D-42607 Solingen
D-42659 Solingen
Phone +49 212 81 40 45-46
e-Mail: mail@juchheim-solingen.de
Internet: www.juchheim-solingen.de

Postfach 10 07 08
Ritterstr. 87-89
Fax +49 212 81 55 00

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Thyristor power switches

- **Load currents 25A and 50A (max.)**
- **Load voltages 280V and 660V (max.)**
- **Control voltage 4—32V DC**
- **UL approval**

for stock items see price list

TYA 432-45/50 (25), 660 (280)

Brief description

Thyristor power switches are required for contactless switching of a.c. loads. A typical application is the switching of resistive-inductive loads at high switching rates, especially in industrial applications, for example in the plastics packaging industry, in HVAC and industrial furnaces.
Control and power circuits are electrically isolated from each other by optocouplers.
The control signal range is compatible with the logic outputs of our controllers.
The power circuit operates as a zero-voltage switch, which means that it always switches when the voltage passes through zero, irrespective of the instant of the signal change. This prevents the generation of interference voltages. On the output side, an RC combination is fitted internally.
The input condition is shown on an LED.

Technical data

Load circuit

Type	**TYA 432-45/25, 280**	**TYA 432-45/50, 660**
Load voltage	24 — 280V_{eff}	48 — 660V_{eff}
Load current (maximum)	25A_{eff}	50A_{eff}
Load current (minimum)	100mA_{eff}	
Fuse load integral limit $I^2 \cdot t$ (t = 10msec)	310$A^2 \cdot$ sec	2800$A^2 \cdot$ sec
Frequency	47 — 80Hz	
Peak off-state voltage	600V_{pk-pk}	1200V_{pk-pk}
Leakage current	15mA	20mA
cos φ (p.f.)	>0.5	

Control

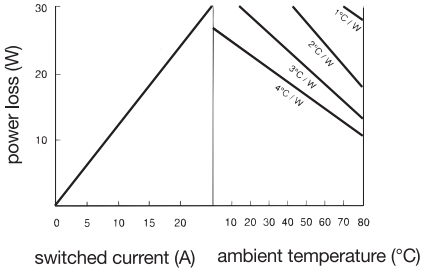
Control signal range	4 — 32V DC
Input impedance	1kΩ
Response delay	0.5 · cycle length

General data

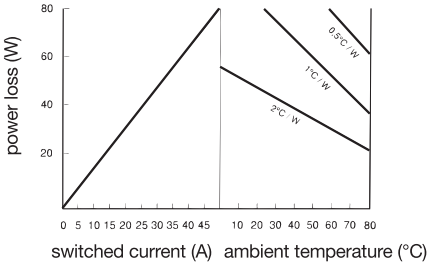
Operating mode	zero control
Electrical isolation	by optocoupler between control and load circuits; insulation voltage 4kV_{eff}
Heat resistance junction-case	0.6 °C/W for TYA 432-45/25, 280 0.4 °C/W for TYA 432-45/50, 660
Permissible ambient temperature	–20 to +80°C
Electrical connection	via screw terminals (load: □ 4mm^2 max. control: □ 2.5mm^2 max.)
Case	self-extinguishing (UL 94V0)
Protection	IP20
Weight	110g

Derating curves

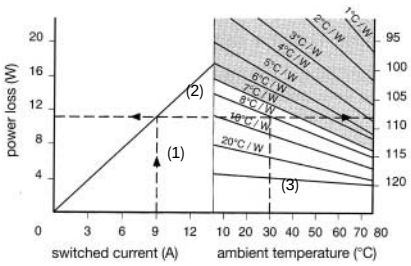
TYA 432-45/25, 280

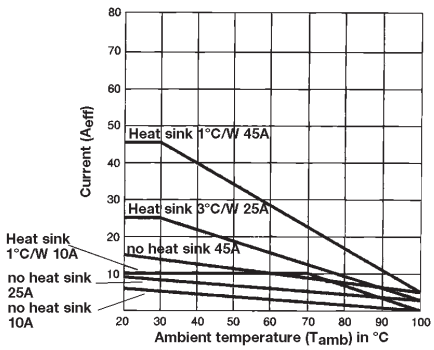


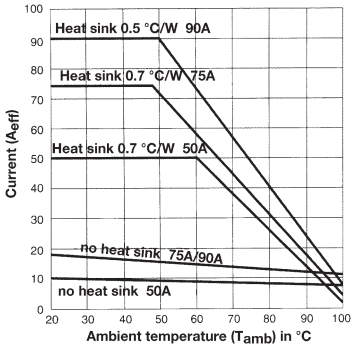
TYA 432-45/50, 660



Example:

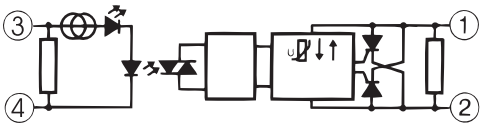




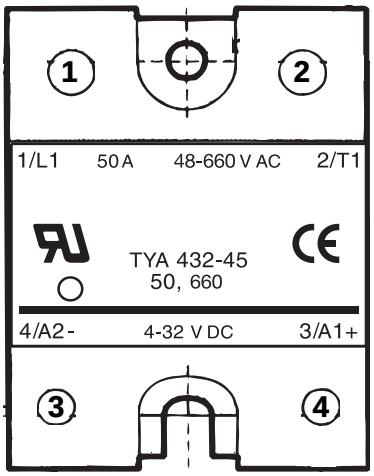


1) Draw a vertical line across the value of the current to be switched and read off the power loss.
2) Draw a horizontal line across the intersection with the power characteristic.
3) Draw a vertical line across the maximum ambient temperature value.
4) Any heat sink above the intersection of the two lines (shaded area) can be used.

Equivalent circuit diagram

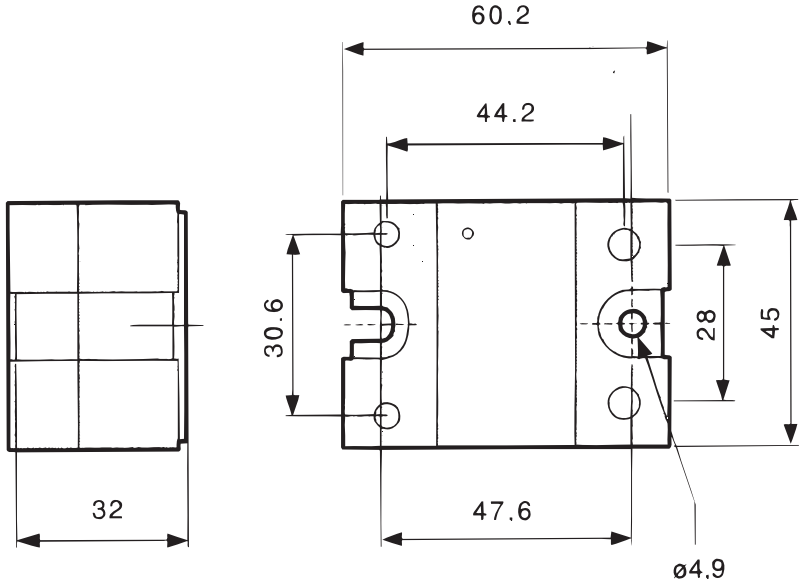


Connection



1 - load circuit
2 - load circuit
3 - control signal +
4 - control signal –

Dimensions



Ordering details

Type	Load voltage	Load current
TYA 432-45/25, 280	24 — 280V_{eff}	25A_{eff}
TYA 432-45/50, 660	48 — 660V_{eff}	50A_{eff}