

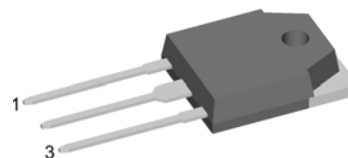
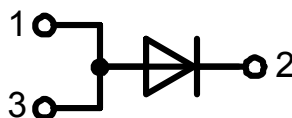
Sonic-FRD

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

$$\begin{aligned} V_{RRM} &= 600 \text{ V} \\ I_{FAV} &= 30 \text{ A} \\ t_{rr} &= 35 \text{ ns} \end{aligned}$$

Part number

DHF 30 IM 600QB



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-3P
- Industry standard outline
- - compatible with TO-247
- Epoxy meets UL 94V-0
- RoHS compliant

Ratings

Symbol	Definition	Conditions	min.	typ.	max.	Unit
V_{RRM}	max. repetitive reverse voltage	$T_{VJ} = 25^\circ\text{C}$			600	V
I_R	reverse current	$V_R = 600 \text{ V}$ $T_{VJ} = 25^\circ\text{C}$			50	μA
		$V_R = 600 \text{ V}$ $T_{VJ} = 125^\circ\text{C}$			5	mA
V_F	forward voltage	$I_F = 30 \text{ A}$ $T_{VJ} = 25^\circ\text{C}$			2.36	V
		$I_F = 60 \text{ A}$ $T_{VJ} = 25^\circ\text{C}$		0.00	3.15	V
		$I_F = 30 \text{ A}$ $T_{VJ} = 125^\circ\text{C}$			2.20	V
		$I_F = 60 \text{ A}$ $T_{VJ} = 125^\circ\text{C}$		0.00	3.08	V
I_{FAV}	average forward current	rectangular, $d = 0.5$ $T_C = 35^\circ\text{C}$			30	A
V_{F0}	threshold voltage	for power loss calculation only $T_{VJ} = 150^\circ\text{C}$			1.31	V
r_F	slope resistance				28.6	$\text{m}\Omega$
R_{thJC}	thermal resistance junction to case				3.50	K/W
T_{VJ}	virtual junction temperature		-55		150	$^\circ\text{C}$
P_{tot}	total power dissipation	$T_C = 25^\circ\text{C}$			180	W
I_{FSM}	max. forward surge current	$t_p = 10 \text{ ms (50 Hz), sine}$ $T_{VJ} = 45^\circ\text{C}$			200	A
I_{RM}	max. reverse recovery current	$I_F = 30 \text{ A};$ $T_{VJ} = 25^\circ\text{C}$		12		A
		$T_{VJ} = 125^\circ\text{C}$				A
t_{rr}	reverse recovery time	$-di_F/dt = 600 \text{ A}/\mu\text{s}$ $T_{VJ} = 25^\circ\text{C}$		35		ns
		$V_R = 400 \text{ V}$ $T_{VJ} = 125^\circ\text{C}$				ns
C_J	junction capacitance	$V_R = 300 \text{ V}; f = 1 \text{ MHz}$ $T_{VJ} = 25^\circ\text{C}$		40		pF
E_{AS}	non-repetitive avalanche energy	$I_{AS} = \text{tdb A}; L = 100 \mu\text{H}$ $T_{VJ} = 25^\circ\text{C}$			tdb	mJ
I_{AR}	repetitive avalanche current	$V_A = 1.5 \cdot V_R \text{ typ.}; f = 10 \text{ kHz}$			tdb	A

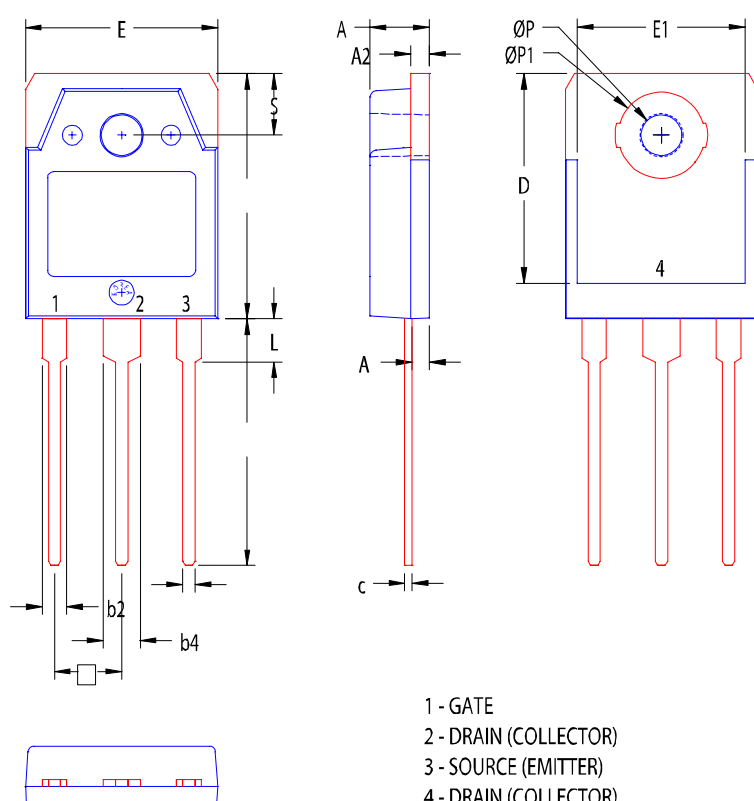
Recommended replacement:
DHG30I600HA, DHG30I600PA

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
I_{RMS}	RMS current	per pin*			70	A
R_{thCH}	thermal resistance case to heatsink			0.25		K/W
M_D	mounting torque		0.8		1.2	Nm
F_c	mounting force with clip		20		120	N
T_{sta}	storage temperature		-55		150	°C
Weight				5		g

* I_{rms} is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip.

In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

Outlines TO-3P



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.185	.193	4.70	4.90
A1	.051	.059	1.30	1.50
A2	.057	.065	1.45	1.65
b	.035	.045	0.90	1.15
b2	.075	.087	1.90	2.20
b4	.114	.126	2.90	3.20
c	.022	.031	0.55	0.80
D	.780	.791	19.80	20.10
D1	.665	.677	16.90	17.20
E	.610	.622	15.50	15.80
E1	.531	.539	13.50	13.70
e	.215 BSC		5.45 BSC	
L	.779	.795	19.80	20.20
L1	.134	.142	3.40	3.60
ØP	.126	.134	3.20	3.40
ØP1	.272	.280	6.90	7.10
S	.193	.201	4.90	5.10

All metal area are tin plated.