preliminary

Sonic Fast Recovery Diode

V_{RRM} = 600 V

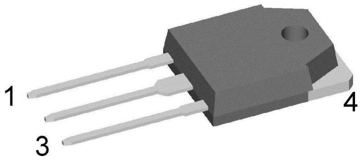
I_{FAV} = 2x 10 A

t_{rr} = 35 ns

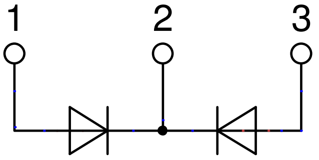
High Performance Fast Recovery Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DHG20C600QB



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: TO-3P

- Industry standard outline compatible with TO-247
- RoHS compliant
- Epoxy meets UL 94V-0

Terms _Conditions of usage:

The data contained in this product data sheet is exclusively intended for technically trained staff. The user will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to his application. The specifications of our components may not be considered as an assurance of component characteristics. The information in the valid application- and assembly notes must be considered. Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of your product, please contact your local sales office.
Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact your local sales office.
Should you intend to use the product in aviation, in health or life endangering or life support applications, please notify. For any such application we urgently recommend
- to perform joint risk and quality assessments;
- the conclusion of quality agreements;
- to establish joint measures of an ongoing product survey, and that we may make delivery dependent on the realization of any such measures.

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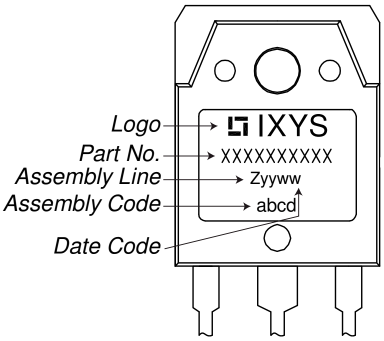
Fast Diode

Symbol	Definition	Conditions		Ratings			
Symbol	**Definition**	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			600	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			600	V
I_R	*reverse current, drain current*	V_R = 600 V	T_{VJ} = 25°C			15	µA
		V_R = 600 V	T_{VJ} = 125°C			1.2	mA
V_F	*forward voltage drop*	I_F = 10 A	T_{VJ} = 25°C			2.22	V
		I_F = 20 A				3.12	V
		I_F = 10 A	T_{VJ} = 125°C			2.17	V
		I_F = 20 A				3.27	V
I_{FAV}	*average forward current*	T_C = 95°C rectangular d = 0.5	T_{VJ} = 150°C			10	A
V_{F0}	*threshold voltage*	*for power loss calculation only*	T_{VJ} = 150°C			1.04	V
r_F	*slope resistance*					104	mΩ
R_{thJC}	*thermal resistance junction to case*					1.8	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.25		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			70	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine; V_R = 0 V	T_{VJ} = 45°C			80	A
C_J	*junction capacitance*	V_R = 400 V f = 1 MHz	T_{VJ} = 25°C		6		pF
I_{RM}	*max. reverse recovery current*	I_F = 10 A; V_R = 400 V $-di_F/dt$ = 200 A/µs	T_{VJ} = 25 °C		4		A
			T_{VJ} = °C		tbd		A
t_{rr}	*reverse recovery time*		T_{VJ} = 25 °C		35		ns
			T_{VJ} = °C		tbd		ns

Package TO-3P			**Ratings**			
Symbol	**Definition**	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal [1]			50	A
T_{VJ}	*virtual junction temperature*		-55		150	°C
T_{op}	*operation temperature*		-55		125	°C
T_{stg}	*storage temperature*		-55		150	°C
Weight				5		g
M_D	*mounting torque*		0.8		1.2	Nm
F_C	*mounting force with clip*		20		120	N

Product Marking



Part description

D = Diode
H = Sonic Fast Recovery Diode
G = extreme fast
20 = Current Rating [A]
C = Common Cathode
600 = Reverse Voltage [V]
QB = TO-3P (3)

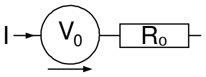
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DHG20C600QB	DHG20C600QB	Tube	30	503856

Similar Part	Package	Voltage class
DHG20C600PB	TO-220AB (3)	600

Equivalent Circuits for Simulation

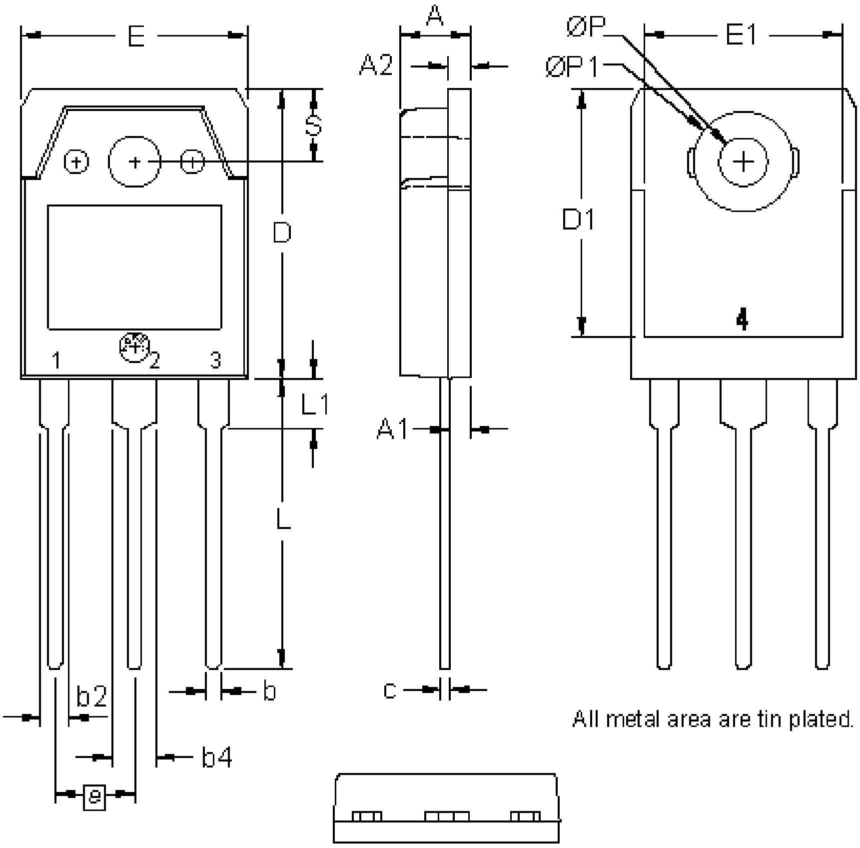
** on die level*

$T_{VJ} = 150\,°C$



		Fast Diode	
$V_{0\,max}$	*threshold voltage*	1.04	V
$R_{0\,max}$	*slope resistance **	101	mΩ

Outlines TO-3P



All metal area are tin plated.

Dim.	Millimeter		Inches	
	min	max	min	max
A	4.70	4.90	0.185	0.193
A1	1.30	1.50	0.051	0.059
A2	1.45	1.65	0.057	0.065
b	0.90	1.15	0.035	0.045
b2	1.90	2.20	0.075	0.087
b4	2.90	3.20	0.114	0.126
c	0.55	0.80	0.022	0.031
D	19.80	20.10	0.780	0.791
D1	16.90	17.20	0.665	0.677
E	15.50	15.80	0.610	0.622
E1	13.50	13.70	0.531	0.539
e	5.45 BSC		0.215 BSC	
L	19.80	20.20	0.780	0.795
L1	3.40	3.60	0.134	0.142
Ø P	3.20	3.40	0.126	0.134
ØP1	6.90	7.10	0.272	0.280
S	4.90	5.10	0.193	0.201