HiPerFRED

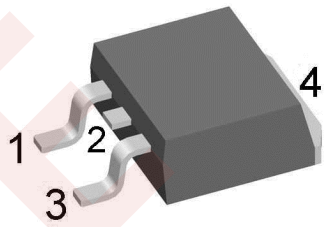
V_{RRM}	=	400 V
I_{FAV}	=	30 A
t_{rr}	=	45 ns

High Performance Fast Recovery Diode
Low Loss and Soft Recovery
Single Diode

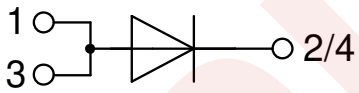
Part number

DPG30IM400PC

Marking on Product: DPG30IM400PC



Backside: cathode



OBSOLETE

Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low Irm-values
- Very soft recovery behaviour
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low Irm 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 (D2Pak)

- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

Disclaimer Notice

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.

© 2019 IXYS all rights reserved

Fast Diode

Symbol	Definition	Conditions		Ratings min.	typ.	max.	Unit
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			400	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			400	V
I_R	*reverse current, drain current*	V_R = 400 V	T_{VJ} = 25°C			1	µA
		V_R = 400 V	T_{VJ} = 150°C			0.2	mA
V_F	*forward voltage drop*	I_F = 30 A	T_{VJ} = 25°C			1.43	V
		I_F = 60 A				1.71	V
		I_F = 30 A	T_{VJ} = 150°C			1.16	V
		I_F = 60 A				1.50	V
I_{FAV}	*average forward current*	T_C = 145°C	T_{VJ} = 175°C			30	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.76	V
r_F	*slope resistance* }					11.3	mΩ
R_{thJC}	*thermal resistance junction to case*					0.85	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.25		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			300	A
C_J	*junction capacitance*	V_R = 200 V f = 1 MHz	T_{VJ} = 25°C		32		pF
I_{RM}	*max. reverse recovery current*		T_{VJ} = 25°C		4		A
		I_F = 30 A; V_R = 270 V	T_{VJ} = 125°C		8.5		A
t_{rr}	*reverse recovery time*	$-di_F/dt$ = 200 A/µs	T_{VJ} = 25°C		45		ns
			T_{VJ} = 125°C		85		ns

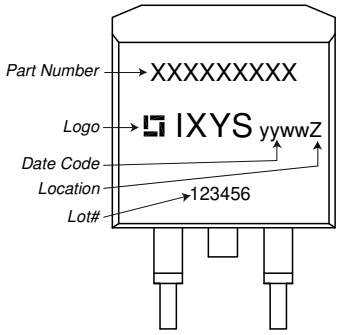
OBSOLETE

© 2019 IXYS all rights reserved

Package TO-263 (D2Pak)			Ratings			
Symbol	**Definition**	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal [1]			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				1.5		g
F_C	*mounting force with clip*		20		60	N

[1] I_{RMS} is typically limited by the pin-to-chip resistance (1); or by the current capability of the chip (2). In case of (1) and a product with multiple pins for one chip-potential, the current capability can be increased by connecting the pins as one contact.

Product Marking



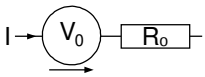
Part description

D = Diode
P = HiPerFRED
G = extreme fast
30 = Current Rating [A]
IM = Single Diode
400 = Reverse Voltage [V]
PC = TO-263AB (D2Pak) (2)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DPG30IM400PC-TRL	DPG30IM400PC	Tape & Reel	800	514002
Alternative	DPG30IM400PC-TUB	DPG30IM400PC	Tube	50	525120

Equivalent Circuits for Simulation

** on die level* $T_{VJ} = 175°C$

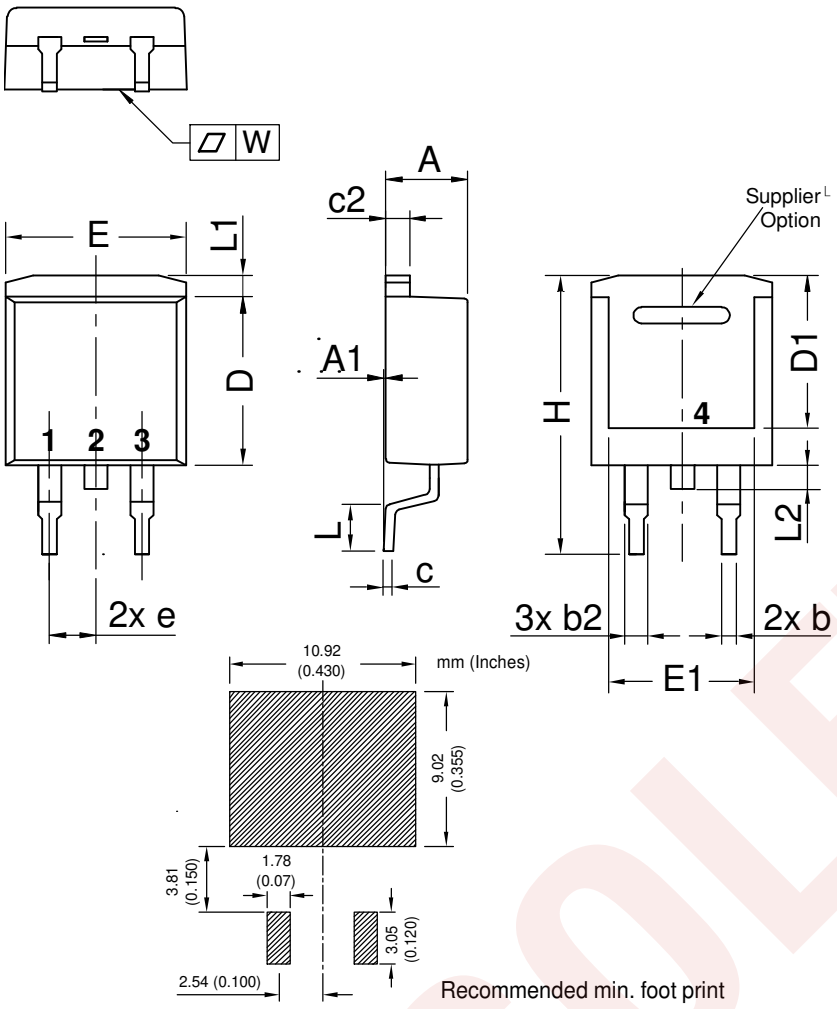


		Fast Diode	
$V_{0\,max}$	*threshold voltage*	0.76	V
$R_{0\,max}$	*slope resistance **	8.1	mΩ

OBSOLETE

© 2019 IXYS all rights reserved

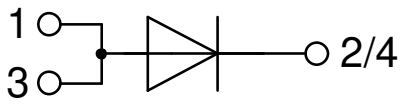
Outlines TO-263 (D2Pak)



Recommended min. foot print

Dim.	Millimeter		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	8.50	0.245	0.335
e	2,54 BSC		0,100 BSC	
e1	4.28		0.169	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002

All dimensions conform with and/or within JEDEC standard.



OBSOLETE

© 2019 IXYS all rights reserved

Fast Diode

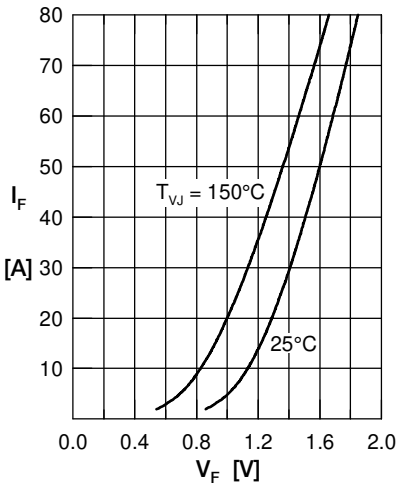


Fig. 1 Forward current I_F versus V_F

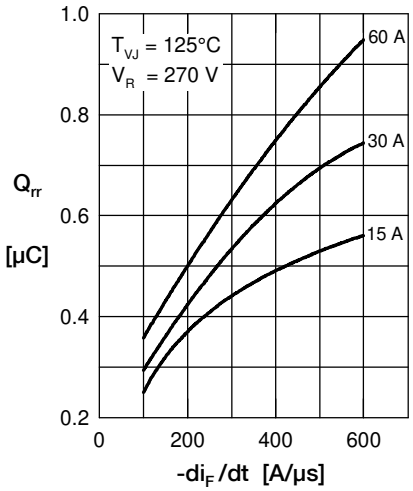


Fig. 2 Typ. reverse recov. charge Q_{rr} versus -di$_F$/dt

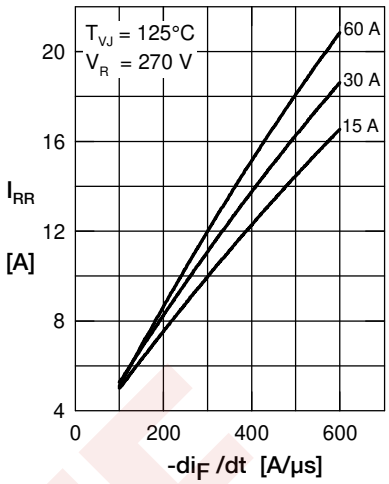


Fig. 3 Typ. reverse recovery current I_{RR} versus -di$_F$/dt

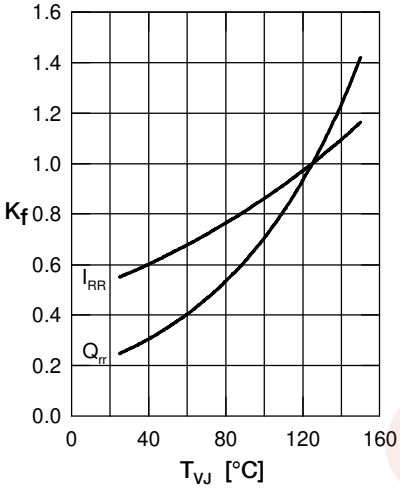


Fig. 4 Typ. dynamic parameters Q_{rr}, I_{RR} versus T_{VJ}

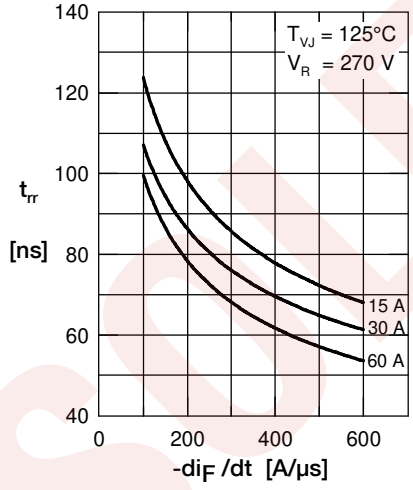


Fig. 5 Typ. reverse recov. time t_{rr} versus -di$_F$/dt

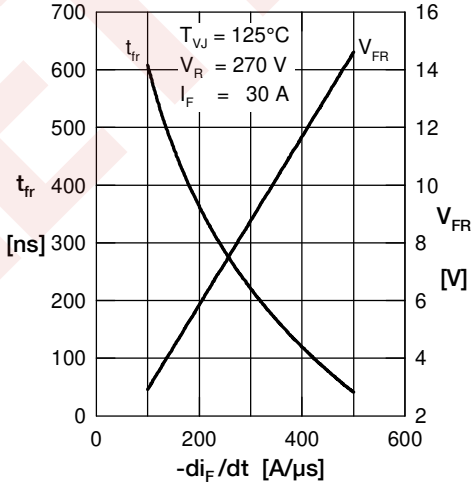


Fig. 6 Typ. forward recov. voltage V_{FR} & time t_{fr} versus di$_F$/dt

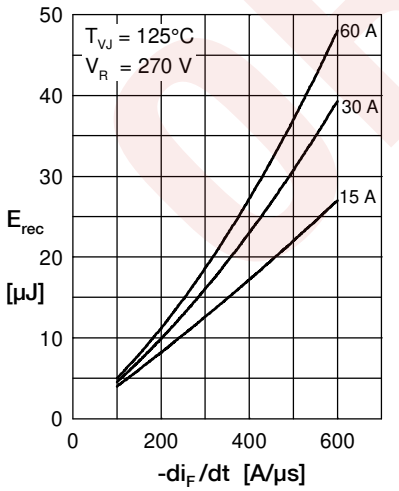


Fig. 7 Typ. recovery energy E_{rec} versus -di$_F$/dt

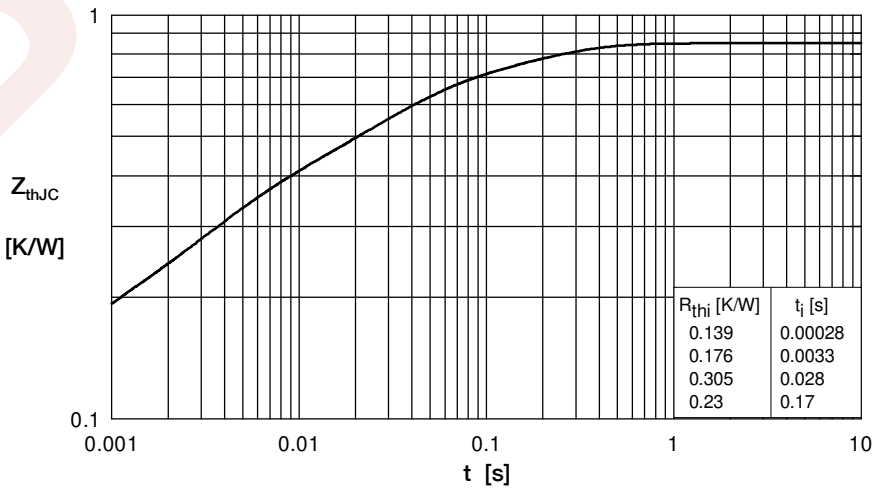


Fig. 8 Transient thermal impedance junction to case

OBSOLETE

© 2019 IXYS all rights reserved