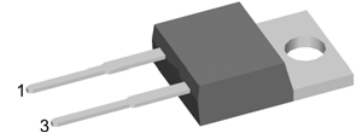
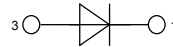


HiPerFRED<sup>2</sup>

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

Part number

DPG 15 I 300 PA



Backside: cathode

## Features / Advantages:

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

## Applications:

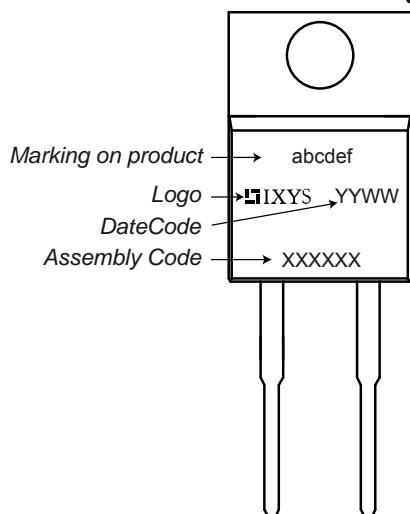
- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)

## Package:

- Housing: TO-220
- Industry standard outline
- Epoxy meets UL 94V-0
- RoHS compliant

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
V <sub>RRM</sub>	max. repetitive reverse voltage				300	V
I <sub>R</sub>	reverse current	V <sub>R</sub> = 300 V			1	μA
		V <sub>R</sub> = 300 V			0.08	mA
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 15 A			1.26	V
		I <sub>F</sub> = 30 A			1.51	V
		I <sub>F</sub> = 15 A			1.01	V
		I <sub>F</sub> = 30 A			1.29	V
I <sub>FAV</sub>	average forward current	rectangular d = 0.5			15	A
V <sub>FO</sub>	threshold voltage	} for power loss calculation only			0.69	V
r <sub>F</sub>	slope resistance				18	mΩ
R <sub>thJC</sub>	thermal resistance junction to case				1.70	K/W
T <sub>VJ</sub>	virtual junction temperature		-55		175	°C
P <sub>tot</sub>	total power dissipation				90	W
I <sub>FSM</sub>	max. forward surge current	t = 10 ms (50 Hz), sine			240	A
I <sub>RM</sub>	max. reverse recovery current				3	A
		I <sub>F</sub> = 15 A; V <sub>R</sub> = 200 V			6.5	A
t <sub>rr</sub>	reverse recovery time	-di <sub>F</sub> /dt = 200 A/μs			35	ns
					55	ns
C <sub>J</sub>	junction capacitance	V <sub>R</sub> = 150 V; f = 1 MHz			20	pF

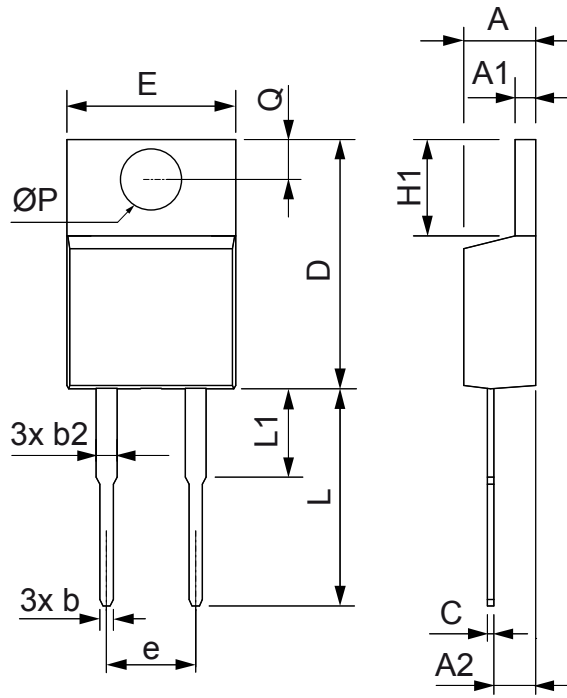
Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
$I_{RMS}$	RMS current	per terminal			35	A
$R_{thCH}$	thermal resistance case to heatsink			0.50		K/W
$T_{stg}$	storage temperature		-55		150	°C
<b>Weight</b>				2		g
$M_D$	mounting torque		0.4		0.6	Nm
$F_C$	mounting force with clip		20		60	N

**Product Marking**

**Part number**

- D = Diode
- P = HiPerFRED
- G = extreme fast
- 15 = Current Rating [A]
- I = Single Diode
- 300 = Reverse Voltage [V]
- PA = TO-220AC (2)

Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Code Key
Standard	DPG 15 I 300 PA	DPG15I300PA	Tube	50	506633

Outlines TO-220



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.32	4.82	0.170	0.190
A1	1.14	1.39	0.045	0.055
A2	2.29	2.79	0.090	0.110
b	0.64	1.01	0.025	0.040
b2	1.15	1.65	0.045	0.065
C	0.35	0.56	0.014	0.022
D	14.73	16.00	0.580	0.630
E	9.91	10.66	0.390	0.420
e	5.08	BSC	0.200	BSC
H1	5.85	6.85	0.230	0.270
L	12.70	13.97	0.500	0.550
L1	2.79	5.84	0.110	0.230
$\varnothing P$	3.54	4.08	0.139	0.161
Q	2.54	3.18	0.100	0.125

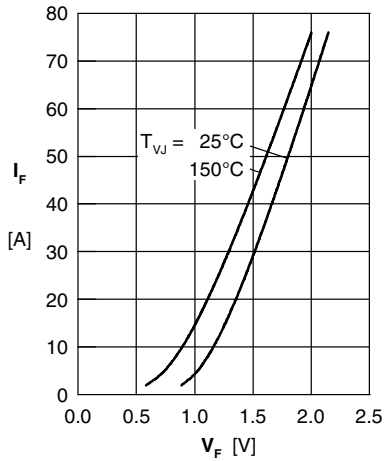


Fig. 1 Forward current  $I_F$  vs.  $V_F$

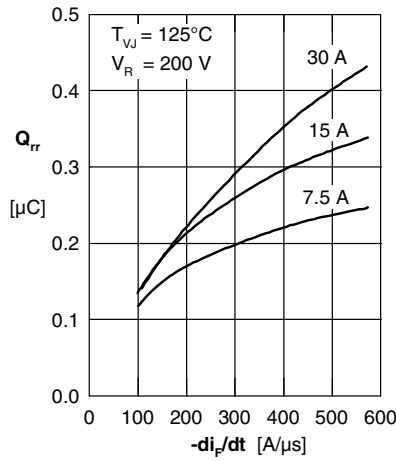


Fig. 2 Typ. reverse recovery charge  $Q_{rr}$  versus  $-di_F/dt$

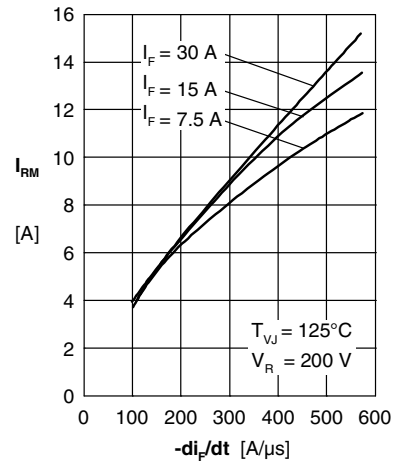


Fig. 3 Typ. peak reverse current  $I_{RM}$  versus  $-di_F/dt$

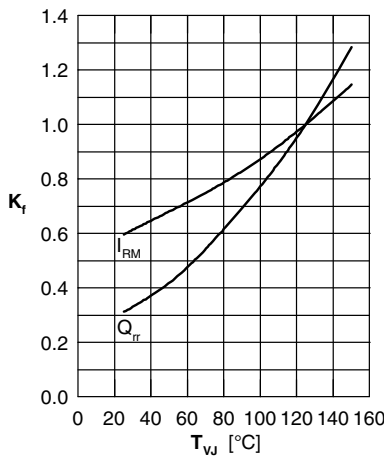


Fig. 4 Dynamic parameters  $Q_{rr}$ ,  $I_{RM}$  versus  $T_{VJ}$

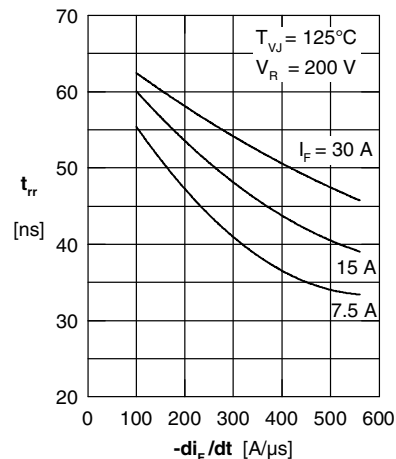


Fig. 5 Typ. recovery time  $t_{tr}$  vs.  $-di_F/dt$

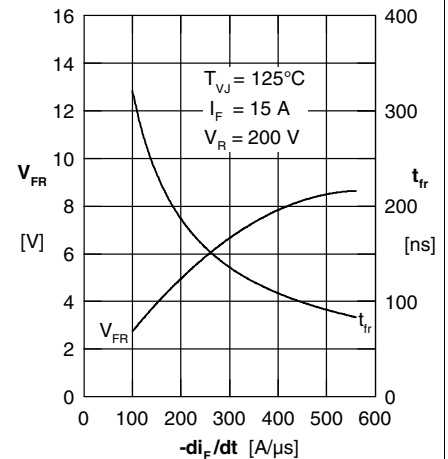


Fig. 6 Typ. peak forward voltage  $V_{FR}$  and  $t_{tr}$  versus  $di_F/dt$

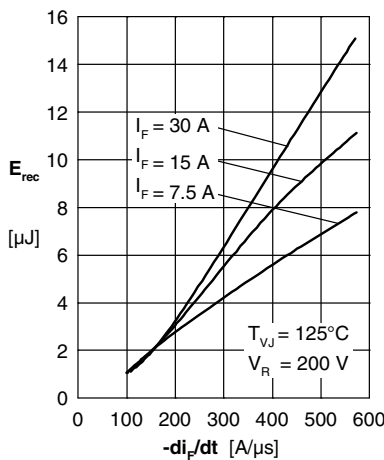


Fig. 7 Typ. recovery energy  $E_{rec}$  versus  $-di_F/dt$

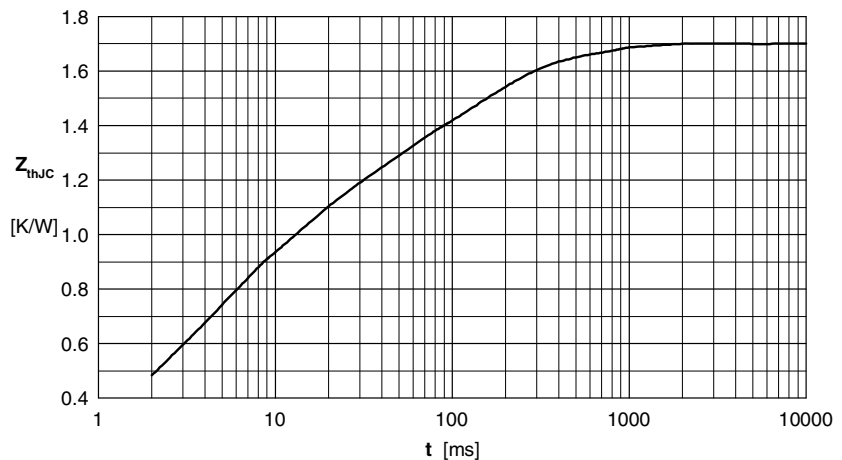


Fig. 8 Transient thermal resistance junction to case