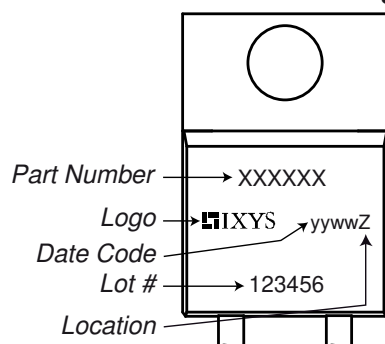


Fast Diode				Ratings				
Symbol	Definition	Conditions		min.	typ.	max.	Unit	
V _{RSM}	max. non-repetitive reverse blocking voltage	T _{VJ} = 25°C				300	V	
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				300	V	
I _R	reverse current, drain current	V _R = 300 V	T _{VJ} = 25°C			5	μA	
		V _R = 300 V	T _{VJ} = 150°C			0.25	mA	
V _F	forward voltage drop	I _F = 30 A	T _{VJ} = 25°C			1.17	V	
		I _F = 60 A				1.37	V	
		I _F = 30 A	T _{VJ} = 150°C			0.98	V	
		I _F = 60 A				1.21	V	
I _{FAV}	average forward current	T _C = 145°C rectangular d = 0.5	T _{VJ} = 175°C			30	A	
V _{F0}	threshold voltage	} for power loss calculation only		T _{VJ} = 175°C		0.72	V	
r _F	slope resistance					7.4	mΩ	
R _{thJC}	thermal resistance junction to case					0.85	K/W	
R _{thCH}	thermal resistance case to heatsink				0.5		K/W	
P _{tot}	total power dissipation	T _C = 25°C				175	W	
I _{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; V _R = 0 V		T _{VJ} = 45°C		390	A	
C _J	junction capacitance	V _R = 150 V f = 1 MHz		T _{VJ} = 25°C	42		pF	
I _{RM}	max. reverse recovery current	} I _F = 30 A; V _R = 200 V -di _F /dt = 200 A/μs		T _{VJ} = 25 °C	6		A	
				T _{VJ} = 125 °C	10		A	
t _{rr}	reverse recovery time			T _{VJ} = 25 °C	55		ns	
				T _{VJ} = 125 °C	85		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
 F = ultra fast
 30 = Current Rating [A]
 I = Single Diode
 300 = Reverse Voltage [V]
 PA = TO-220AC (2)

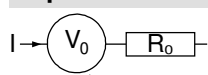
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DPF30I300PA	DPF30I300PA	Tube	50	511414

Similar Part	Package	Voltage class
DPG30I300PA	TO-220AC (2)	300
DPG30I300HA	TO-247AD (2)	300

Equivalent Circuits for Simulation

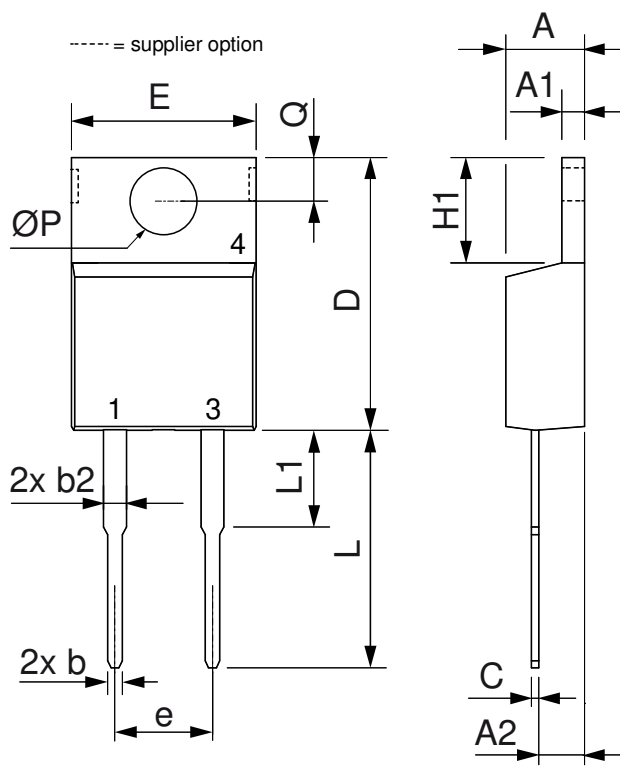
* on die level

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

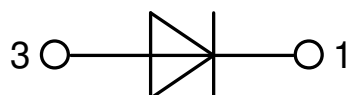
		Fast Diode	
$V_{0\max}$	threshold voltage	0.72	V
$R_{0\max}$	slope resistance *	4.2	mΩ



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



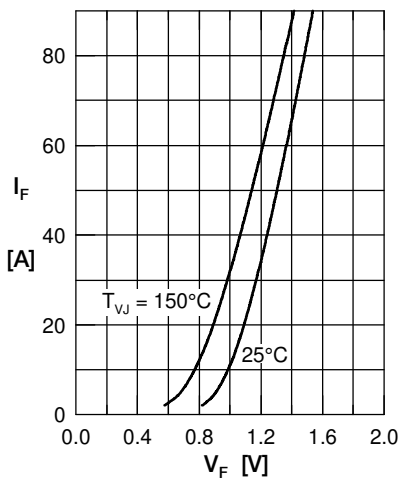
Fast Diode


Fig. 1 Forward current I_F versus V_F

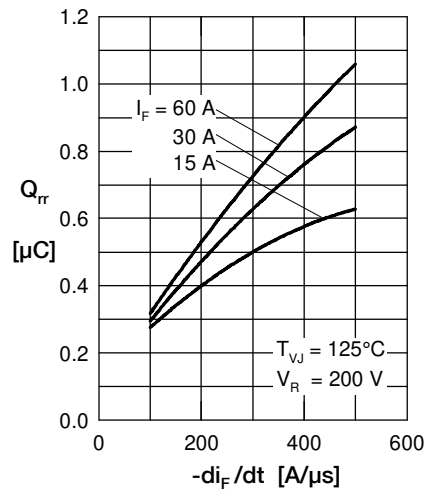


Fig. 2 Typ. reverse recov. charge Q_{rr} versus $-di_F/dt$

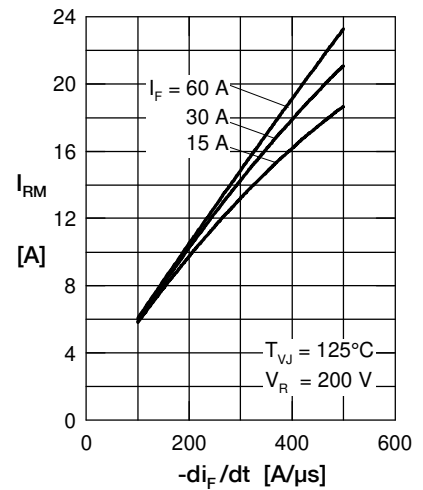


Fig. 3 Typ. reverse recovery current I_{RM} versus $-di_F/dt$

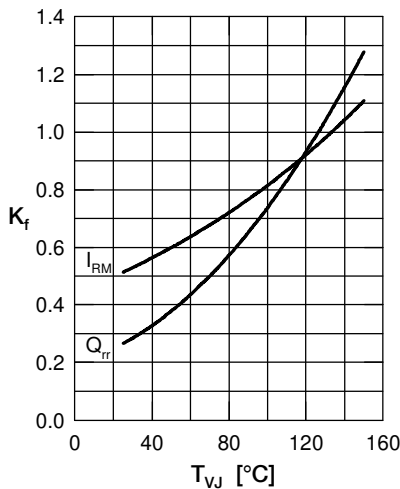


Fig. 4 Typ. dynamic parameters Q_{rr} , I_{RM} versus T_{VJ}

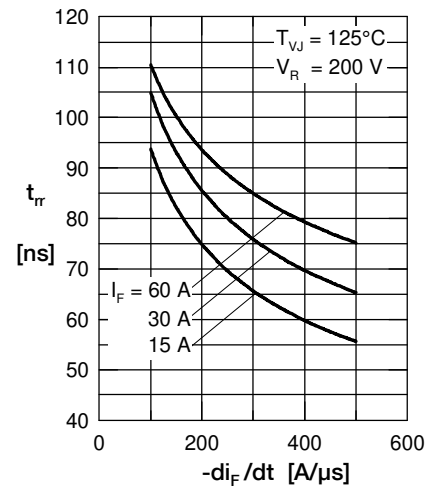


Fig. 5 Typ. reverse recovery time t_{rr} versus $-di_F/dt$

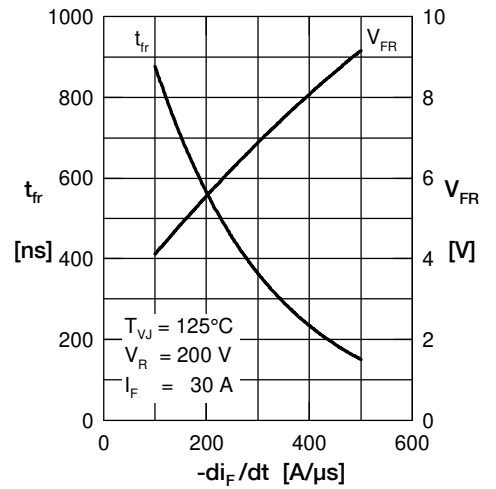


Fig. 6 Typ. forward recov. voltage V_{FR} & recovery time t_{fr} vs. di_F/dt

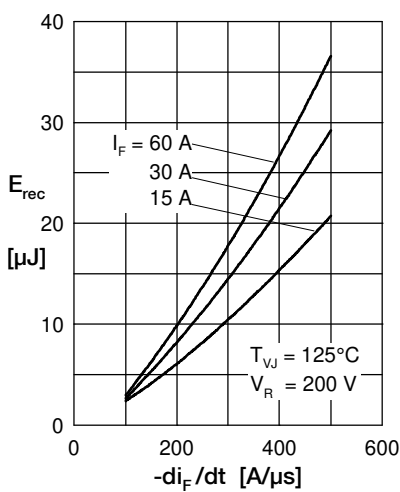


Fig. 7 Typ. recovery energy E_{rec} versus $-di_F/dt$

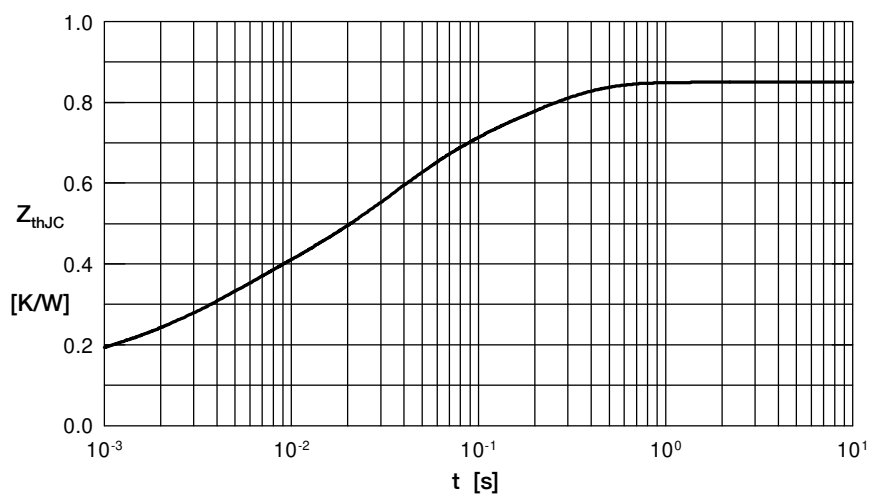


Fig. 8 Transient thermal impedance junction to case