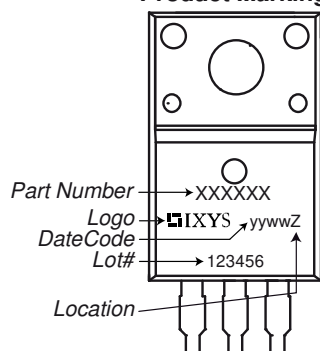


Fast Diode				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V _{RSM}	max. non-repetitive reverse blocking voltage	T _{VJ} = 25°C				300	V
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				300	V
I _R	reverse current, drain current	V _R = 300 V	T _{VJ} = 25°C			1	μA
		V _R = 300 V	T _{VJ} = 150°C			0.06	mA
V _F	forward voltage drop	I _F = 10 A	T _{VJ} = 25°C			1.27	V
		I _F = 20 A				1.45	V
		I _F = 10 A	T _{VJ} = 150°C			0.98	V
		I _F = 20 A				1.17	V
I _{FAV}	average forward current	T _C = 125°C rectangular d = 0.5	T _{VJ} = 175°C			10	A
V _{F0}	threshold voltage	} for power loss calculation only		T _{VJ} = 175°C		0.74	V
r _F	slope resistance					17.7	mΩ
R _{thJC}	thermal resistance junction to case					4.4	K/W
R _{thCH}	thermal resistance case to heatsink				0.5		K/W
P _{tot}	total power dissipation	T _C = 25°C				35	W
I _{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; V _R = 0 V		T _{VJ} = 45°C		140	A
C _J	junction capacitance	V _R = 150 V f = 1 MHz		T _{VJ} = 25°C	15		pF
I _{RM}	max. reverse recovery current	} I _F = 10 A; V _R = 200 V -di _F /dt = 200 A/μs		T _{VJ} = 25 °C	3		A
t _{rr}	reverse recovery time			T _{VJ} = 125 °C	5.5		A
				T _{VJ} = 25 °C	35		ns
				T _{VJ} = 125 °C	45		ns

Package TO-220FP				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
$d_{Spp/App}$	creepage distance on surface striking distance through air	terminal to terminal	1.6	1.0			mm
$d_{Spb/Apb}$		terminal to backside	2.5	2.5			mm
V_{ISOL}	isolation voltage	t = 1 second	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	2500			V
		t = 1 minute		2100			V

Product Marking



Part description

D = Diode
 P = HiPerFRED
 G = extreme fast
 20 = Current Rating [A]
 C = Common Cathode
 300 = Reverse Voltage [V]
 PN = TO-220ABFP (3)

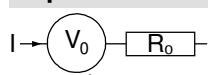
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DPG20C300PN	DPG20C300PN	Tube	50	503665

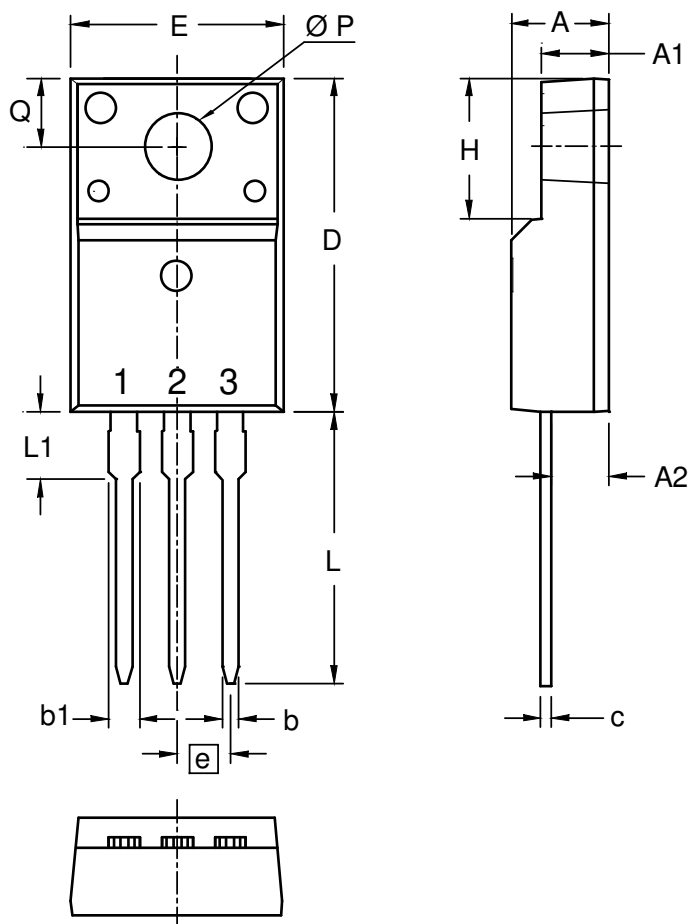
Similar Part	Package	Voltage class
DPG20C300PB	TO-220AB (3)	300

Equivalent Circuits for Simulation

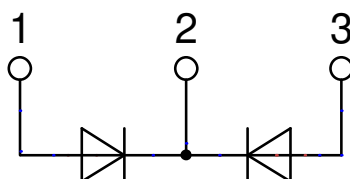
* on die level

$T_{VJ} = 175^{\circ}\text{C}$

		Fast Diode	
$V_{0\max}$	threshold voltage	0.74	V
$R_{0\max}$	slope resistance *	14.5	mΩ

Outlines TO-220FP


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.56	2.96	0.101	0.117
b	0.70	0.90	0.028	0.035
c	0.45	0.60	0.018	0.024
D	15.67	16.07	0.617	0.633
E	9.96	10.36	0.392	0.408
e	2.54 BSC		0.100 BSC	
H	6.48	6.88	0.255	0.271
L	12.68	13.28	0.499	0.523
L1	3.03	3.43	0.119	0.135
Ø P	3.08	3.28	0.121	0.129
Q	3.20	3.40	0.126	0.134



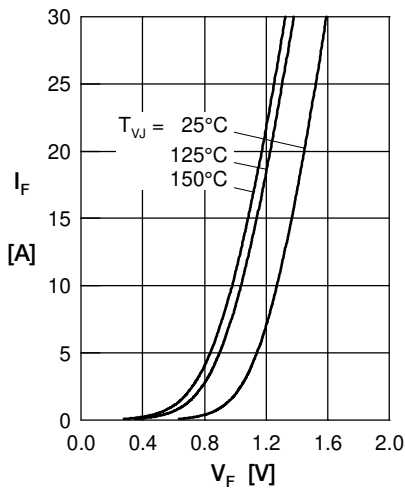
Fast Diode


Fig. 1 Forward current
 I_F versus V_F

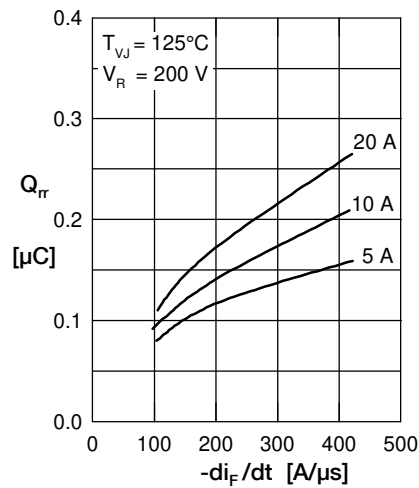


Fig. 2 Typ. reverse recov. charge
 Q_{rr} versus $-di_F/dt$

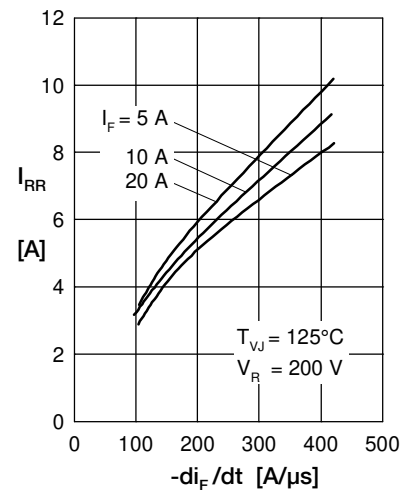


Fig. 3 Typ. reverse recov. current
 I_{RR} versus $-di_F/dt$

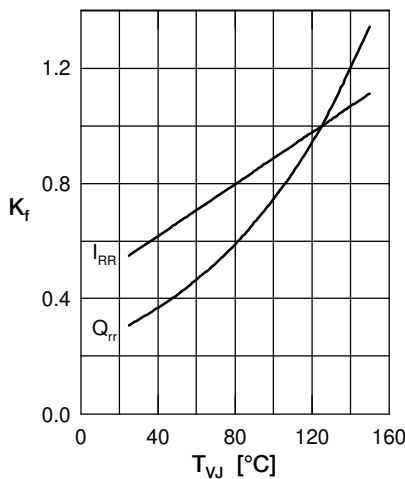


Fig. 4 Typ. dynamic parameters
 Q_{rr} , I_{RR} versus T_{VJ}

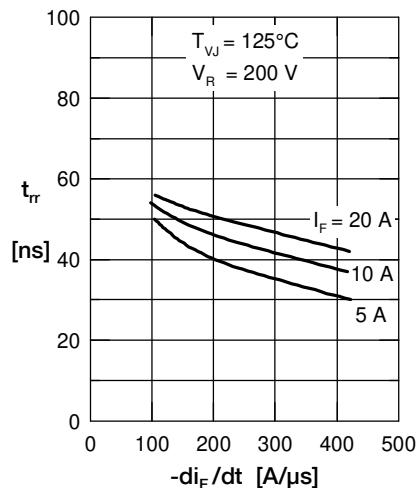


Fig. 5 Typ. reverse recov. time
 t_{rr} versus $-di_F/dt$

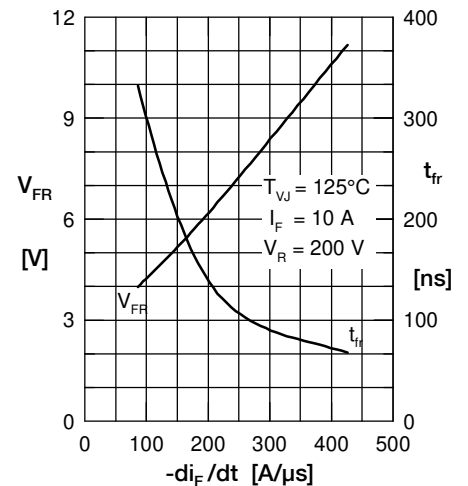


Fig. 6 Typ. forward recov. voltage
 V_{FR} and t_{fr} versus di_F/dt

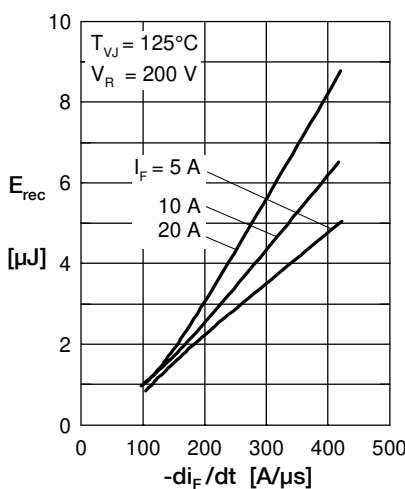


Fig. 7 Typ. recovery energy
 E_{rec} versus $-di_F/dt$

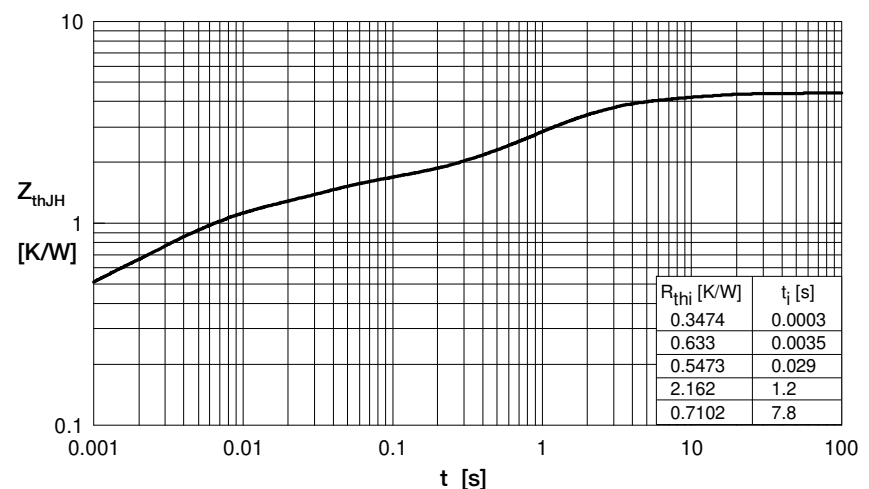


Fig. 8 Transient thermal resistance junction to case