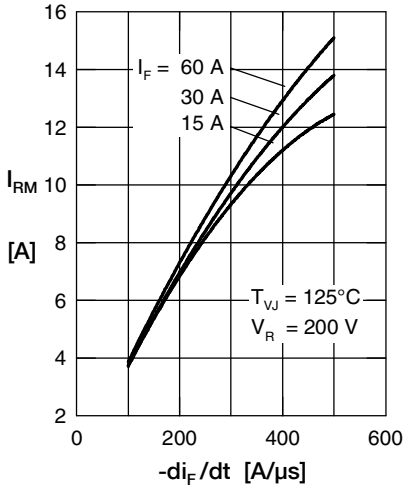


Fig. 3 Typ. reverse recov. current I_{RM} versus $-di_F/dt$

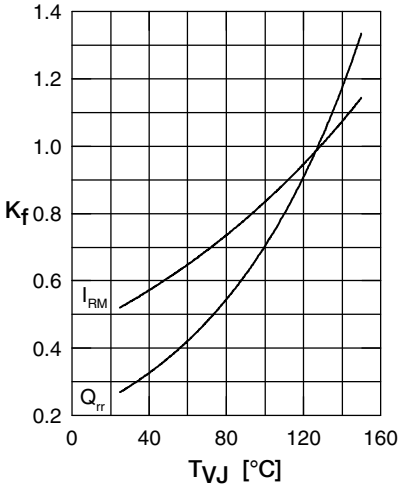


Fig. 4 Dynamic parameters Q_{rr}, I_{RM} versus T_{VJ}

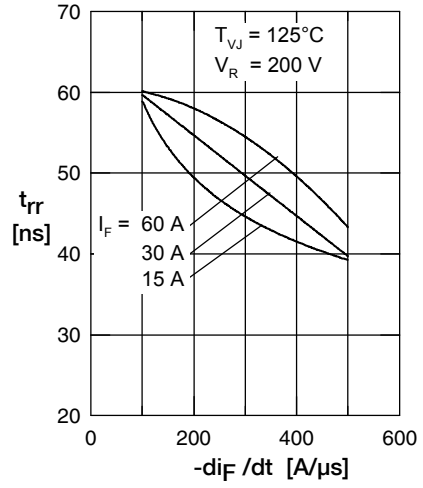


Fig. 5 Typ. reverse recovery time t_{rr} versus $-di_F/dt$

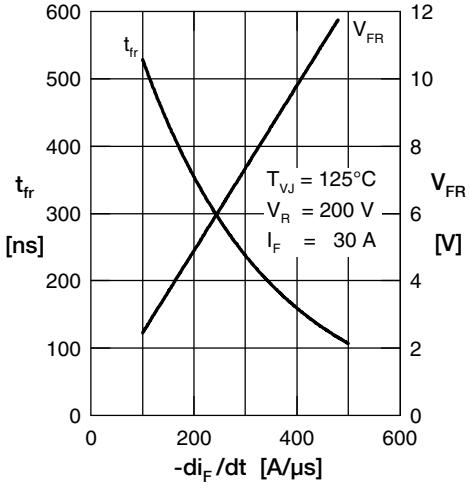


Fig. 6 Typ. forward recovery voltage V_{FR} & time t_{fr} versus di_F/dt

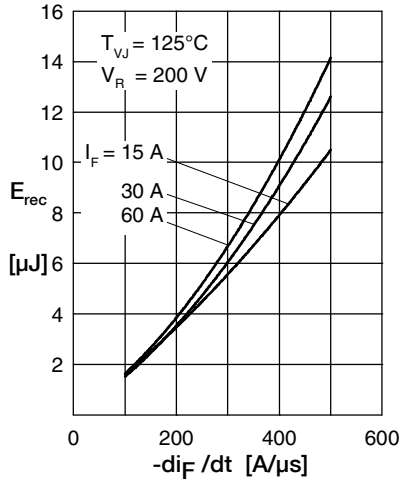


Fig. 7 Typ. recovery energy E_{rec} versus $-di_F/dt$

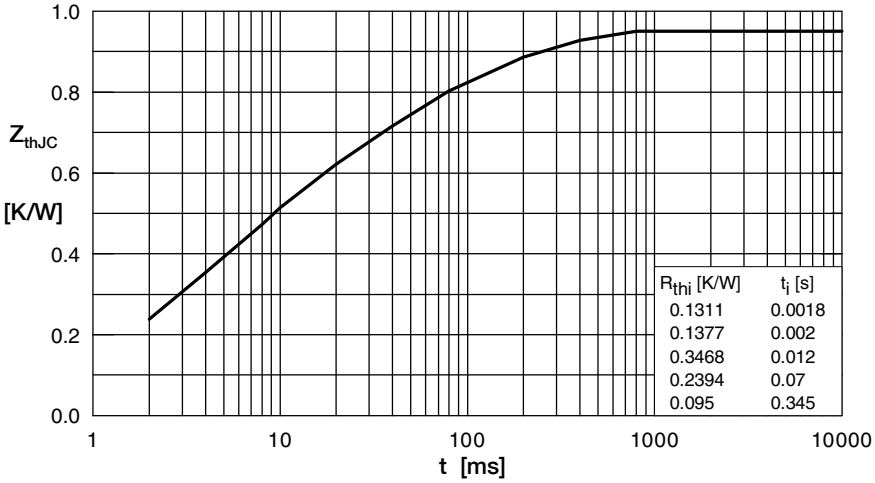


Fig. 8 Transient thermal impedance junction to case