preliminary

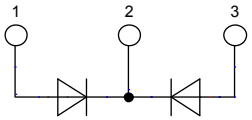
Sonic Fast Recovery Diode

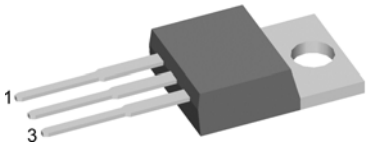
V_{RRM} = 1200 V
I_{FAV} = 2x 10 A
t_{rr} = 200 ns

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

Part number

DHG 20 C 1200 PB





Backside: cathode

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:

- Housing: TO-220
- Industry standard outline
- Epoxy meets UL 94V-0
- RoHS compliant

Ratings

Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RRM}	*max. repetitive reverse voltage*		T_{VJ} = 25°C			1200	V
I_R	*reverse current*	V_R = 1200 V	T_{VJ} = 25°C			10	µA
		V_R = 1200 V	T_{VJ} = 125°C			0.2	mA
V_F	*forward voltage*	I_F = 10 A	T_{VJ} = 25°C			2.22	V
		I_F = 20 A				2.93	V
		I_F = 10 A	T_{VJ} = 125°C			2.23	V
		I_F = 20 A				3.14	V
I_{FAV}	*average forward current*	rectangular d = 0.5	T_C = 105°C			10	A
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 150°C			1.23	V
r_F	*slope resistance* }					90	mΩ
R_{thJC}	*thermal resistance junction to case*					1.50	K/W
T_{VJ}	*virtual junction temperature*			-55		150	°C
P_{tot}	*total power dissipation*		T_C = 25°C			85	W
I_{FSM}	*max. forward surge current*	t = 10 ms (50 Hz), sine	T_{VJ} = 45°C			60	A
I_{RM}	*max. reverse recovery current*		T_{VJ} = 25°C		9		A
		I_F = 10 A; V_R = 600 V	T_{VJ} = 125°C		10.5		A
t_{rr}	*reverse recovery time*	$-di_F/dt$ = 250 A/µs	T_{VJ} = 25°C		200		ns
			T_{VJ} = 125°C		350		ns
C_J	*junction capacitance*	V_R = 600 V; f = 1 MHz	T_{VJ} = 25°C		4		pF

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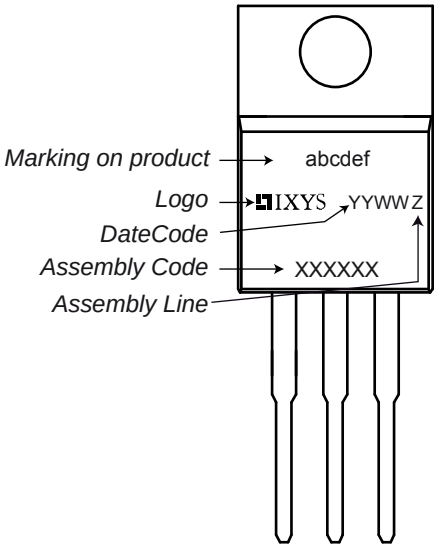
Symbol	Definition	Conditions	Ratings min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per terminal [1]			35	A
R_{thCH}	*thermal resistance case to heatsink*			0.50		K/W
T_{stg}	*storage temperature*		-55		150	°C
Weight				2		g
M_D	*mounting torque*		0.4		0.6	Nm
F_C	*mounting force with clip*		20		60	N

[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 common cathode/anode configu ration with a non-isolated backside,
the current capability can be increased by connecting the backside.

Product Marking



Part number

D = Diode
H = Sonic Fast Recovery Diode
G = extreme fast
20 = Current Rating [A]
C = Common Cathode
1200 = Reverse Voltage [V]
PB = TO-220AB (3)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DHG 20 C 1200 PB	DHG20C1200PB	Tube	50	505280

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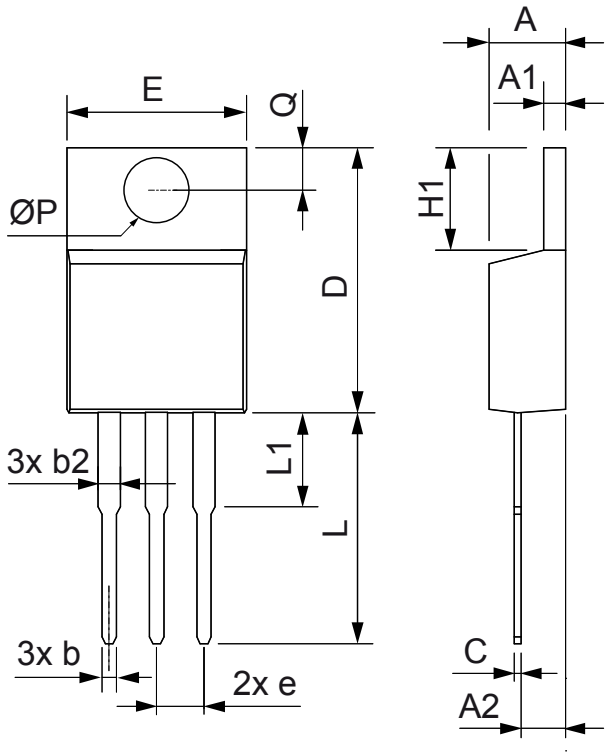
Outlines TO-220



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	2.54	BSC	0.100	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

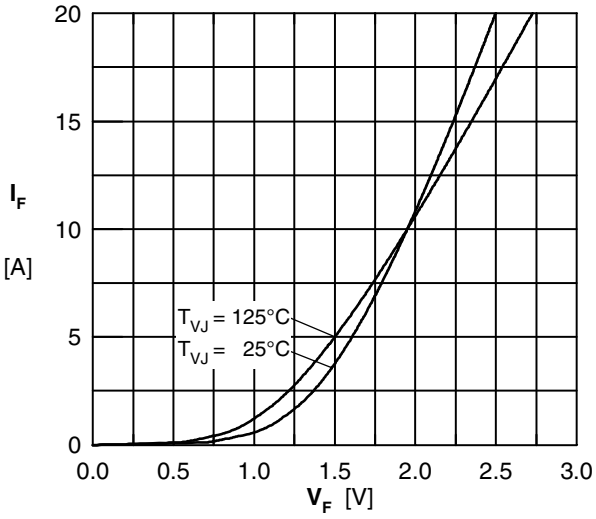


Fig. 1 Typ. forward characteristics

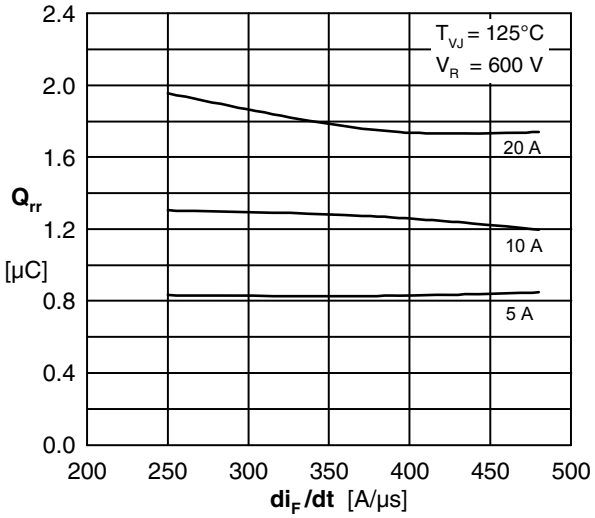


Fig. 2 Typical reverse recovery charge Q_{rr} versus. di_F/dt (125°C)

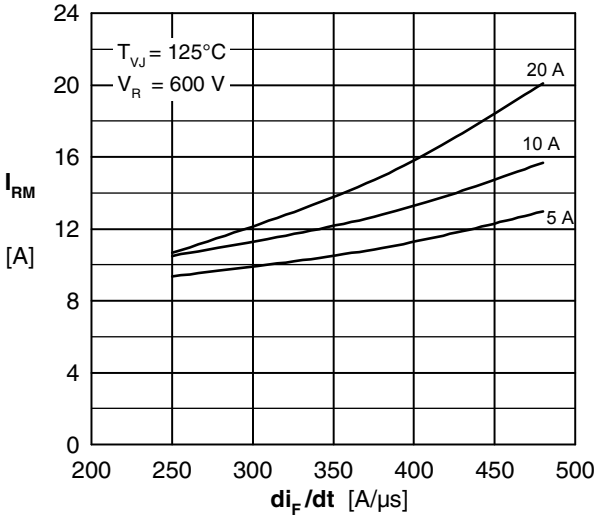


Fig. 3 Typical peak reverse current I_{RR} versus di_F/dt (125°C)

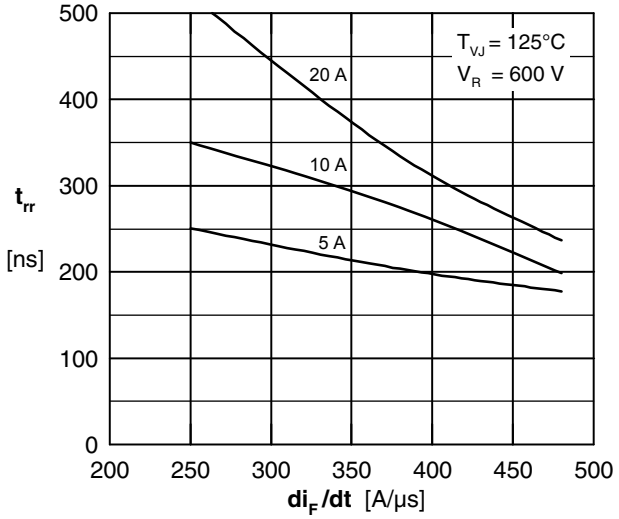


Fig. 4 Typ. recovery time t_{rr} vs. di/dt (125°C)

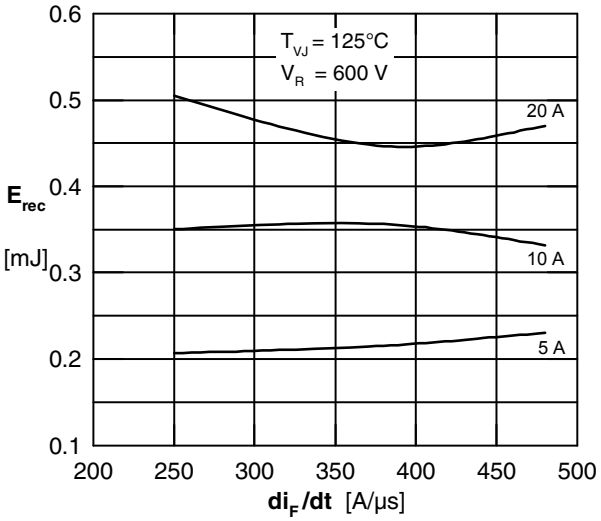


Fig. 5 Typ. recovery energy E_{rec} vs. di_F/dt (125°C)

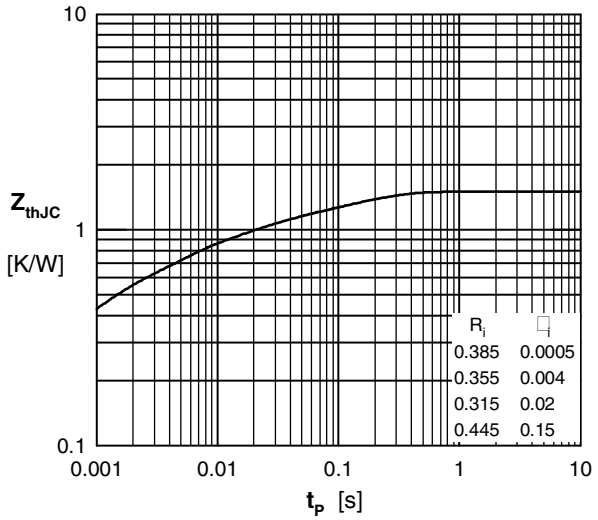


Fig. 6 Typ. transient thermal impedance

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