preliminary

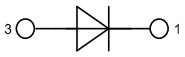
Sonic Fast Recovery Diode

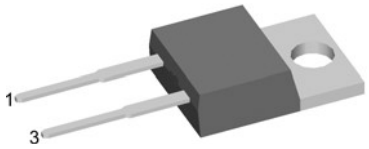
V_{RRM} = 600 V
I_{FAV} = 30 A
t_{rr} = 40 ns

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

Part number

DHG 30 I 600 PA





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:

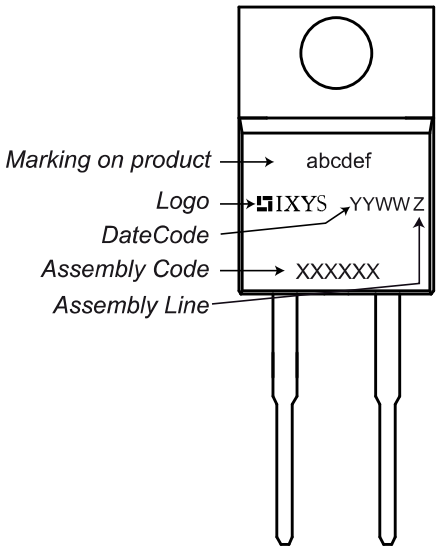
- Housing: TO-220
- Industry standard outline
- Epoxy meets UL 94V-0
- RoHS compliant

				Ratings			
Symbol	**Definition**	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
V_{RRM}	*max. repetitive reverse voltage*		T_{VJ} = 25°C			600	V
I_R	*reverse current*	V_R = 600 V	T_{VJ} = 25°C			50	µA
		V_R = 600 V	T_{VJ} = 125°C			2	mA
V_F	*forward voltage*	I_F = 30 A	T_{VJ} = 25°C			2.27	V
		I_F = 60 A				3.14	V
		I_F = 30 A	T_{VJ} = 125°C			2.24	V
		I_F = 60 A				3.23	V
I_{FAV}	*average forward current*	rectangular d = 0.5	T_C = 85°C			30	A
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 150°C			1.17	V
r_F	*slope resistance* }					32	mΩ
R_{thJC}	*thermal resistance junction to case*					0.70	K/W
T_{VJ}	*virtual junction temperature*			-55		150	°C
P_{tot}	*total power dissipation*		T_C = 25°C			180	W
I_{FSM}	*max. forward surge current*	t = 10 ms (50 Hz), sine	T_{VJ} = 45°C			200	A
I_{RM}	*max. reverse recovery current*		T_{VJ} = 25°C		13		A
		I_F = 30 A; V_R = 300 V	T_{VJ} = 125°C		17		A
t_{rr}	*reverse recovery time*	$-di_F/dt$ = 600 A/µs	T_{VJ} = 25°C		40		ns
			T_{VJ} = 125°C		60		ns
C_J	*junction capacitance*	V_R = 400 V; f = 1 MHz	T_{VJ} = 25°C		16		pF

preliminary

Symbol	Definition	Conditions	Ratings min.	typ.	max.	Unit
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
Weight				2		g
M_D	*mounting torque*		0.4		0.6	Nm
F_C	*mounting force with clip*		20		60	N

Product Marking



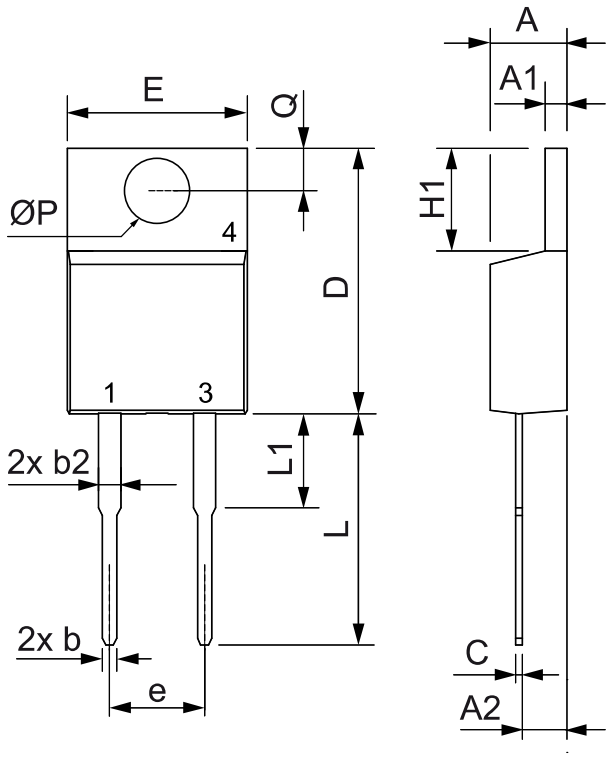
Part number

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

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DHG 30 I 600 PA	DHG30I600PA	Tube	50	504019

Similar Part	Package	Voltage Class
DHG30I600HA	TO-247AD (2)	600
DHG30IM600PC	TO-263AB (D2Pak)	600

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

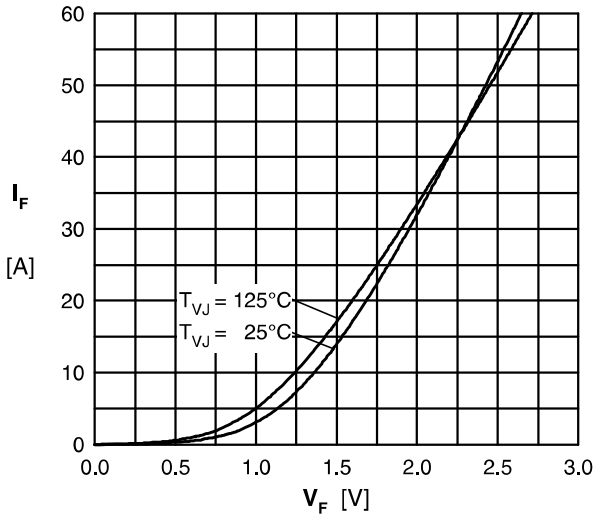


Fig. 1 Typ. Forward current versus V_F

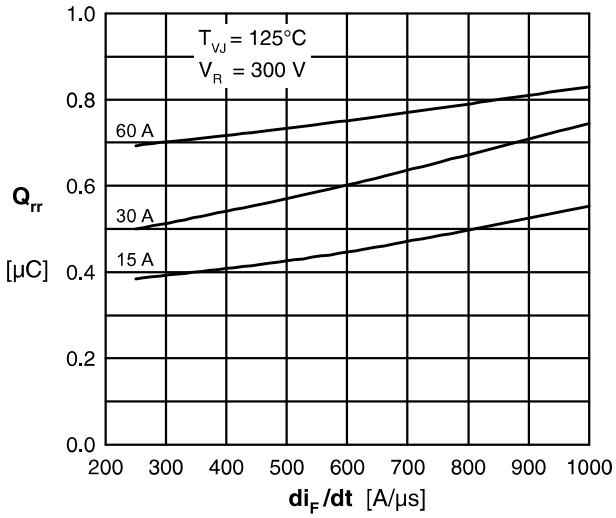


Fig. 2 Typ. reverse recov.charge Q_{rr} vs. di/dt

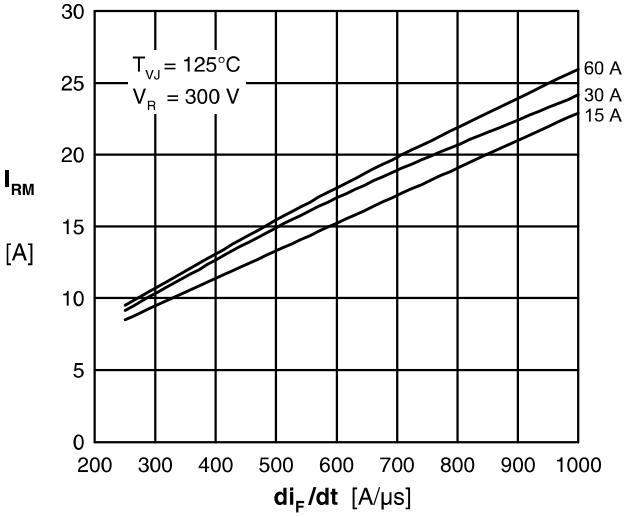


Fig. 3 Typ. peak reverse current I_{RM} vs. di/dt

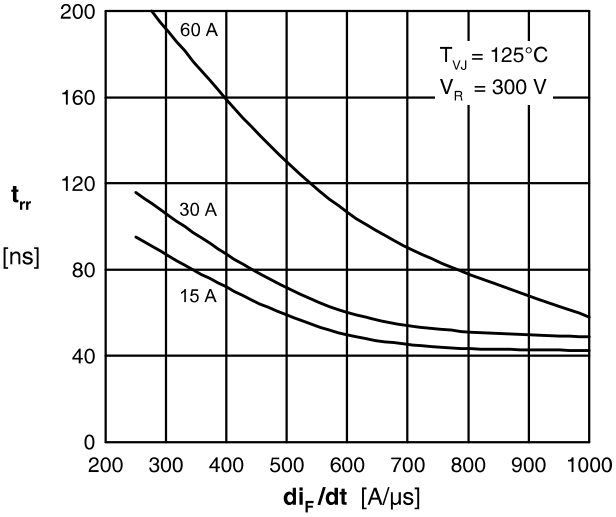


Fig. 4 Typ. recovery time t_{rr} versus di/dt

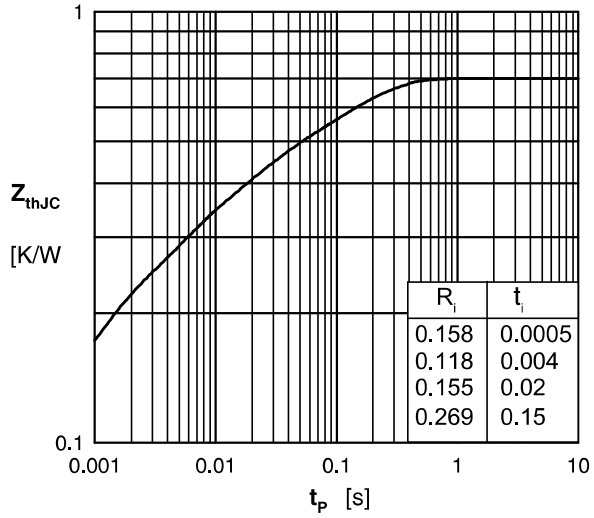


Fig. 5 Transient thermal impedance