

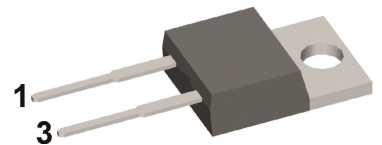
HiPerFRED

V_{RRM}	=	300 V
I_{FAV}	=	15 A
t_{rr}	=	35 ns

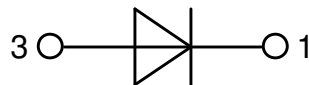
High Performance Fast Recovery Diode
Low Loss and Soft Recovery
Single Diode

Part number

DPG15I300PA



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-220

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

Terms .Conditions of usage:

The data contained in this product data sheet is exclusively intended for technically trained staff. The user will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to his application. The specifications of our components may not be considered as an assurance of component characteristics. The information in the valid application- and assembly notes must be considered. Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of your product, please contact the sales office, which is responsible for you.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact the sales office, which is responsible for you.

Should you intend to use the product in aviation, in health or life endangering or life support applications, please notify. For any such application we urgently recommend

- to perform joint risk and quality assessments;

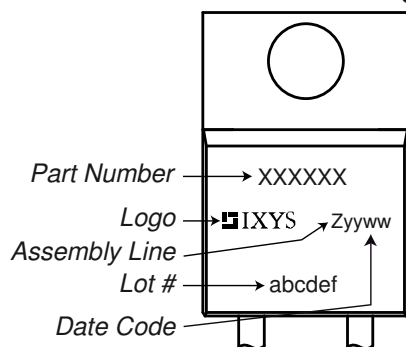
- the conclusion of quality agreements;

- to establish joint measures of an ongoing product survey, and that we may make delivery dependent on the realization of any such measures.

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			0.08	mA		
V _F	forward voltage drop	I _F = 15 A	T _{VJ} = 25°C			1.26	V		
		I _F = 30 A				1.51	V		
		I _F = 15 A	T _{VJ} = 150°C			1.01	V		
		I _F = 30 A				1.29	V		
I _{FAV}	average forward current	T _C = 145°C rectangular d = 0.5	T _{VJ} = 175°C			15	A		
V _{F0}	threshold voltage	} for power loss calculation only		T _{VJ} = 175°C		0.69	V		
r _F	slope resistance					18	mΩ		
R _{thJC}	thermal resistance junction to case					1.7	K/W		
R _{thCH}	thermal resistance case to heatsink				0.50		K/W		
P _{tot}	total power dissipation	T _C = 25°C				90	W		
I _{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; V _R = 0 V		T _{VJ} = 45°C		240	A		
C _J	junction capacitance	V _R = 150 V f = 1 MHz		T _{VJ} = 25°C	20		pF		
I _{RM}	max. reverse recovery current	} I _F = 15 A; V = 200 V -d F/dt = 200 A/μs		T _{VJ} = 25 °C	3		A		
				T _{VJ} = 125°C	6.5		A		
t _{rr}	reverse recovery time			T _{VJ} = 25 °C	35		ns		
				T _{VJ} = 125 °C	55		ns		

Package TO-220				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	
M_D	mounting torque		0.4		0.6	Nm	
F_C	mounting force with clip		20		60	N	

Product Marking



Part description

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

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DPG15I300PA	DPG15I300PA	Tube	50	506633

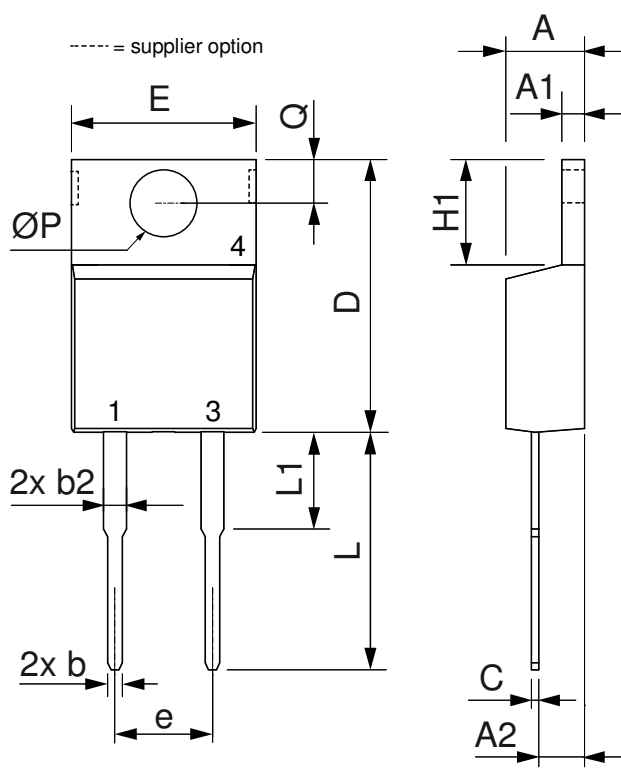
Equivalent Circuits for Simulation

* on die level

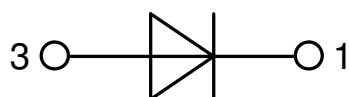
 $T_{VJ} = 175\text{ °C}$

$I \rightarrow$	V_0	R_0	Fast Diode	
$V_{0\max}$	threshold voltage	0.69		V
$R_{0\max}$	slope resistance *	14.8		mΩ

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
ØP	3.54	4.08	0.139	0.161
Q	2.54	3.18	0.100	0.125



Fast Diode

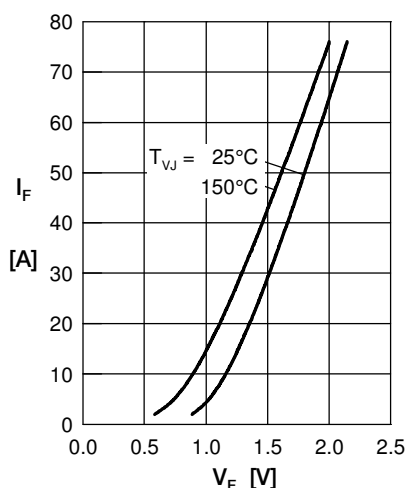


Fig. 1 Forward current I_F versus V_F

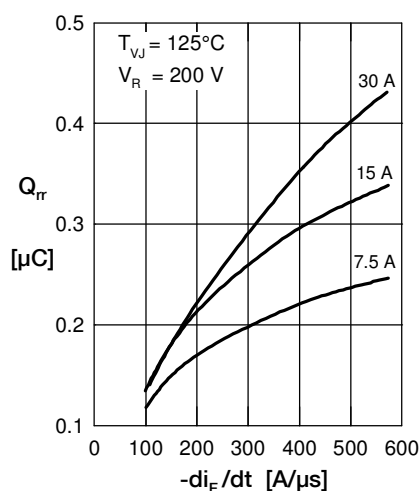


Fig. 2 Typ. reverse recov. charge Q_{rr} versus $-di_F/dt$

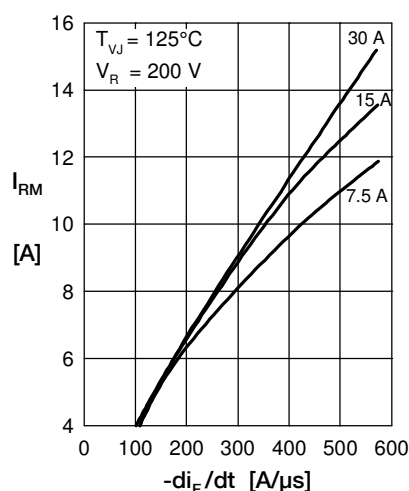


Fig. 3 Typ. peak reverse current I_{RM} versus $-di_F/dt$

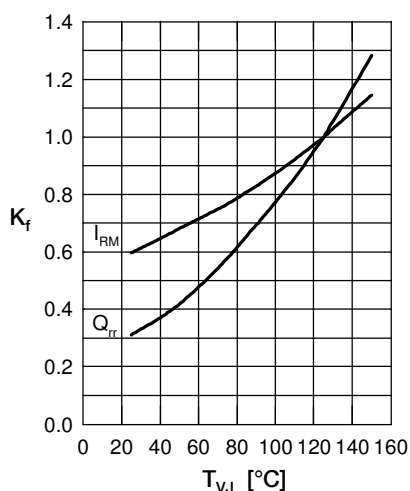


Fig. 4 Typ. dynamic parameters Q_{rr} , I_{RM} versus T_{VJ}

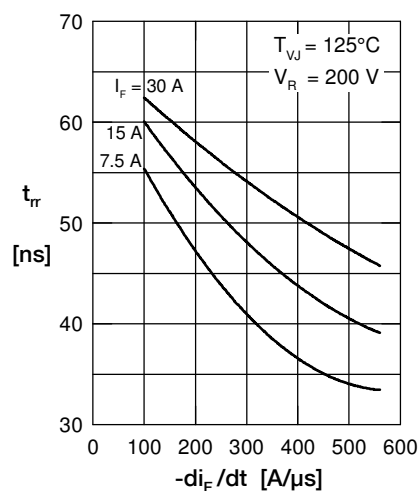


Fig. 5 Typ. recovery time t_{rr} versus $-di_F/dt$

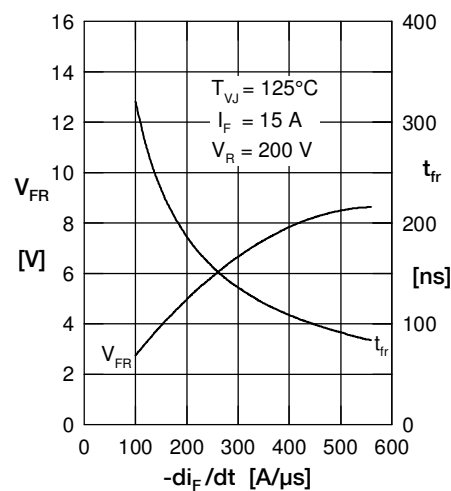


Fig. 6 Typ. peak forward voltage V_{FR} and t_{fr} versus di_F/dt

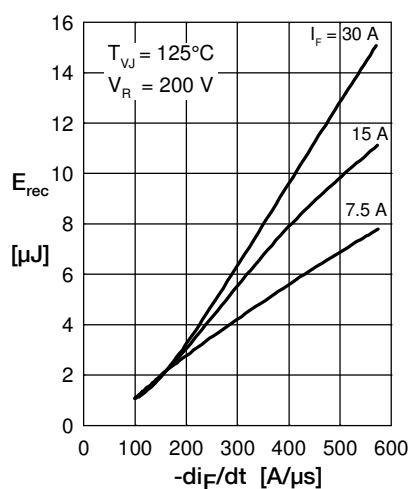


Fig. 7 Typ. recovery energy E_{rec} versus $-di_F/dt$

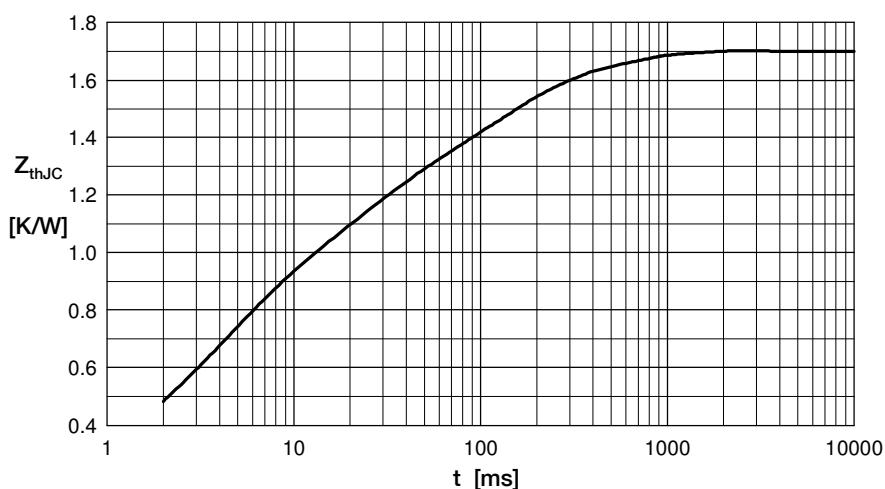


Fig. 8 Transient thermal resistance junction to case



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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