

preliminary

Sonic Fast Recovery Diode

V_{RRM} = 600 V
 I_{FAV} = 30 A
 t_{rr} = 35 ns

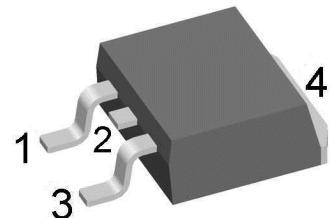
High Performance Fast Recovery Diode

Low Loss and Soft Recovery

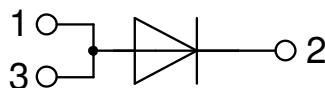
Single Diode

Part number

DHG30IM600PC



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: TO-263 (D2Pak)

- Industry standard outline
- 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.

Fast Diode

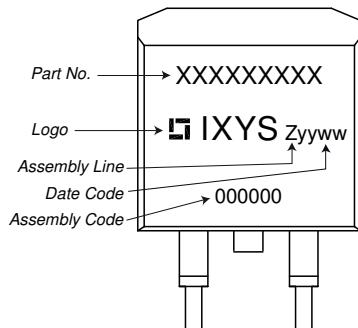
Symbol	Definition	Conditions	Ratings			
			min.	typ.	max.	
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^\circ\text{C}$			600	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^\circ\text{C}$			600	V
I_R	reverse current, drain current	$V_R = 600 \text{ V}$ $V_R = 600 \text{ V}$	$T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		50 4	μA mA
V_F	forward voltage drop	$I_F = 30 \text{ A}$ $I_F = 60 \text{ A}$ $I_F = 30 \text{ A}$ $I_F = 60 \text{ A}$	$T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$		2.26 3.11 2.22 3.20	V V
I_{FAV}	average forward current	$T_C = 95^\circ\text{C}$ rectangular $d = 0.5$	$T_{VJ} = 150^\circ\text{C}$		30	A
V_{F0} r_F	threshold voltage slope resistance } for power loss calculation only		$T_{VJ} = 150^\circ\text{C}$		1.17 32	V $\text{m}\Omega$
R_{thJC}	thermal resistance junction to case				0.6	K/W
R_{thCH}	thermal resistance case to heatsink			0.25		K/W
P_{tot}	total power dissipation		$T_C = 25^\circ\text{C}$		210	W
I_{FSM}	max. forward surge current	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{sine}; V_R = 0 \text{ V}$	$T_{VJ} = 45^\circ\text{C}$		200	A
C_J	junction capacitance	$V_R = 400 \text{ V}$ $f = 1 \text{ MHz}$	$T_{VJ} = 25^\circ\text{C}$		16	pF
I_{RM}	max. reverse recovery current		$T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = \text{ }^\circ\text{C}$		12 tbd	A A
t_{rr}	reverse recovery time	$I_F = 35 \text{ A}; V_R = 400 \text{ V}$ $-di_F/dt = 600 \text{ A}/\mu\text{s}$	$T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = \text{ }^\circ\text{C}$		35 tbd	ns ns

Package TO-263 (D2Pak)

Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal ¹⁾			35	A
T_{VJ}	virtual junction temperature		-55		150	°C
T_{op}	operation temperature		-55		125	°C
T_{stg}	storage temperature		-55		150	°C
Weight				2		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
 H = Sonic Fast Recovery Diode
 G = extreme fast
 30 = Current Rating [A]
 IM = Single Diode
 600 = Reverse Voltage [V]
 PC = TO-263AB (D2Pak) (2)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DHG30IM600PC	DHG30IM600PC	Tape & Reel	800	503501

Similar Part	Package	Voltage class
DHG30I600PA	TO-220AC (2)	600
DHG30I600HA	TO-247AD (2)	600

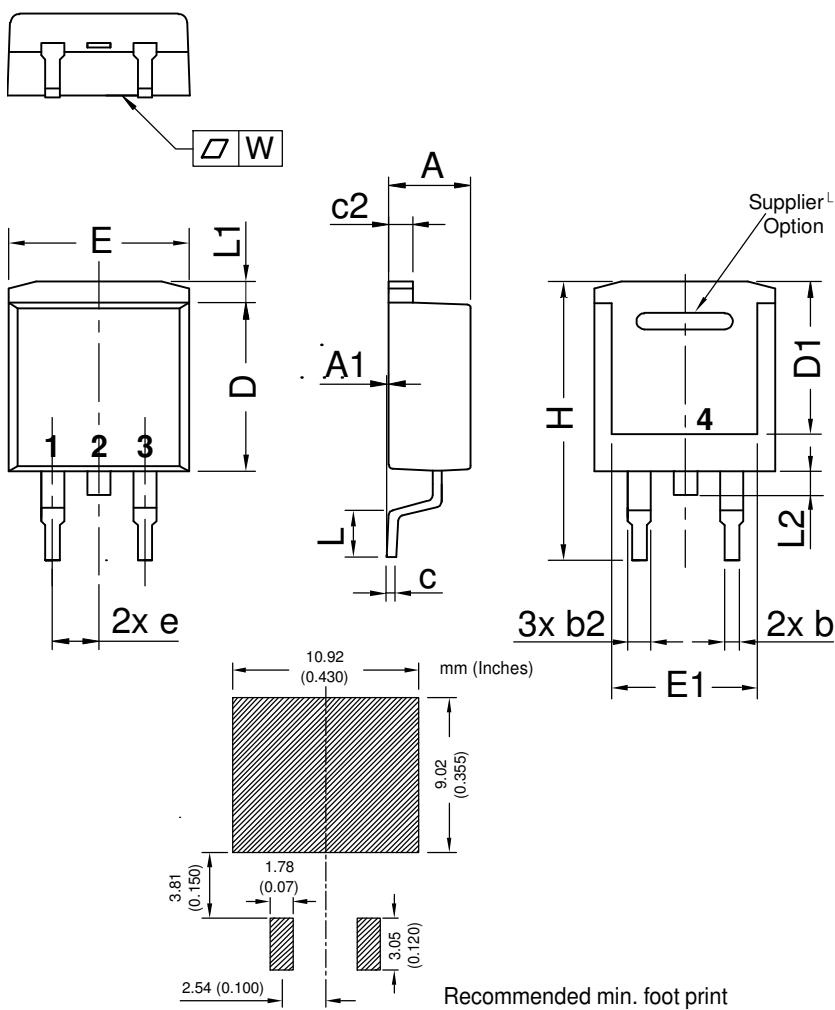
Equivalent Circuits for Simulation

* on die level

 $T_{VJ} = 150$ °C

	Fast Diode	
$V_{0\max}$	threshold voltage	1.17
$R_{0\max}$	slope resistance *	29

Outlines TO-263 (D2Pak)



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.

