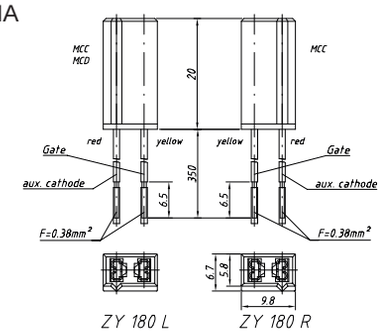
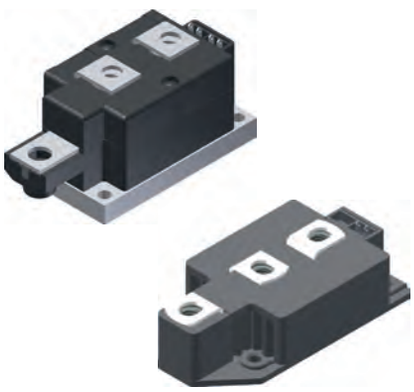
Optional Accessories for Thyristor / Diode Modules

For module types MCC/MCD/MCO/MCMA/MCNA 132, 161 up to 700 (for MCD/MCO only L-type):
Keyed Gate Cathode twin plugs
with wire length = 350 / 480 mm
gate = white, cathode = red

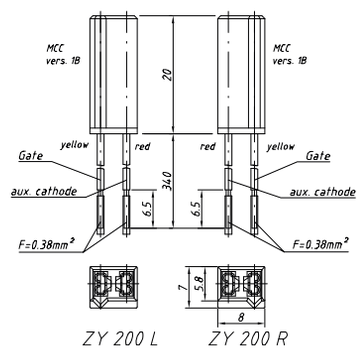
Type **ZY 180 L** (L = Left for pin pair 4/5)
Type **ZY 180 R** (R = Right for pin pair 6/7)



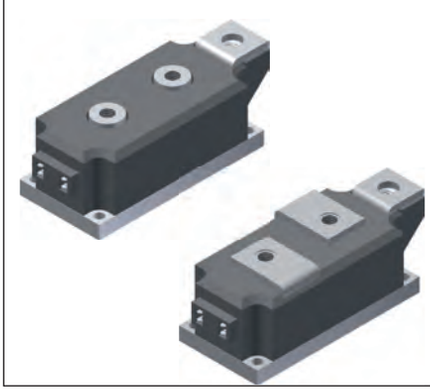


For module-type TO-240 package MCC/MCD/ MCMA/MCNA 19 up to120 and 140 (version 1):
Keyed Gate Cathode twin plugs with wire length = 340 / 460 mm;
gate = white, cathode = red

Type **ZY 200 L** (L = Left for pin pair 4/5)
Type **ZY 200 R** (R = Right for pin pair 6/7)



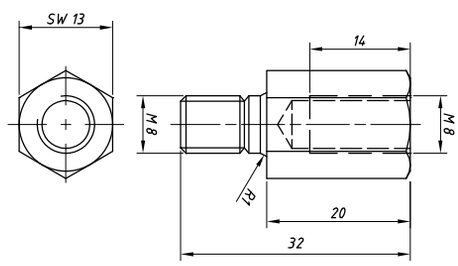
For ZY 180 and ZY 200: UL 758 Style 3751



For module types MCC/MCD/MDD 310
Threaded spacer for higher Anode / Cathode construction:

Type **ZY 250** (material brass)

Not for new design



Design Information

For Thyristors, Diodes, Thyristor / Diode Modules and Rectifier Bridges

Surge current

The 60 Hz value of I_{TSM} is 10% higher than the 50 Hz value
The I_{TSM} value at T_{VJM} is 10% to 15% lower than the 45°C value

Limiting I²t

50 Hz: I^2t [A^2s] = I_{TSM} [A] • I_{TSM} [A] • 0.005 [s]; use rated I_{TSM} value (10 ms)
60 Hz: I^2t [A^2s] = I_{TSM} [A] • I_{TSM} [A] • 0.0042 [s]; use 60-Hz-value of I_{TSM}

Forward current

The average current ratings in tables are mostly specified for temperature conditions of: T_A = 45°C, T_C = 85°C or T_C = 100°C.
For other temperature conditions the current ratings can be calculated using the following formulas applicable up to 400 Hz.

$$I_{TAV} = \frac{-V_{T0} + \sqrt{V_{T0}^2 + 4 \cdot k^2 \cdot r_T \cdot P}}{2 \cdot k^2 \cdot r_T}$$ where $$P = \frac{T_{VJM} - T_C}{R_{thJC}}$$ or $$P = \frac{T_{VJM} - T_A}{R_{thJA}}$$

I_{TAV} [A], P [W]; V_{T0} [V]; r_T [Ω], T_{VJM} [°C], T_C [°C], T_A [°C], R_{thJC} [K/W], R_{thJA} [K/W]

k^2 = 1 for DC current
k^2 = 2.5 for sinusoidal half wave current
k^2 = 3 for 120° rectangular current
k^2 = 6 for 60° rectangular current

The average forward current is limited by the RMS current value $I_{T(RMS)}$.
When the **calculated** value I_{TAV} is higher than $I_{T(RMS)}$ / k, replace it by $I_{TAV} = I_{T(RMS)}$ / k.

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