

THYRISTOR MODULE (NON-ISOLATED TYPE)

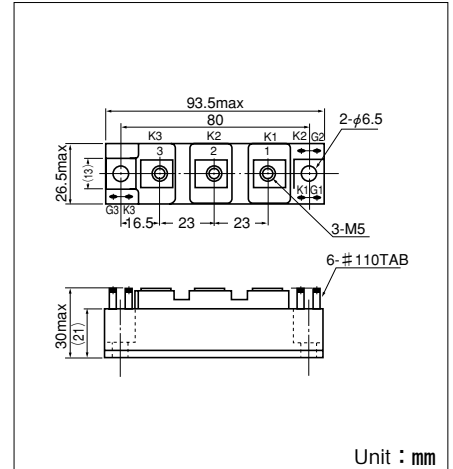
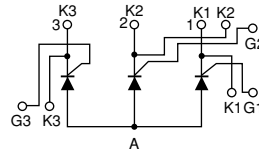
PWB80A

PWB80A is a Thyristor module suitable for low voltage, 3 phase recifier applications.

- $I_{T(AV)}$ 80A (each device)
- High Surge Current 2500 A (60Hz)
- Easy Construction
- Non-isolated. Mounting base as common Anode terminal

(Applications)

Welding power Supply
Various DC power Supply



Maximum Ratings

| Symbol | Item | Ratings | | Unit |
|--------|-------------------------------------|----------|----------|------|
| | | PWB80A30 | PWB80A40 | |
| VRRM | Repetitive Peak Reverse Voltage | 300 | 400 | V |
| VRSM | Non-Repetitive Peak Reverse Voltage | 360 | 480 | V |
| VDRM | Repetitive Peak Off-State Voltage | 300 | 400 | V |

| Symbol | Item | Conditions | Ratings | Unit | |
|--------------------|---|--|-----------------------------------|------------------|-----------------|
| $I_{T(AV)}$ | Average On-State Current | Single phase, half wave, 180° conduction, $T_c : 116^\circ\text{C}$ | 80 | A | |
| $I_{T(RMS)}$ | R.M.S. On-State Current | Single phase, half wave, 180° conduction, $T_c : 116^\circ\text{C}$ | 125 | A | |
| I_{TSM} | Surge On-State Current | $\frac{1}{2}$ cycle, 50Hz/60Hz, peak value, non-repetitive | 2280/2500 | A | |
| I^2t | I^2t | | 26000 | A ² S | |
| P _{GM} | Peak Gate Power Dissipation | | 10 | W | |
| P _{G(AV)} | Average Gate Power Dissipation | | 1 | W | |
| I _{FGM} | Peak Gate Current | | 3 | A | |
| V _{FGM} | Peak Gate Voltage(Forward) | | 10 | V | |
| V _{RGM} | Peak Gate Voltage(Reverse) | | 5 | V | |
| di/dt | Critical Rate of Rise of On-State Current | $I_G=200\text{mA}$, $T_J=25^\circ\text{C}$, $V_D=\frac{1}{2}V_{DRM}$, $dI_G/dt=1\text{A}/\mu\text{s}$ | 50 | A/ μs | |
| T _J | Operating Junction Temperature | | -30 to +150 | °C | |
| T _{stg} | Storage Temperature | | -30 to +125 | °C | |
| | Mounting torque | Mounting (M6) | Recommended Value 2.5-3.9 (25-40) | 4.7 (48) | N·m (kgf·cm) |
| | | Terminal (M5) | Recommended Value 1.5-2.5 (15-25) | 2.7 (28) | |
| | Mass | | | 170 | g |

Electrical Characteristics

| Symbol | Item | Conditions | Ratings | Unit |
|----------------------------------|--|---|---------|------------------|
| I _{DRM} | Repetitive Peak Off-State Current, max. | at V_{DRM} , single phase, half wave, $T_J=150^\circ\text{C}$ | 12 | mA |
| I _{RRM} | Repetitive Peak Reverse Current, max. | at V_{DRM} , single phase, half wave, $T_J=150^\circ\text{C}$ | 12 | mA |
| V _{TM} | Peak On-State Voltage, max | On-State Current 240A, $T_J=25^\circ\text{C}$ Inst. measurement | 1.20 | V |
| I _{GT} /V _{GT} | Gate Trigger Current/Voltage, max. | $T_J=25^\circ\text{C}$, $I_T=1\text{A}$, $V_D=6\text{V}$ | 150/2 | mA/V |
| V _{GD} | Non-Trigger Gate, Voltage. min. | $T_J=150^\circ\text{C}$, $V_D=\frac{1}{2}V_{DRM}$ | 0.25 | V |
| t _{gt} | Turn On Time, max. | $I_T=80\text{A}$, $I_G=200\text{mA}$, $T_J=25^\circ\text{C}$, $V_D=\frac{1}{2}V_{DRM}$, $dI_G/dt=1\text{A}/\mu\text{s}$ | 10 | μs |
| dv/dt | Critical Rate of Rise of Off-State Voltage, min. | $T_J=150^\circ\text{C}$, $V_D=\frac{2}{3}V_{DRM}$, Exponential wave. | 50 | V/ μs |
| I _H | Holding Current, typ. | $T_J=25^\circ\text{C}$ | 100 | mA |
| R _{th(j-c)} | Thermal Impedance, max. | Junction to case ($\frac{1}{3}$ Module) | 0.35 | °C/W |

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