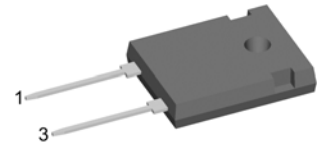
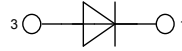


HiPerFRED²

High Performance Fast Recovery Diode
Low Loss and Soft Recovery
Single Diode

Part number

DPG 30 I 400 HA



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:

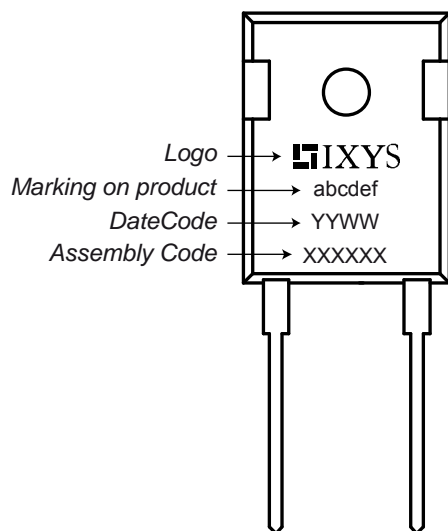
- Housing: TO-247
- Industry standard outline
- Epoxy meets UL 94V-0
- RoHS compliant

Ratings

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
V _{RRM}	max. repetitive reverse voltage	T _{VJ} = 25°C			400	V
I _R	reverse current	V _R = 400V			1	μA
		V _R = 400V			0.2	mA
V _F	forward voltage	I _F = 30A	T _{VJ} = 25°C		1.41	V
					1.69	V
		I _F = 60A	T _{VJ} = 150°C		1.13	V
					1.46	V
I _{FAV}	average forward current	rectangular d = 0.5	T _C = 135°C		30	A
V _{F0}	threshold voltage	} for power loss calculation only	T _{VJ} = 175°C		0.76	V
r _F	slope resistance				10.7	mΩ
R _{thJC}	thermal resistance junction to case				0.95	K/W
T _{VJ}	virtual junction temperature		-55		175	°C
P _{tot}	total power dissipation				160	W
I _{FSM}	max. forward surge current	t = 10 ms (50 Hz), sine	T _{VJ} = 45°C		360	A
I _{RM}	max. reverse recovery current		T _{VJ} = 25°C		4	A
		I _F = 30 A; V _R = 270 V	T _{VJ} = 125°C		8.5	A
t _{rr}	reverse recovery time	-di _F /dt = 200 A/μs	T _{VJ} = 25°C		45	ns
			T _{VJ} = 125°C		85	ns
C _J	junction capacitance	V _R = 200 V; f = 1 MHz	T _{VJ} = 25°C		32	pF

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
I_{RMS}	RMS current	per pin ¹⁾			50	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

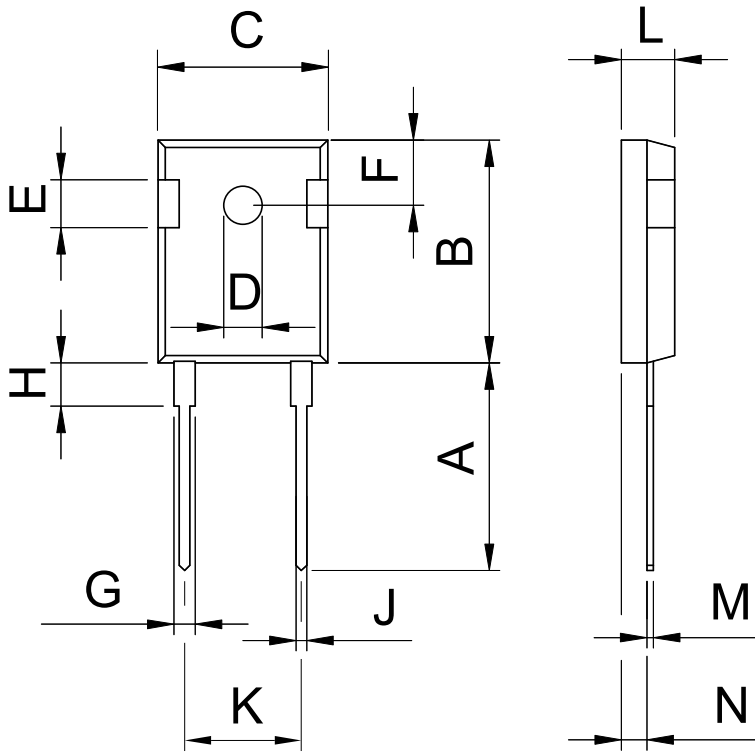
¹⁾ I_{RMS} is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip.
 In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

Product Marking

Part number

- D = Diode
- P = HiPerFRED
- G = extreme fast
- 30 = Current Rating [A]
- I = Single Diode
- 400 = Reverse Voltage [V]
- HA = TO-247AD (2)

Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Code Key
Standard	DPG 30 I 400 HA	DPG30I400HA	Tube	30	507320

Outlines TO-247



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

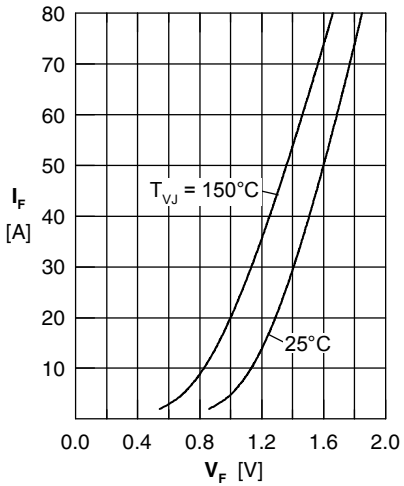


Fig. 1 Forward current I_F versus forward voltage V_F

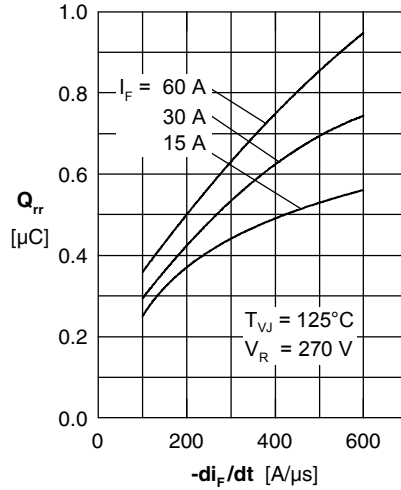


Fig. 2 Typ. reverse recovery charge Q_{rr} versus $-di_F/dt$

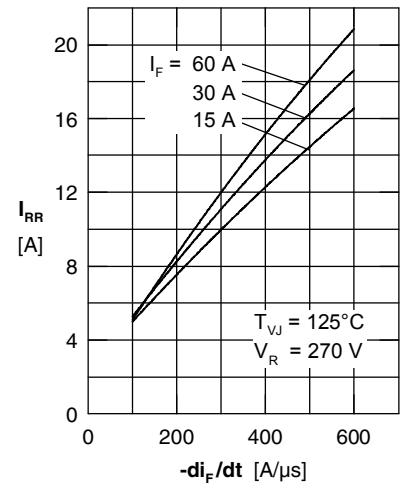


Fig. 3 Typ. reverse recovery current I_{RR} versus $-di_F/dt$

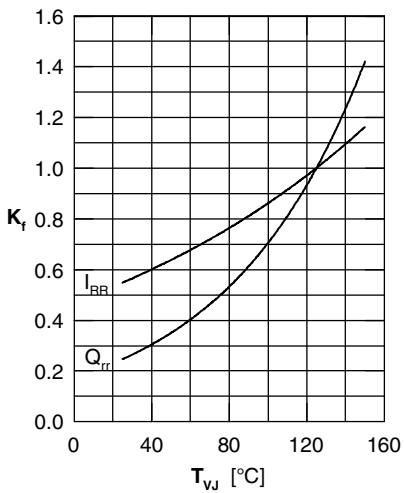


Fig. 4 Dynamic parameters Q_{rr} , I_{RR} versus T_{VJ}

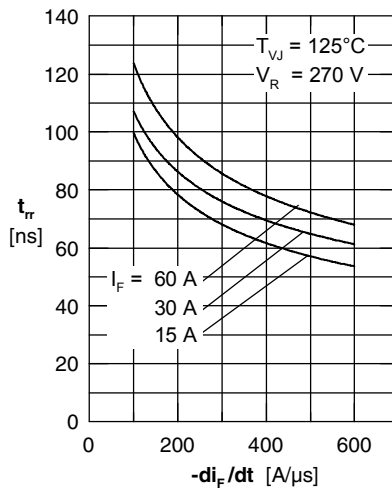


Fig. 5 Typ. reverse recovery time t_{rr} versus $-di_F/dt$

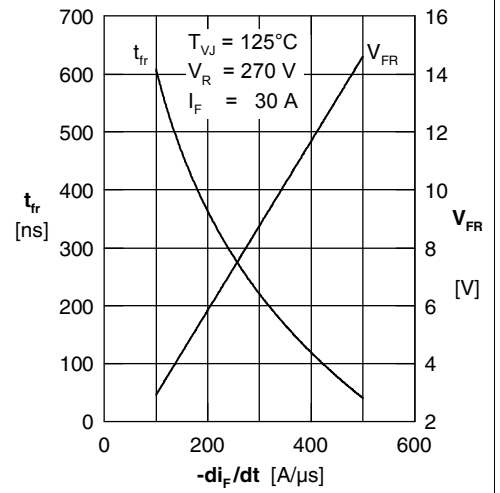


Fig. 6 Typ. forward recovery voltage V_{FR} & forward recovery time t_{fr} vs. di_F/dt

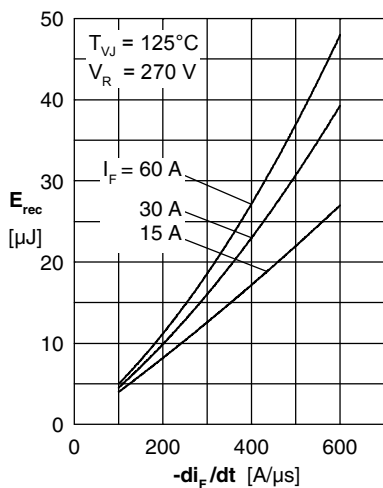


Fig. 7 Typ. recovery energy E_{rec} versus $-di_F/dt$

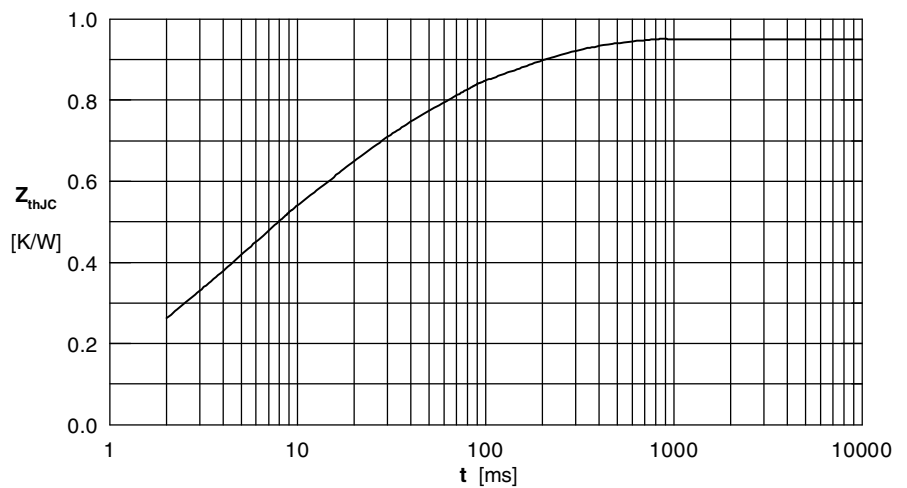


Fig. 8 Transient thermal impedance junction to case