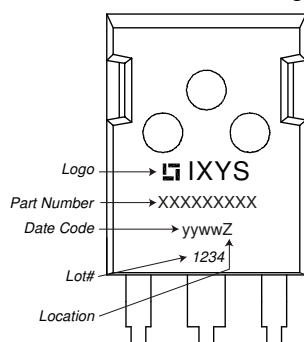


Fast Diode				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				300	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				300	V
I_R	reverse current, drain current	$V_R = 300\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			1	μA
		$V_R = 300\text{ V}$	$T_{VJ} = 150^{\circ}\text{C}$			0.2	mA
V_F	forward voltage drop	$I_F = 40\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			1.36	V
		$I_F = 80\text{ A}$				1.71	V
		$I_F = 40\text{ A}$	$T_{VJ} = 150^{\circ}\text{C}$			1.07	V
		$I_F = 80\text{ A}$				1.44	V
I_{FAV}	average forward current	$T_C = 135^{\circ}\text{C}$ rectangular $d = 0.5$	$T_{VJ} = 175^{\circ}\text{C}$			40	A
V_{F0}	threshold voltage	} for power loss calculation only		$T_{VJ} = 175^{\circ}\text{C}$		0.64	V
r_F	slope resistance					9.2	m Ω
R_{thJC}	thermal resistance junction to case					0.7	K/W
R_{thCH}	thermal resistance case to heatsink				0.3		K/W
P_{tot}	total power dissipation	$T_C = 25^{\circ}\text{C}$				215	W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$		$T_{VJ} = 45^{\circ}\text{C}$		450	A
C_J	junction capacitance	$V_R = 150\text{ V}$ $f = 1\text{ MHz}$		$T_{VJ} = 25^{\circ}\text{C}$	60		pF
I_{RM}	max. reverse recovery current	$I_F = 40\text{ A}; V_R = 200\text{ V}$ $-di_F/dt = 200\text{ A}/\mu\text{s}$		$T_{VJ} = 25^{\circ}\text{C}$	3		A
				$T_{VJ} = \text{ }^{\circ}\text{C}$	8.5		A
t_{rr}	reverse recovery time			$T_{VJ} = 25^{\circ}\text{C}$	35		ns
				$T_{VJ} = \text{ }^{\circ}\text{C}$	65		ns

Package TO-247			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal ¹⁾			70	A
T_{VJ}	virtual junction temperature		-55		175	°C
T_{op}	operation temperature		-55		150	°C
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

Product Marking



Part description

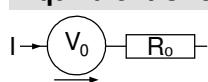
D = Diode
 P = HiPerFRED
 G = extreme fast
 80 = Current Rating [A]
 C = Common Cathode
 300 = Reverse Voltage [V]
 HB = TO-247AD (3)

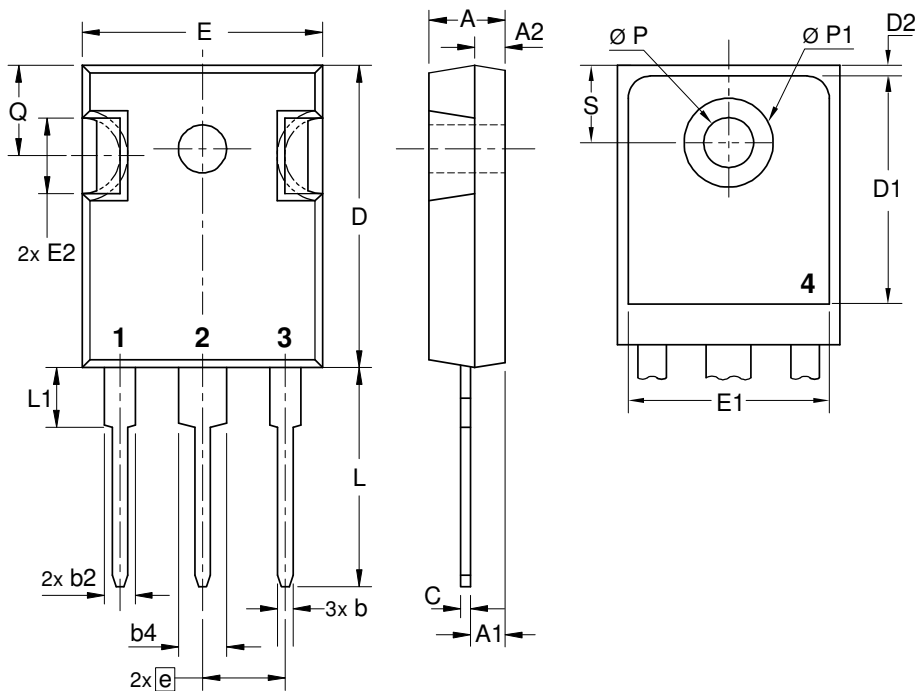
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DPG80C300HB	DPG80C300HB	Tube	30	506868

Equivalent Circuits for Simulation

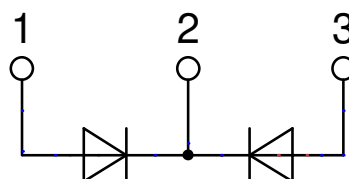
* on die level

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

		Fast Diode	
$V_{0\max}$	threshold voltage	0.64	V
$R_{0\max}$	slope resistance *	7.6	mΩ

Outlines TO-247


Sym.	Inches		Millimeter	
	min.	max.	min.	max.
A	0.185	0.209	4.70	5.30
A1	0.087	0.102	2.21	2.59
A2	0.059	0.098	1.50	2.49
D	0.819	0.845	20.79	21.45
E	0.610	0.640	15.48	16.24
E2	0.170	0.216	4.31	5.48
e	0.215	BSC	5.46	BSC
L	0.780	0.800	19.80	20.30
L1	-	0.177	-	4.49
Ø P	0.140	0.144	3.55	3.65
Q	0.212	0.244	5.38	6.19
S	0.242	BSC	6.14	BSC
b	0.039	0.055	0.99	1.40
b2	0.065	0.094	1.65	2.39
b4	0.102	0.135	2.59	3.43
c	0.015	0.035	0.38	0.89
D1	0.515	-	13.07	-
D2	0.020	0.053	0.51	1.35
E1	0.530	-	13.45	-
Ø P1	-	0.29	-	7.39



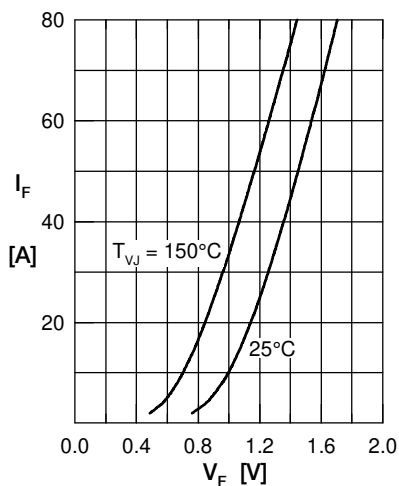
Fast Diode


Fig. 1 Forward current I_F versus V_F

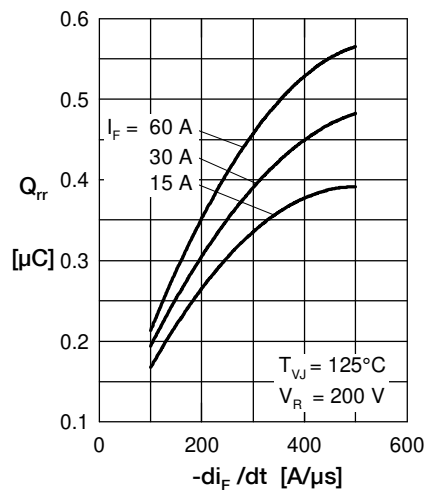


Fig. 2 Typ. reverse recov. charge Q_{rr} versus $-di_F/dt$

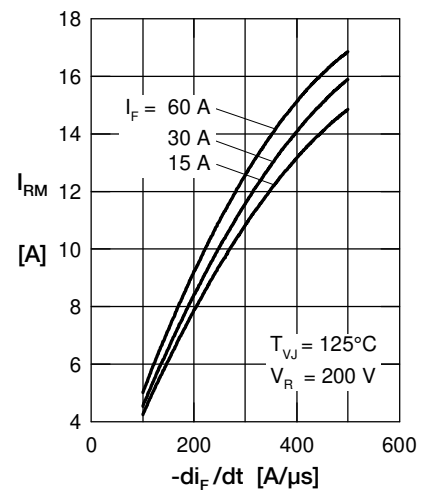


Fig. 3 Typ. reverse recov. current I_{RM} versus $-di_F/dt$

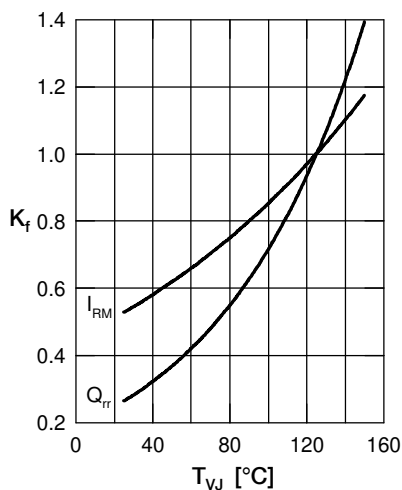


Fig. 4 Typ. dynamic parameters Q_{rr} , I_{RM} versus T_{VJ}

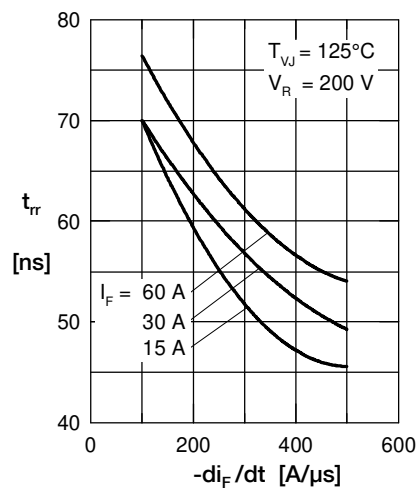


Fig. 5 Typ. reverse recov. time t_{rr} versus $-di_F/dt$

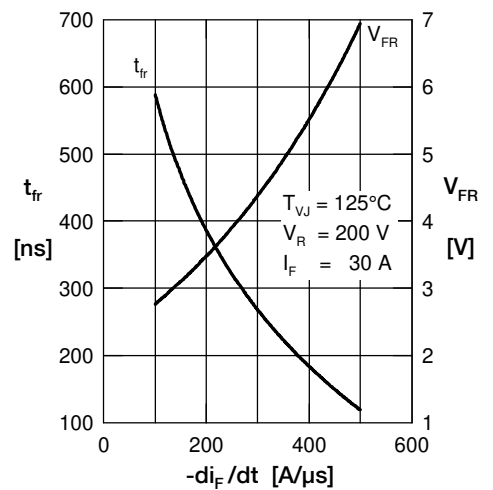


Fig. 6 Typ. forward recovery voltage V_{FR} & time t_{fr} versus di_F/dt

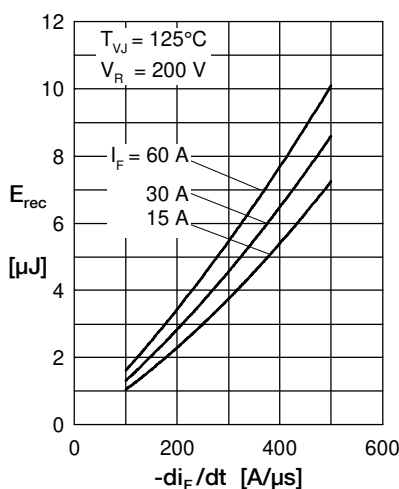


Fig. 7 Typ. recovery energy E_{rec} versus $-di_F/dt$

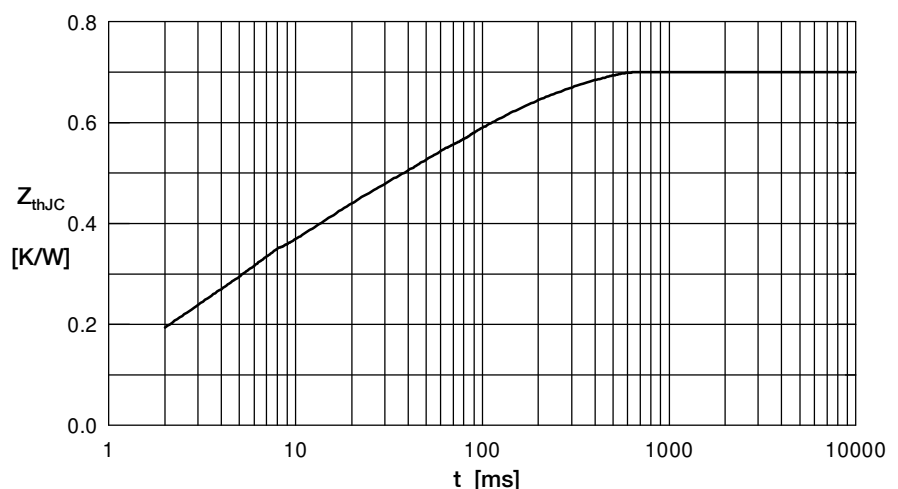


Fig. 8 Transient thermal impedance junction to case