

# SEPA<sup>®</sup> CPU-COOLER

HYB35C05, HYB35C05A



## COOLING of ELECTRONIC CIRCUITS

### • FEATURES

Small, extremely thin and light. The ball-bearing fan integrated in the heat sink is highly effective despite its height of only 7.5 mm! This renders it highly suitable for the Pentium 486 and similar CPU's, stepper-motor driver and more. The air intake side is on the top, the outlet is on one side.

### • VERY LOW POWER CONSUMPTION

An NdFe<sub>2</sub>O<sub>3</sub> magnet ensures a high torque of the ball bearing fan motor and maximum conductance of heat and simultaneous low current consumption.

### • HIGHEST RELIABILITY AND LIFE EXPECTANCY

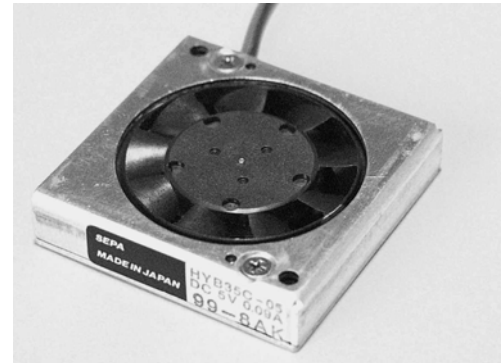
The brushless motor is electronically commutated. A special IC is responsible for the electrical control. High reliability is achieved by 100% burn-in.

### • SILENT

The air flow performance is increased and the noise reduced by computer-aided optimisation of the impeller and cooling surfaces.

### • ALARM OUTPUT OPTIONAL

An optional speed impulse output enables simple monitoring of the fan speed. (HYB35C05A).

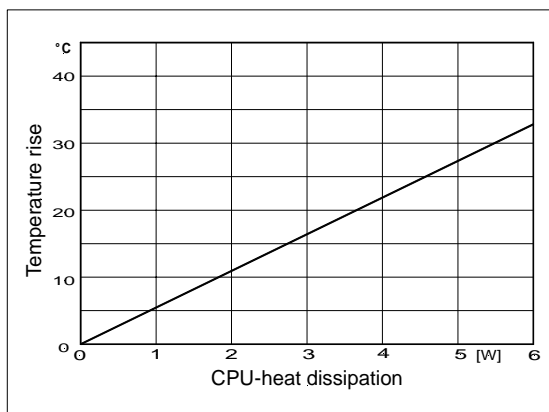


### PERFORMANCE

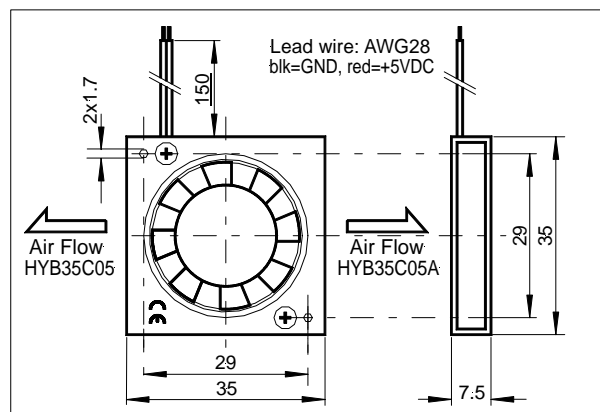
| Type      | Operating Voltage [V] | Oper. Current (blocked) [mA] | Thermal Resistance [K/W] | Noise *) [dB(A)] | Operating Temperature [°C] (case) | Life Expectancy / MTBF [h @ 60°C] |
|-----------|-----------------------|------------------------------|--------------------------|------------------|-----------------------------------|-----------------------------------|
| HYB35C05  | 4.5 bis 5.5           | 80 (160)                     | 5,3                      | 27               | -10 ... +70 (80)                  | 75000 / 210000                    |
| HYB35C05A | 4.5 bis 5.5           | 80 (160)                     | 5,3                      | 27               | -10 ... +70 (80)                  | 75000 / 210000                    |

\*) Measured at 1m from the air intake side of the fan

### COOLING PERFORMANCE



### SHAPE AND DIMENSION



## • ALARM OUTPUT

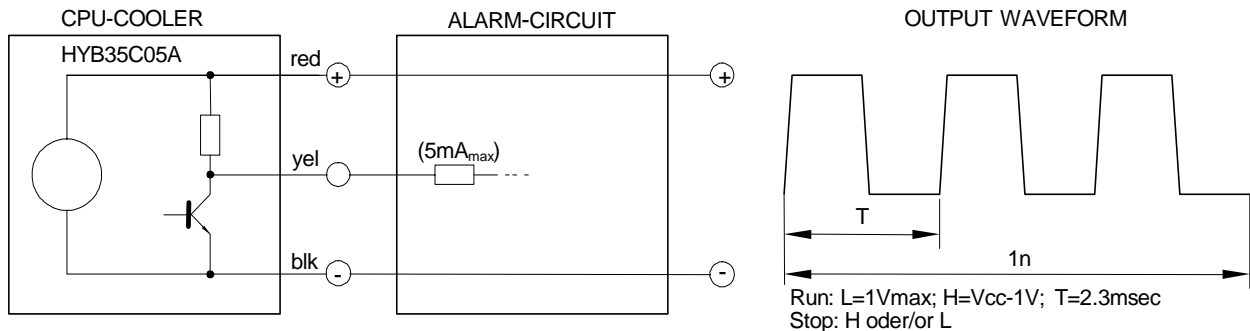
The **SEPA**® HFB35C05A includes a speed impulse output, which enables monitoring the correct function of the fan. An alarm-board is available on request.

The pulse is like a rectangular wave, the frequency correlates to 3 x rotor speed. At blocked rotor the output signal could be L ( $\leq 1.0V$ ) or H ( $V_{cc} - 1V$ ).

**IMPORTANT:** The pulse output is *not* protected against short circuit and must not connect to GND or  $V_{cc}$  without series-resistor. A pull-up-resistor is not needed.

The HFB35C05(A) has tinned lead wire ends (without connector).

Do not connect not used pulse output to GND or  $V_{cc}$  (insolate).



## • Accessories:

THPAD44 thermally conductive adhesive pad, with aluminium carrier.  
 LOCTITE 315 thermally conductive glue, 4 min. stalwart  
 ALG01 **SEPA** ALARM, monitor-circuit, generates an acoustic signal in case of missing pulses.  
 CONNECTOR on request

## • Mounting:

The **SEPA**® HYB35C05(A) is mounted on the CPU by simply using the double side adhesive thermo conductive foil THPAD44. THPAD contains an aluminium medium and bonds reliably and permanently even as high temperatures. THPAD44 is provided as a blank in the appropriate size (see accessories).

The surface of the heat sink and the CPU must be clean and dry. Even mere traces of thermo conducting paste prevent reliable bonding.

For more information please read the data sheet of adhesive pad or glue.

**IMPORTANT:** Only hold the cooler at the outer edge and do not touch the impeller!

## • Order Information

|           |   |           |
|-----------|---|-----------|
| HYB35C05  | <b>SEPA</b> ® CPU-Cooler 5VDC, ball bearing, <b>CE</b>        | 113531000 |
| HYB35C05A | <b>SEPA</b> ® CPU-Cooler 5VDC, ball bearing, Pulse, <b>CE</b> | 113531010 |

**SEPA**® is the brand name for fans and CPU-Cooler, made by Nippon Keiki Works LTD., Tokyo