HiPerFRED™ Epitaxial Diode
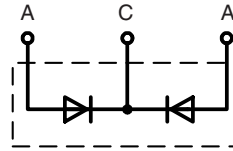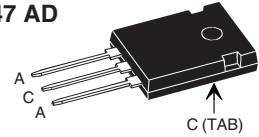## with common cathode and soft recovery

I_{FAV} = 2x30 A
V_{RRM} = 300 V
t_{rr} = 30 ns

V_{RSM}	V_{RRM}	Type
V	V	
300	300	DSEC 60-03A

A   C   A

TO-247 AD

A = Anode, C = Cathode

C (TAB)

Symbol	Conditions	Maximum Ratings	
I_{FRMS}		70	A
I_{FAVM}	T_C = 145°C; rectangular, d = 0.5	30	A
I_{FSM}	T_{VJ} = 45°C; t_p = 10 ms (50 Hz), sine	300	A
E_{AS}	T_{VJ} = 25°C; non-repetitive I_{AS} = 3 A; L = 180 µH	1.2	mJ
I_{AR}	V_A = 1.5·V_R typ.; f = 10 kHz; repetitive	0.3	A
T_{VJ}		-55...+175	°C
T_{VJM}		175	°C
T_{stg}		-55...+150	°C
P_{tot}	T_C = 25°C	165	W
M_d	mounting torque	0.8...1.2	Nm
Weight	typical	6	g

Symbol		Conditions	Characteristic Values		
			typ.	max.	
I_R	①	V_R = V_{RRM}; T_{VJ} = 25°C		10	µA
		T_{VJ} = 150°C		1	mA
V_F	②	I_F = 30 A; T_{VJ} = 150°C		0.91	V
		T_{VJ} = 25°C		1.25	V
R_{thJC}				0.9	K/W
R_{thCH}			0.25		K/W
t_{rr}		I_F = 1 A; -di/dt = 200 A/µs; V_R = 30 V; T_{VJ} = 25°C	30		ns
I_{RM}		V_R = 100 V; I_F = 50 A; -di_F/dt = 100 A/µs T_{VJ} = 100°C		7	A

Pulse test: ① Pulse Width = 5 ms, Duty Cycle < 2.0%
② Pulse Width = 300 µs, Duty Cycle < 2.0%

Data according to IEC 60747 and per diode unless otherwise specified

Features

- International standard package
- Planar passivated chips
- Very short recovery time
- Extremely low switching losses
- Low I_{RM}-values
- Soft recovery behaviour
- Epoxy meets UL 94V-0

Applications

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

Advantages

- 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

Dimensions see Outlines.pdf

Recommended replacement:
DPG 60C300HB
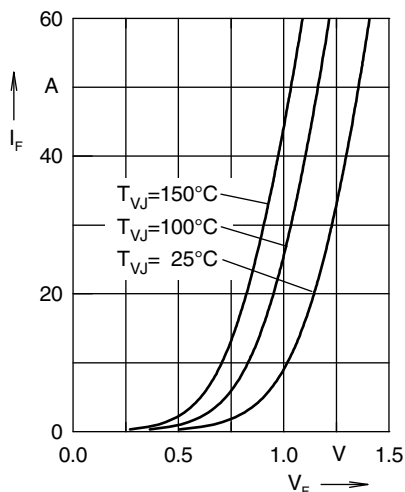**DPG 60C300QB (TO-3P alternative)**

20070605a

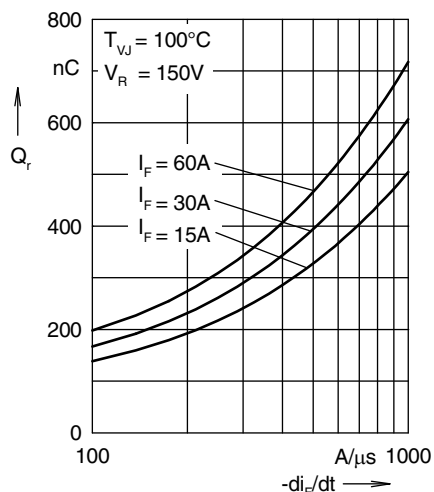Fig. 1 Forward current I_F versus V_F

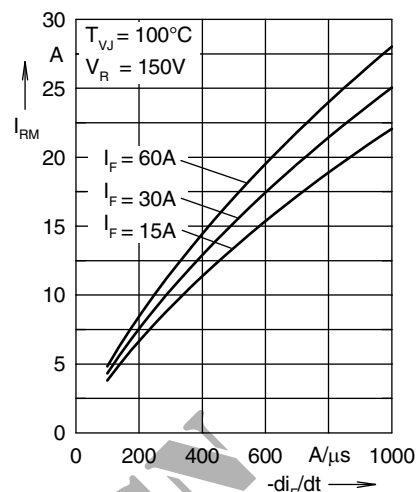Fig. 2 Reverse recovery charge Q_r versus -di_F/dt
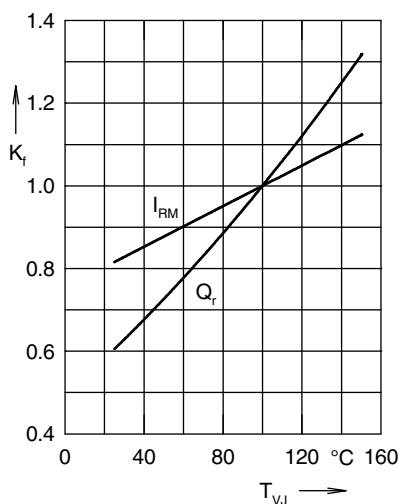

Fig. 3 Peak reverse current I_{RM} versus -di_F/dt

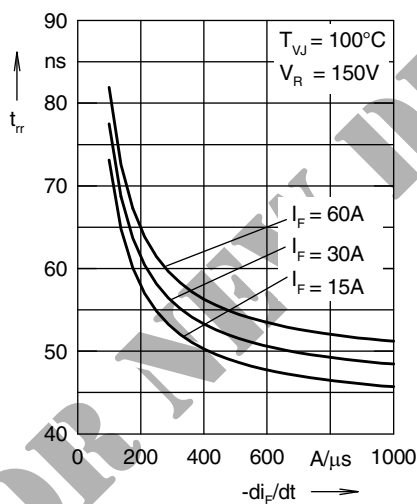Fig. 4 Dynamic parameters Q_r, I_{RM} versus T_{VJ}

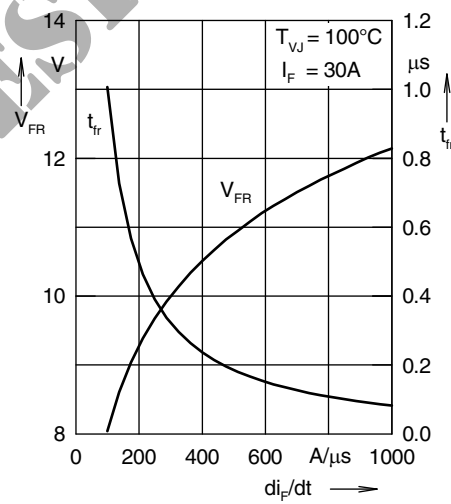Fig. 5 Recovery time t_{rr} versus -di_F/dt

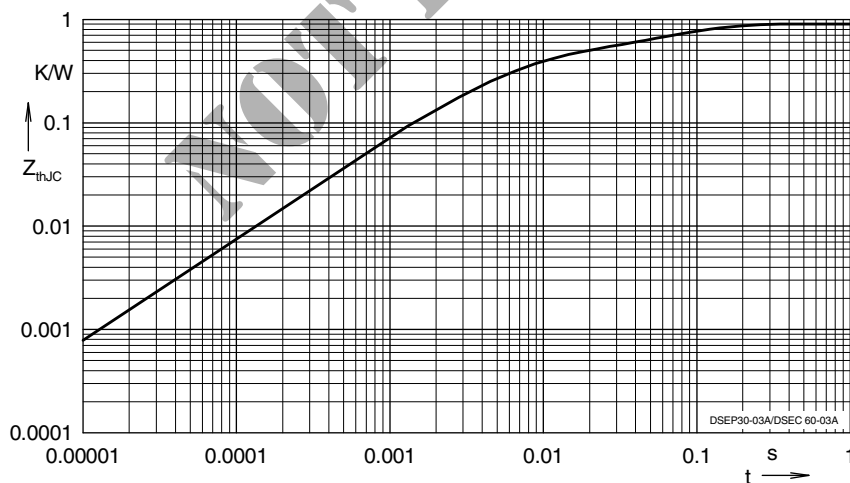Fig. 6 Peak forward voltage V_{FR} and t_{fr} versus di_F/dt

Fig. 7 Transient thermal resistance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.465	0.005
2	0.179	0.0003
3	0.256	0.04

NOTE: Fig. 2 to Fig. 6 shows typical values

IXYS reserves the right to change limits, Conditions and dimensions.