

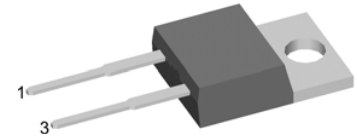
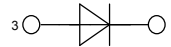
# Sonic Fast Recovery Diode

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

$V_{RRM} = 1800\text{ V}$   
 $I_{FAV} = 10\text{ A}$   
 $t_{rr} = 300\text{ ns}$

Part number

**DHG 10 I 1800 PA**



Backside: cathode

### 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:

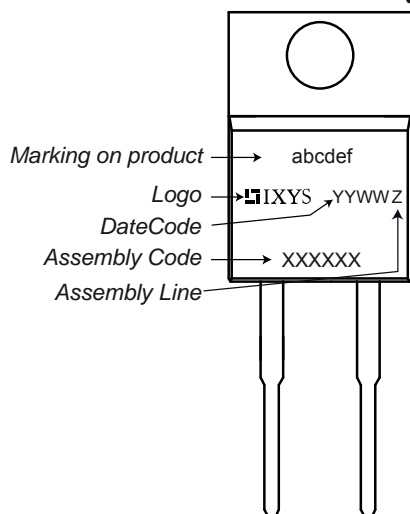
- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)

### Package:

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

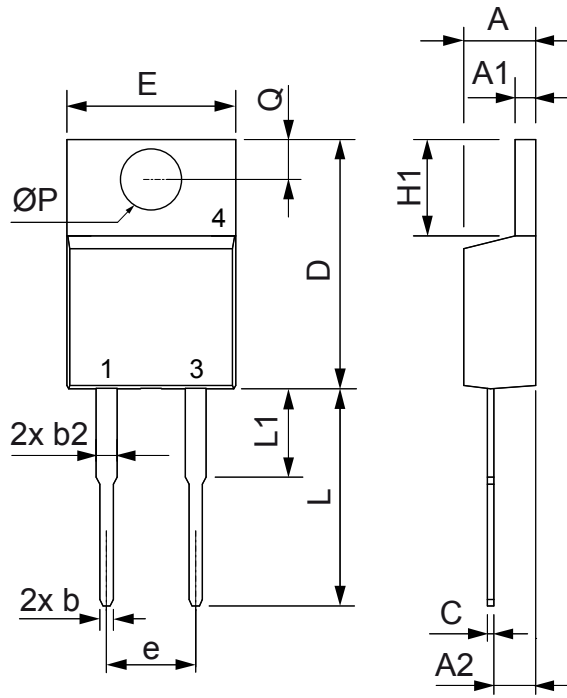
Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
$V_{RRM}$	max. repetitive reverse voltage				1800	V
$I_R$	reverse current	$V_R = 1800\text{ V}$			50	$\mu\text{A}$
		$V_R = 1800\text{ V}$			0.1	mA
$V_F$	forward voltage	$I_F = 10\text{ A}$			2.23	V
		$I_F = 20\text{ A}$			2.90	V
		$I_F = 10\text{ A}$			2.33	V
		$I_F = 20\text{ A}$			3.25	V
$I_{FAV}$	average forward current	rectangular d = 0.5			10	A
$V_{FO}$	threshold voltage	} for power loss calculation only			1.30	V
$r_F$	slope resistance				95	m $\Omega$
$R_{thJC}$	thermal resistance junction to case				1.50	K/W
$T_{VJ}$	virtual junction temperature		-55		150	$^{\circ}\text{C}$
$P_{tot}$	total power dissipation				85	W
$I_{FSM}$	max. forward surge current	t = 10 ms (50 Hz), sine			60	A
$I_{RM}$	max. reverse recovery current				13	A
		$I_F = 10\text{ A}; V_R = 900\text{ V}$			15	A
$t_{rr}$	reverse recovery time	-di <sub>F</sub> /dt = 250 A/ $\mu\text{s}$			300	ns
					550	ns
$C_J$	junction capacitance	$V_R = 900\text{ V}; f = 1\text{ MHz}$			3	pF

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

**Product Marking**

**Part number**

D = Diode  
 H = Sonic Fast Recovery Diode  
 G = extreme fast  
 10 = Current Rating [A]  
 I = Single Diode  
 1800 = Reverse Voltage [V]  
 PA = TO-220AC (2)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DHG 10 I 1800 PA	DHG10I1800PA	Tube	50	508242

**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	5.08	BSC	0.200	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

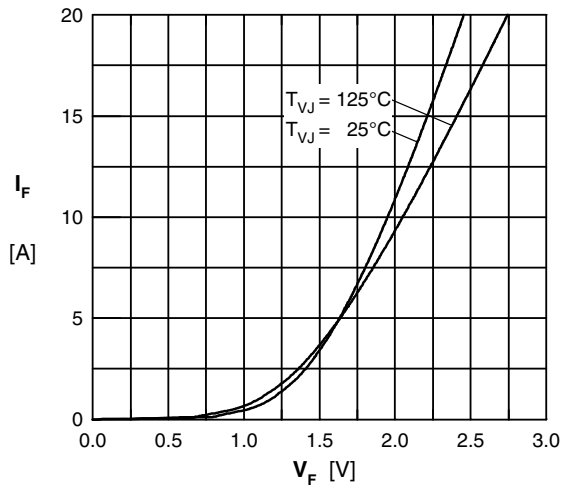


Fig. 1 Typ. Forward current versus  $V_F$

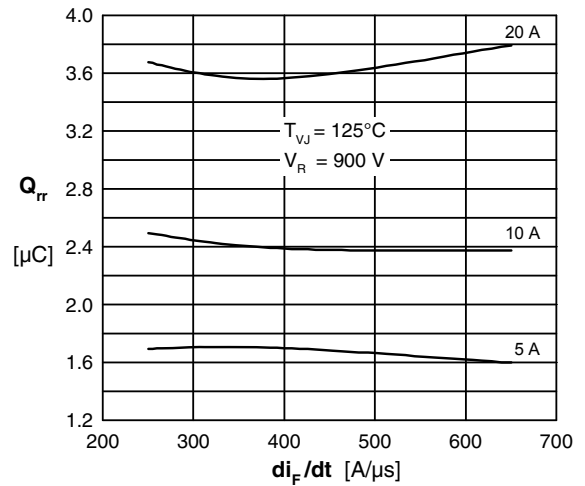


Fig. 2 Typ. reverse recov.charge  $Q_{rr}$  vs.  $di/dt$

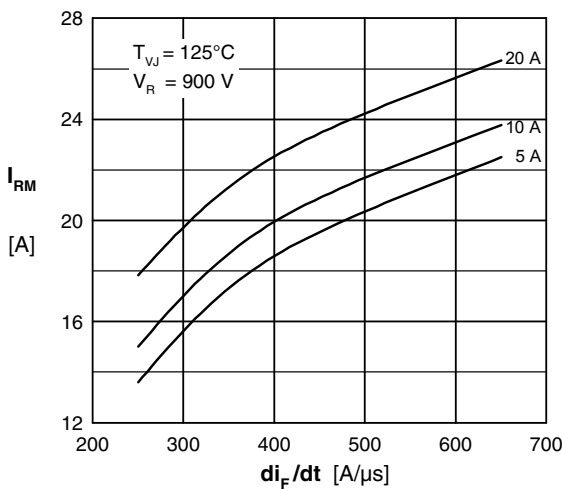


Fig. 3 Typ. peak reverse current  $I_{RM}$  vs.  $di/dt$

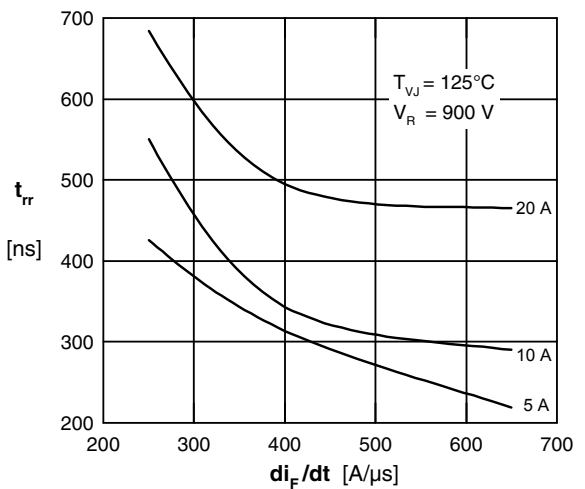


Fig. 4 Typ. recovery time  $t_{rr}$  versus  $di/dt$

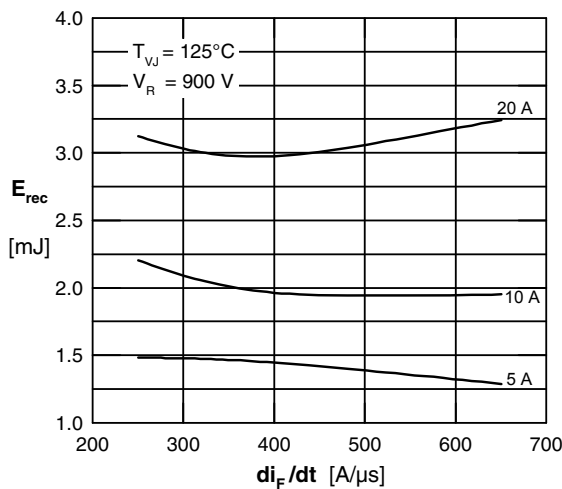


Fig. 5 Typ. recovery energy  $E_{rec}$  versus  $di/dt$

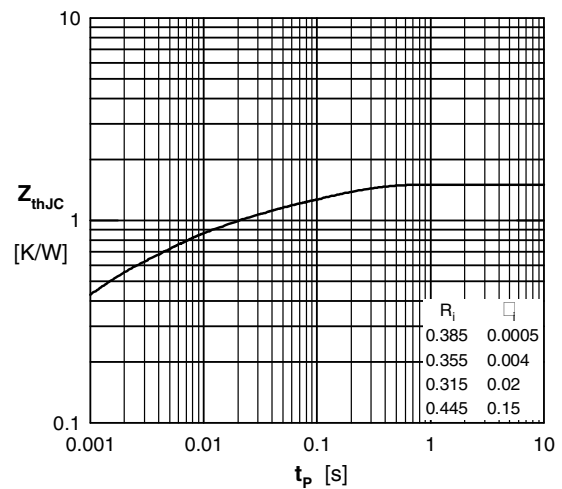


Fig. 6 Typ. transient thermal impedance