

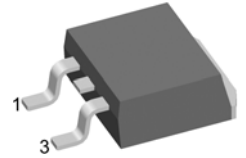
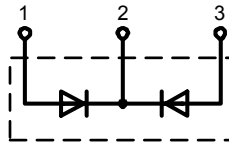
HiPerFRED

High Performance Fast Recovery Diode
 Low Loss and Soft Recovery
 Common Cathode

$V_{RRM} = 300\text{ V}$
 $I_{FAV} = 2 \times 15\text{ A}$
 $t_{rr} = 35\text{ ns}$

Part number (Marking on product)

DPG 30 C 300PC



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-263 (D2 PAK)
- Industry standard outline
 - Epoxy meets UL 94V-0
 - RoHS compliant

Ratings

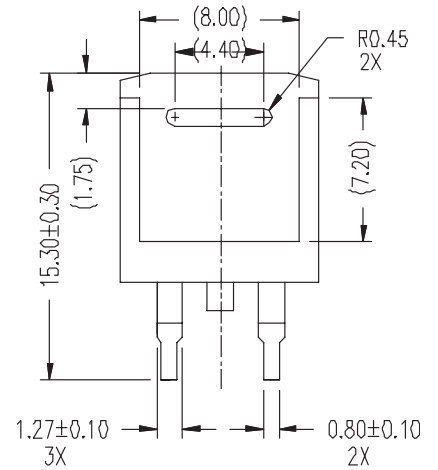
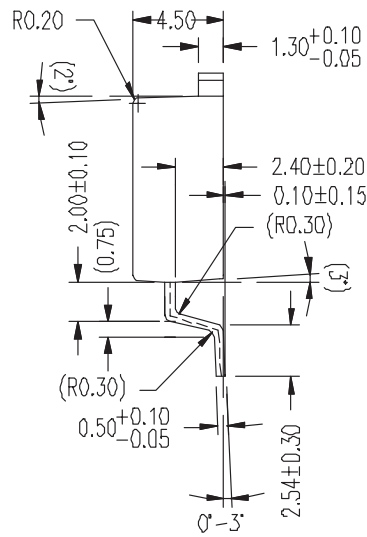
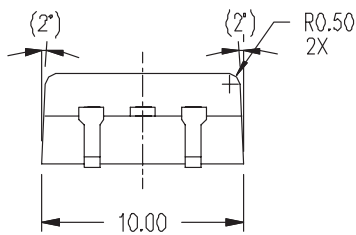
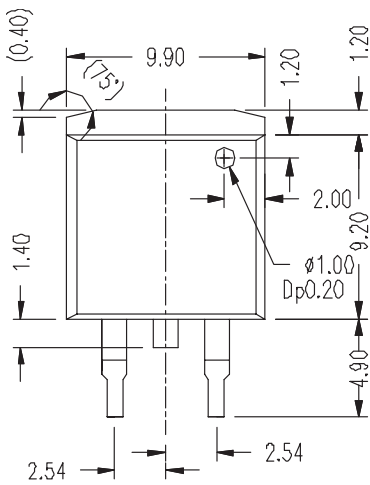
Symbol	Definition	Conditions	Ratings			Unit	
			min.	typ.	max.		
V_{RRM}	max. repetitive reverse voltage	$T_{VJ} = 25\text{ °C}$			300	V	
I_R	reverse current	$V_R = 300\text{ V}$			1	μA	
		$V_R = 300\text{ V}$			0.08	mA	
V_F	forward voltage	$I_F = 15\text{ A}$			1.26	V	
		$I_F = 30\text{ A}$			1.51	V	
		$I_F = 15\text{ A}$	$T_{VJ} = 150\text{ °C}$			1.01	V
		$I_F = 30\text{ A}$	$T_{VJ} = 150\text{ °C}$			1.29	V
I_{FAV}	average forward current	rectangular, $d = 0.5$			15	A	
V_{F0}	threshold voltage	} for power loss calculation only			0.69	V	
r_F	slope resistance				17.3	$\text{m}\Omega$	
R_{thJC}	thermal resistance junction to case				1.70	K/W	
T_{VJ}	virtual junction temperature		-55		175	$^{\circ}\text{C}$	
P_{tot}	total power dissipation	$T_C = 25\text{ °C}$			90	W	
I_{FSM}	max. forward surge current	$t_p = 10\text{ ms}$ (50 Hz), sine			150	A	
I_{RM}	max. reverse recovery current	$I_F = 20\text{ A};$			3	A	
		$-di_F/dt = 200\text{ A}/\mu\text{s}$			6	A	
t_{rr}	reverse recovery time	$V_R = 200\text{ V}$			35	ns	
					60	ns	
C_j	junction capacitance	$V_R = 150\text{ V}; f = 1\text{ MHz}$			20	pF	

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
I_{RMS}	RMS current	per pin*			35	A
R_{thCH}	thermal resistance case to heatsink			0.25		K/W
M_D	mounting torque					Nm
F_C	mounting force with clip					N
T_{stg}	storage temperature		-55		150	°C
Weight				2		g

* Irms is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip.

In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

Outlines TO-263 (D2 PAK)



NOTE:

1. These dimensions do not include mold protrusion.
2. () is reference dimension only.

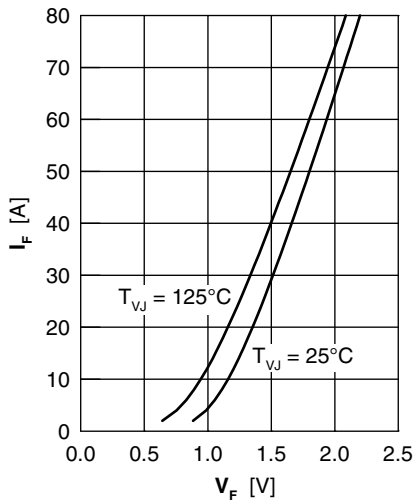


Fig. 1 Forward current I_F vs. V_F

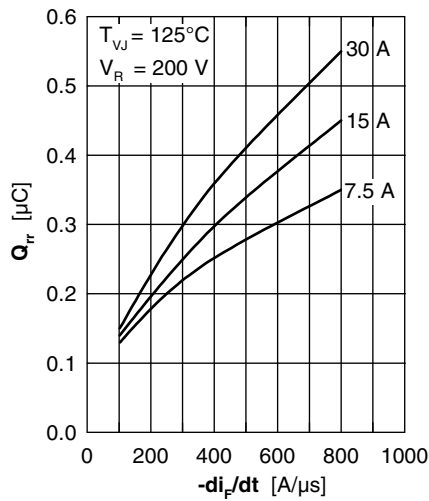


Fig. 2 Typ. reverse recovery charge Q_{rr} versus $-di_F/dt$

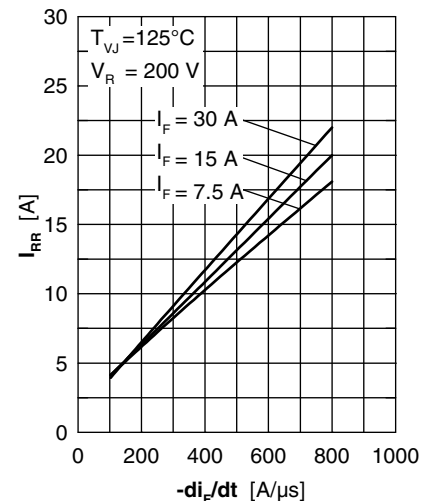


Fig. 3 Typ. peak reverse current I_{FRM} versus $-di_F/dt$

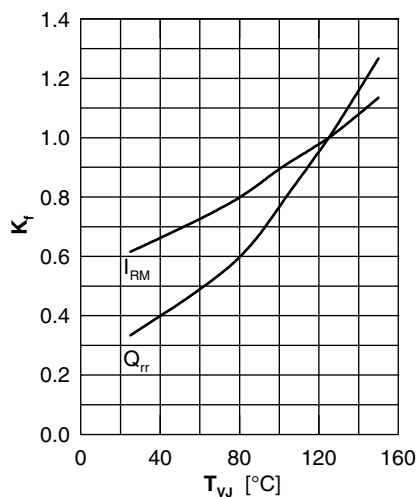


Fig. 4 Dynamic parameters Q_{rr} , I_{FRM} versus T_{VJ}

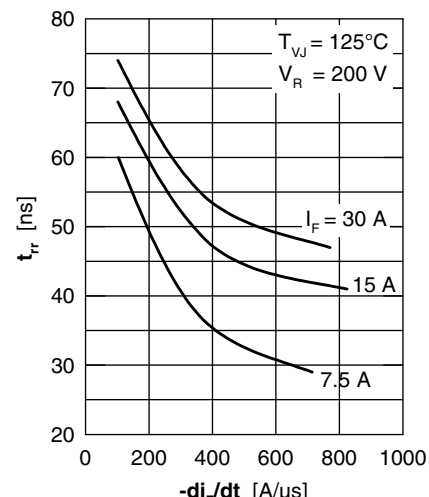


Fig. 5 Typ. reverse recovery time t_{rr} versus $-di_F/dt$

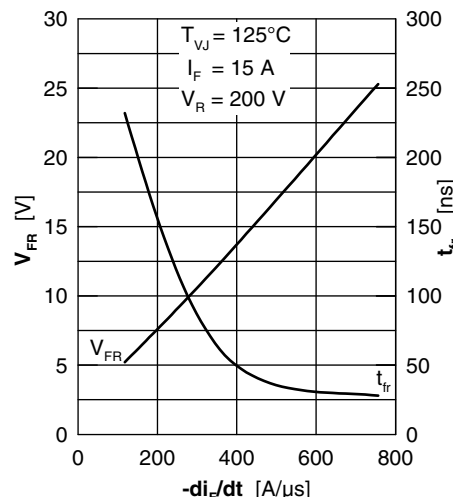


Fig. 6 Typ. peak forward voltage V_{FR} and t_{rr} versus di_F/dt

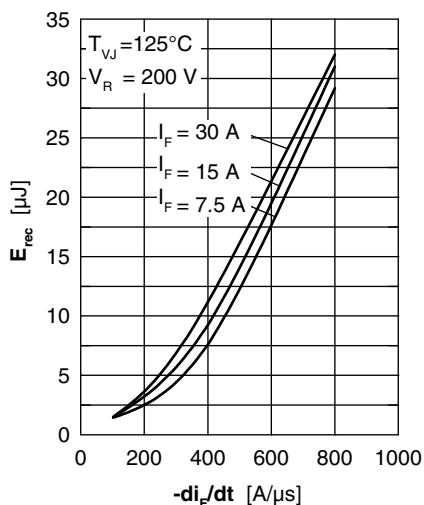


Fig. 7 Typ. dynamic losses E_{rec} versus $-di_F/dt$

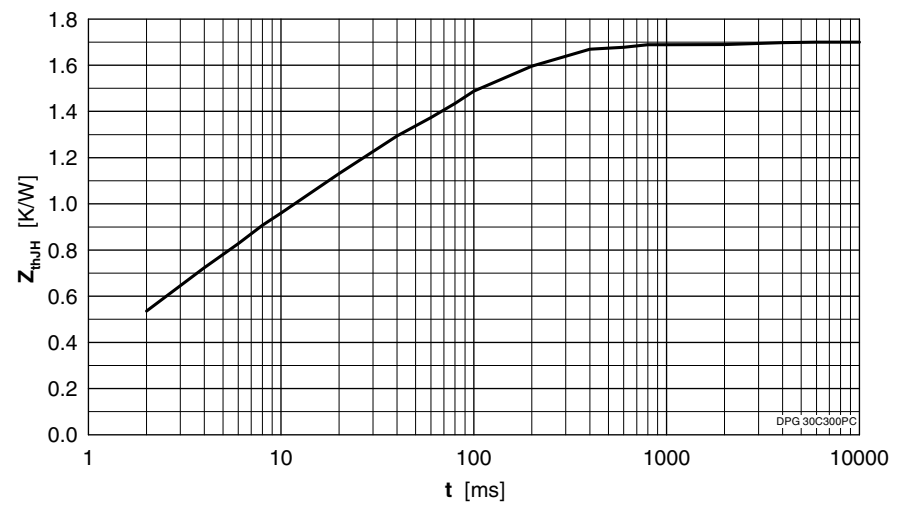


Fig. 8 Transient thermal impedance junction to case