

THYRISTOR MODULE

PK(PD,PE,KK)25HB

UL;E76102 (M)

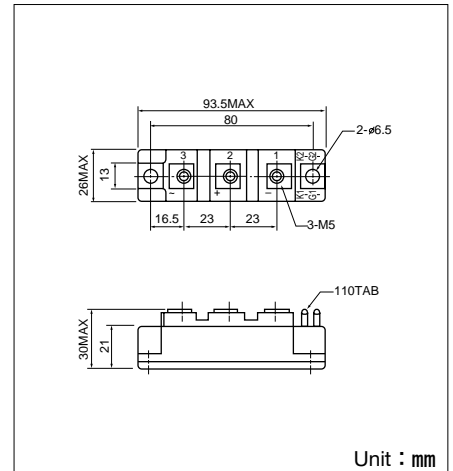
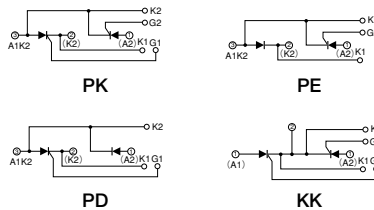
Power Thyristor/Diode Module PK25HB series are designed for various rectifier circuits and power controls. For your circuit application, following internal connections and wide voltage ratings up to 1,600V are available, and electrically isolated mounting base make your mechanical design easy.

- $I_{T(AV)}$ 25A, $I_{T(RMS)}$ 39A, I_{TSM} 500A
- di/dt 100 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 |
|-----------|---------------------------------------|------------------------|------------------------|------------------------|------------------------|------|
| | | PK25HB120 KK25HB120 | PD25HB120 PE25HB120 | PK25HB160 KK25HB160 | PD25HB160 PE25HB160 | |
| V_{RRM} | * Repetitive Peak Reverse Voltage | | 1200 | | 1600 | V |
| V_{RSM} | * Non-Repetitive Peak Reverse Voltage | | 1350 | | 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, $T_c : 94^\circ\text{C}$ | 25 | A | |
| $I_{T(RMS)}$ | * R.M.S. On-State Current | Single phase, half wave, 180° conduction, $T_c : 94^\circ\text{C}$ | 39 | A | |
| I_{TSM} | * Surge On-State Current | 1/2 cycle, 50Hz/60Hz, peak Value, non-repetitive | 450/500 | A | |
| I^2t | * I^2t | Value for one cycle of surge current | 1000 | 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 | $I_G=100\text{mA}$, $T_j=25^\circ\text{C}$, $V_D=1/2V_{DRM}$, $dI_G/dt=0.1\text{A}/\mu\text{s}$ | 100 | A/ μ s | |
| V_{ISO} | * Isolation Breakdown Voltage (R.M.S.) | A.C.1minute | 2500 | V | |
| T_j | * Operating Junction Temperature | | -40 to +125 | °C | |
| T_{stg} | * Storage Temperature | | -40 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, $T_j=125^\circ\text{C}$ | 4 | mA |
| I_{RRM} | * Repetitive Peak Reverse Current, max. | at V_{DRM} , single phase, half wave, $T_j=125^\circ\text{C}$ | 4 | mA |
| V_{TM} | * Peak On-State Voltage, max. | On-State Current 75A, $T_j=125^\circ\text{C}$ Inst. measurement | 1.60 | V |
| I_{GT}/V_{GT} | Gate Trigger Current/Voltage, max. | $T_j=25^\circ\text{C}$, $I_T=1\text{A}$, $V_D=6\text{V}$ | 50/2 | mA/V |
| V_{GD} | Non-Trigger Gate, Voltage, min. | $T_j=125^\circ\text{C}$, $V_D=1/2V_{DRM}$ | 0.25 | V |
| t_{gt} | Turn On Time, max. | $I_T=25\text{A}$, $I_G=100\text{mA}$, $T_j=25^\circ\text{C}$, $V_D=1/2V_{DRM}$, $dI_G/dt=0.1\text{A}/\mu\text{s}$ | 10 | μ s |
| dv/dt | Critical Rate of Rise of Off-State Voltage, min. | $T_j=125^\circ\text{C}$, $V_D=2/3V_{DRM}$, 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 | 0.80 | °C/W |

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

