

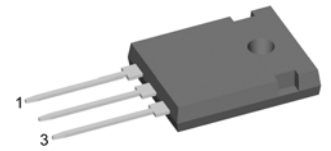
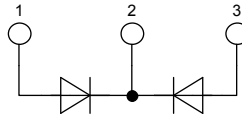
Sonic Fast Recovery Diode

High Performance Fast Recove
 Low Loss and Soft Recovery
 Common Cathode

$V_{RRM} = 600\text{ V}$
 $I_{FAV} = 2 \times 20\text{ A}$
 $t_{rr} = 35\text{ ns}$

Part number

DHG 40 C 600 HB



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

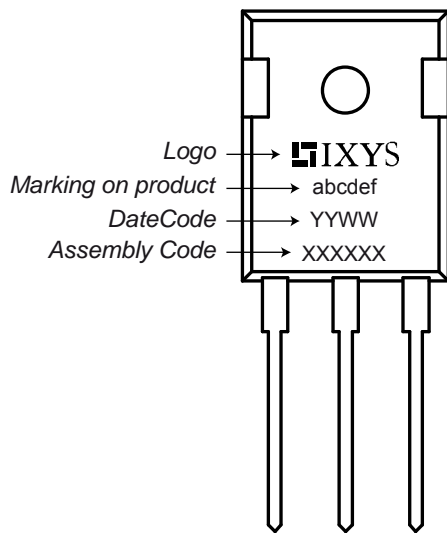
Ratings

| Symbol | Definition | Conditions | Ratings | | | Unit |
|------------|-------------------------------------|-----------------------------------------|---------|------|------|--------------------|
| | | | min. | typ. | max. | |
| V_{RRM} | max. repetitive reverse voltage | | | | 600 | V |
| I_R | reverse current | $V_R = 600\text{ V}$ | | | 30 | μA |
| | | $V_R = 600\text{ V}$ | | | 3 | mA |
| V_F | forward voltage | $I_F = 20\text{ A}$ | | | 2.31 | V |
| | | $I_F = 40\text{ A}$ | | | 3.80 | V |
| | | $I_F = 20\text{ A}$ | | | 2.15 | V |
| | | $I_F = 40\text{ A}$ | | | 3.00 | V |
| I_{FAV} | average forward current | rectangular, $d = 0.5$ | | | 20 | A |
| V_{FO} | threshold voltage | } for power loss calculation only | | | 1.31 | V |
| r_F | slope resistance | | | | 36.9 | $\text{m}\Omega$ |
| R_{thJC} | thermal resistance junction to case | | | | 0.90 | K/W |
| T_{VJ} | virtual junction temperature | | -55 | | 150 | $^{\circ}\text{C}$ |
| P_{tot} | total power dissipation | | | | 140 | W |
| I_{FSM} | max. forward surge current | $t = 10\text{ ms}$ (50 Hz), sine | | | 150 | A |
| I_{RM} | max. reverse recovery current | | | | 8 | A |
| | | $I_F = 20\text{ A}; V_R = 400\text{ V}$ | | | tbd | A |
| t_{rr} | reverse recovery time | $-di_F/dt = 400\text{ A}/\mu\text{s}$ | | | 35 | ns |
| | | | | | tbd | ns |
| C_J | junction capacitance | $V_R = 300\text{ V}; f = 1\text{ MHz}$ | | | tbd | pF |

| Symbol | Definition | Conditions | Ratings | | | Unit |
|---------------|-------------------------------------|-----------------------|---------|------|------|------|
| | | | min. | typ. | max. | |
| I_{RMS} | RMS current | per pin ¹⁾ | | | 70 | A |
| R_{thCH} | thermal resistance case to heatsink | | | 0.25 | | K/W |
| T_{stg} | storage temperature | | -55 | | 150 | °C |
| Weight | | | | 6 | | g |
| M_D | mounting torque | | 0.8 | | 1.2 | Nm |
| F_C | mounting force with clip | | 20 | | 120 | N |

¹⁾ 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.

Product Marking



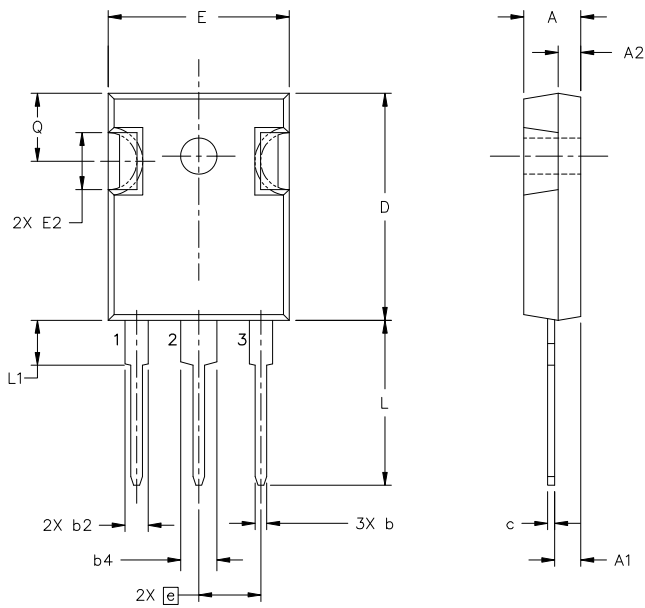
Part number

- D = Diode
- H = Sonic Fast Recovery Diode
- G = extreme fast
- 40 = Current Rating [A]
- C = Common Cathode
- 600 = Reverse Voltage [V]
- HB = TO-247AD (3)

| Ordering | Part Name | Marking on Product | Delivering Mode | Base Qty | Code Key |
|----------|-----------------|--------------------|-----------------|----------|----------|
| Standard | DHG 40 C 600 HB | DHG40C600HB | Tube | 30 | 505145 |

| Similar Part | Package | Voltage class |
|--------------|---------|---------------|
| DHG40C1200HB | TO-247 | 1200 |
| DHG40C1200PB | TO-220 | 1200 |
| DHG40C600PB | TO-220 | 600 |

Outlines TO-247



| Symbol | Inches | | Millimeters | |
|--------|-----------|-------|-------------|-------|
| | min | max | min | max |
| A | 0.185 | 0.209 | 4.70 | 5.30 |
| A1 | 0.087 | 0.102 | 2.21 | 2.59 |
| A2 | 0.059 | 0.098 | 1.50 | 2.49 |
| D | 0.819 | 0.845 | 20.79 | 21.45 |
| E | 0.610 | 0.640 | 15.48 | 16.24 |
| E2 | 0.170 | 0.216 | 4.31 | 5.48 |
| e | 0.215 BSC | | 5.46 BSC | |
| L | 0.780 | 0.800 | 19.80 | 20.30 |
| L1 | - | 0.177 | - | 4.49 |
| ØP | 0.140 | 0.144 | 3.55 | 3.65 |
| Q | 0.212 | 0.244 | 5.38 | 6.19 |
| S | 0.242 BSC | | 6.14 BSC | |
| b | 0.039 | 0.055 | 0.99 | 1.40 |
| b2 | 0.065 | 0.094 | 1.65 | 2.39 |
| b4 | 0.102 | 0.135 | 2.59 | 3.43 |
| c | 0.015 | 0.035 | 0.38 | 0.89 |
| D1 | 0.515 | - | 13.07 | - |
| D2 | 0.020 | 0.053 | 0.51 | 1.35 |
| E1 | 0.530 | - | 13.45 | - |
| ØP1 | - | 0.291 | - | 7.39 |