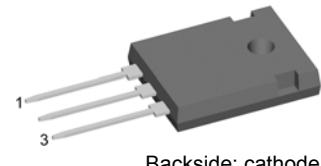
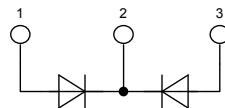


HiPerFRED²

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

Part number

DPG 30 C 400 HB



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:

- Housing: TO-247
- Industry standard outline
- Epoxy meets UL 94V-0
- RoHS compliant

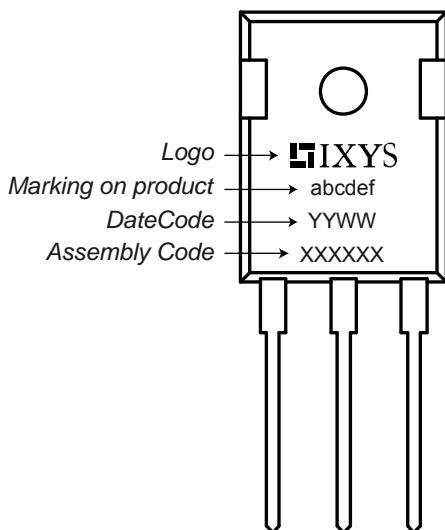
Symbol	Definition	Conditions		Ratings		
				min.	typ.	max.
V_{RRM}	max. repetitive reverse voltage		$T_{VJ} = 25^\circ\text{C}$			400 V
I_R	reverse current	$V_R = 400\text{V}$	$T_{VJ} = 25^\circ\text{C}$		1 μA	
		$V_R = 400\text{V}$	$T_{VJ} = 150^\circ\text{C}$		0.18 mA	
V_F	forward voltage	$I_F = 15\text{A}$	$T_{VJ} = 25^\circ\text{C}$		1.38 V	
		$I_F = 30\text{A}$			1.61 V	
		$I_F = 15\text{A}$	$T_{VJ} = 150^\circ\text{C}$		1.13 V	
		$I_F = 30\text{A}$			1.39 V	
I_{FAV}	average forward current	rectangular	$d = 0.5$	$T_c = 140^\circ\text{C}$		15 A
V_{FO} r_F	threshold voltage slope resistance } for power loss calculation only			$T_{VJ} = 175^\circ\text{C}$		0.84 V
						15.9 mΩ
R_{thJC}	thermal resistance junction to case					1.70 K/W
T_{VJ}	virtual junction temperature			-55	175	°C
P_{tot}	total power dissipation					90 W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}$ (50 Hz), sine		$T_{VJ} = 45^\circ\text{C}$		190 A
I_{RM}	max. reverse recovery current			$T_{VJ} = 25^\circ\text{C}$	4	A
		$I_F = 15\text{A}; V_R = 270\text{V}$		$T_{VJ} = 125^\circ\text{C}$	5.5	A
		$-di_F/dt = 200\text{ A}/\mu\text{s}$		$T_{VJ} = 25^\circ\text{C}$	45	ns
t_{rr}	reverse recovery time			$T_{VJ} = 125^\circ\text{C}$	70	ns
C_J	junction capacitance	$V_R = 200\text{V}; f = 1\text{ MHz}$		$T_{VJ} = 25^\circ\text{C}$	16 pF	

Symbol	Definition	Conditions	Ratings			
			min.	typ.	max.	
I_{RMS}	RMS current	per pin ¹⁾			35	A
R_{thCH}	thermal resistance case to heatsink			0.25		K/W
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

¹⁾ I_{RMS} is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip.

In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

Product Marking



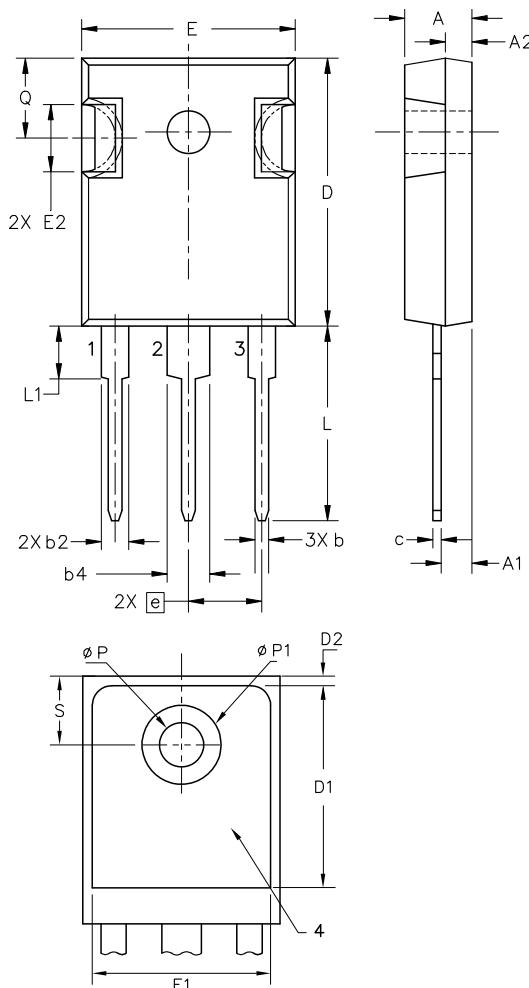
Part number

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

Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Code Key
Standard	DPG 30 C 400 HB	DPG30C400HB	Tube	30	505790

Similar Part	Package	Voltage Class
DPG30C400PB	TO-220AB (3)	400

Outlines TO-247



Sym.	Inches min. max.	Millimeter 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

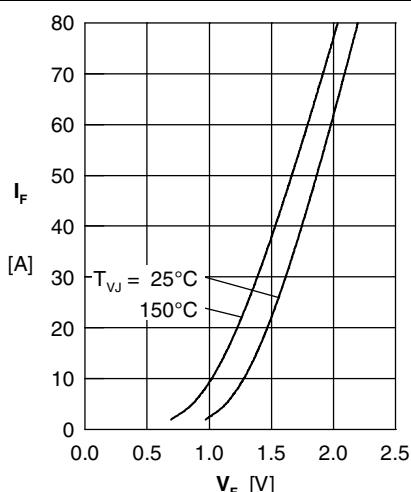
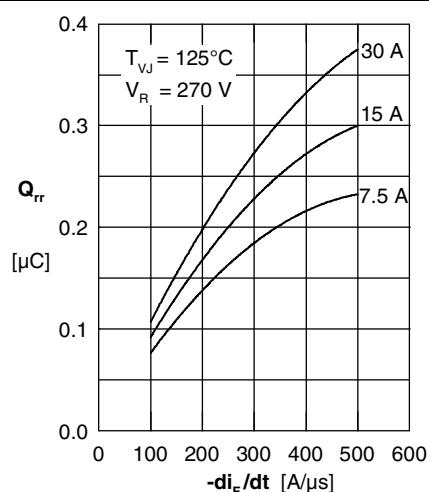
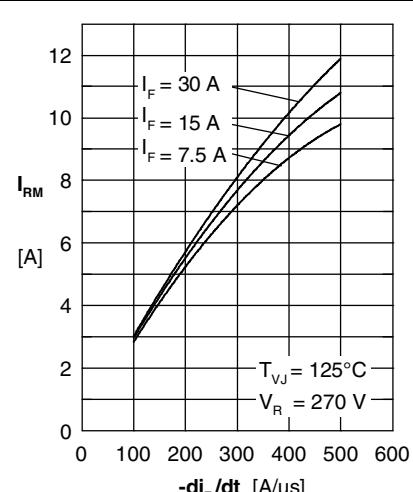
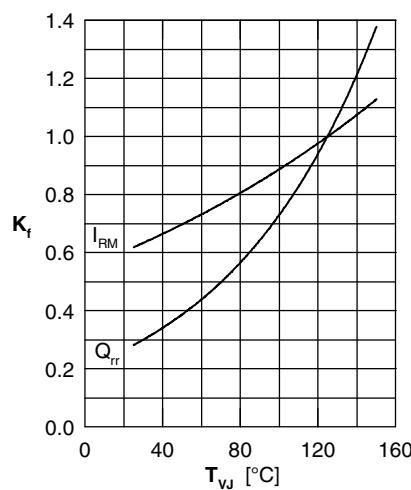
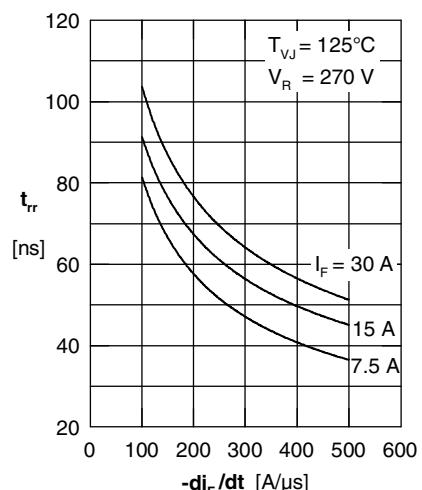
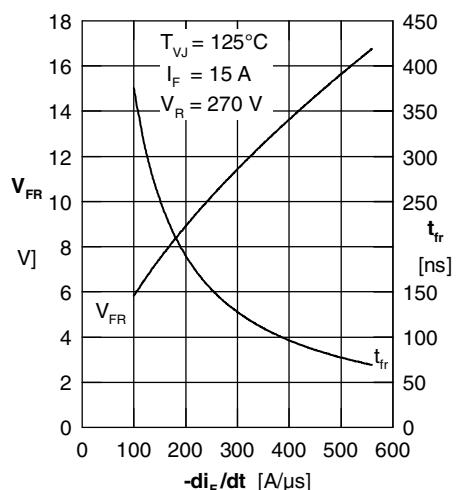
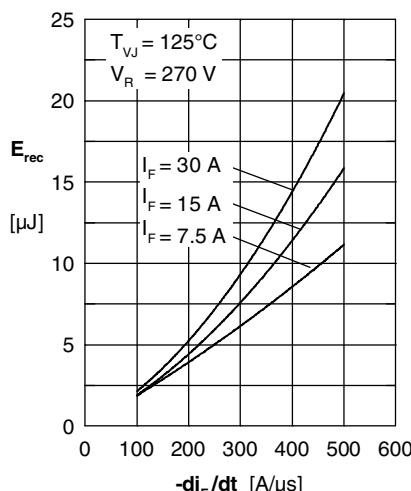
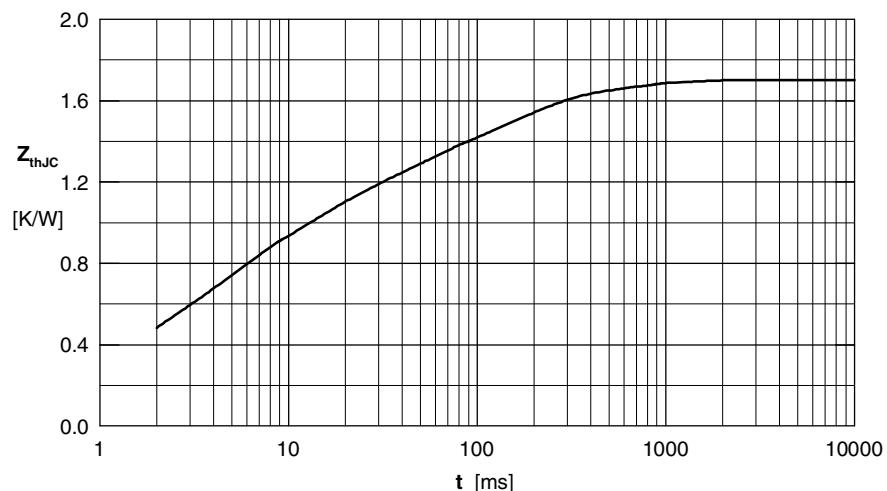
Fig. 1 Forward current I_F vs. V_F Fig. 2 Typ. reverse recovery charge Q_{rr} versus $-di_F/dt$ Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$ Fig. 4 Dynamic parameters Q_{rr} , I_{RM} versus T_{VJ} Fig. 5 Typ. recovery time t_{rr} vs. $-di_F/dt$ Fig. 6 Typ. peak forward voltage V_{FR} and 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