

THYRISTOR MODULE

PK(PD,PE)200HB



UL;E76102 (M)

Power Thyristor/Diode Module **PK200HB** series are designed for various rectifier circuits and power controls. For your circuit application, following internal connections and wide voltage ratings up to 1,600V are available.

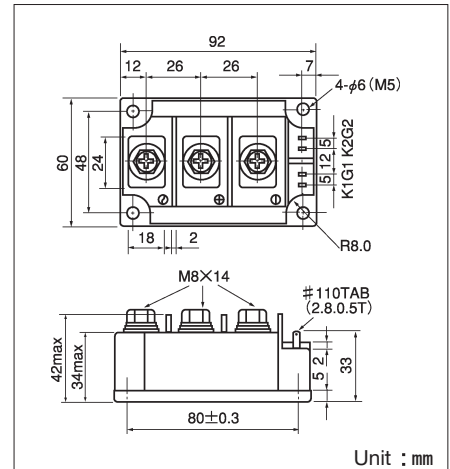
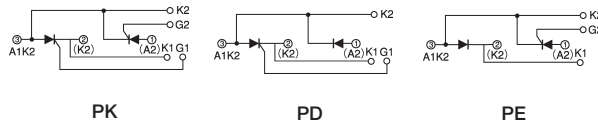
Isolated mounting base

- $I_{T(AV)}$ 200A, $I_{T(RMS)}$ 310A, I_{TSM} 5500A
- di/dt 200 A/ μ s
- dv/dt 500V/ μ s

(Applications)

- Various rectifiers
- AC/DC motor drives
- Heater controls
- Light dimmers
- Static switches

Internal Configurations



Maximum Ratings

| Symbol | Item | Ratings | | Unit | |
|-----------|---------------------------------------|--------------------------|------------|------|--------------------------|
| | | PK200HB120 PE200HB120 | PD200HB120 | | PK200HB160 PE200HB160 |
| V_{RRM} | * Repetitive Peak Reverse Voltage | 1200 | | 1600 | V |
| V_{RSM} | * Non-Repetitive Peak Reverse Voltage | 1300 | | 1700 | V |
| V_{DRM} | Repetitive Peak Off-State Voltage | 1200 | | 1600 | V |

| Symbol | Item | Conditions | Ratings | Unit | |
|--------------|---|---|-----------------------------------|------------------|-----------------|
| $I_{T(AV)}$ | * Average On-State Current | Single phase, half wave, 180° conduction, $T_c : 74^\circ\text{C}$ | 200 | A | |
| $I_{T(RMS)}$ | * R.M.S. On-State Current | Single phase, half wave, 180° conduction, $T_c : 74^\circ\text{C}$ | 310 | A | |
| I_{TSM} | * Surge On-State Current | $1/2$ cycle, 50Hz/60Hz, peak Value, non-repetitive | 5000/5500 | A | |
| I^2t | * I^2t | Value for one cycle of surge current | 125000 | A ² S | |
| P_{GM} | Peak Gate Power Dissipation | | 10 | W | |
| $P_{G(AV)}$ | Average Gate Power Dissipation | | 3 | 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 | $I_G = 100\text{mA}$, $T_j = 25^\circ\text{C}$, $V_D = 1/2 V_{DRM}$, $dI_G/dt = 0.1\text{A}/\mu\text{s}$ | 200 | A/ μ s | |
| V_{ISO} | * Isolation Breakdown Voltage (R.M.S.) | A.C. 1 minute | 2500 | V | |
| T_j | * Operating Junction Temperature | | -40 ~ +125 | $^\circ\text{C}$ | |
| T_{stg} | * Storage Temperature | | -40 ~ +125 | $^\circ\text{C}$ | |
| | Mounting Torque | Mounting (M5) | Recommended Value 1.5~2.5 (15~25) | 2.7 (28) | N·m (kgf·cm) |
| | | Terminal (M8) | Recommended Value 8.8~10 (90~105) | 11 (115) | |
| | Mass | Typical Value | 510 | g | |

Electrical Characteristics

| Symbol | Item | Conditions | Ratings | Unit |
|-----------------|--|---|---------|---------------------------|
| I_{DRM} | Repetitive Peak Off-State Current, max. | at V_{DRM} , Single phase, half wave, $T_j = 125^\circ\text{C}$ | 50 | mA |
| I_{RRM} | * Repetitive Peak Reverse Current, max. | at V_{DRM} , Single phase, half wave, $T_j = 125^\circ\text{C}$ | 50 | mA |
| V_{TM} | * Peak On-State Voltage, max. | On-State Current 750A, $T_j = 125^\circ\text{C}$ Inst. measurement | 1.50 | V |
| I_{GT}/V_{GT} | Gate Trigger Current/Voltage, max. | $T_j = 25^\circ\text{C}$, $I_T = 1\text{A}$, $V_D = 6\text{V}$ | 100/3 | mA/V |
| V_{GD} | Non-Trigger Gate, Voltage. min. | $T_j = 125^\circ\text{C}$, $V_D = 1/2 V_{DRM}$ | 0.25 | V |
| t_{gt} | Turn On Time, max. | $I_T = 250\text{A}$, $I_G = 100\text{mA}$, $T_j = 25^\circ\text{C}$, $V_D = 1/2 V_{DRM}$, $dI_G/dt = 0.1\text{A}/\mu\text{s}$ | 10 | μs |
| dv/dt | Critical Rate of Rise of Off-State Voltage, min. | $T_j = 125^\circ\text{C}$, $V_D = 2/3 V_{DRM}$, Exponential wave. | 500 | V/ μ s |
| I_H | Holding Current, typ. | $T_j = 25^\circ\text{C}$ | 50 | mA |
| I_L | Latching Current, typ. | $T_j = 25^\circ\text{C}$ | 100 | mA |
| $R_{th(j-c)}$ | * Thermal Impedance, max. | Junction to case | 0.18 | $^\circ\text{C}/\text{W}$ |

*mark : Thyristor and Diode part. No mark : Thyristor part

