

THYRISTOR MODULE

PK(PD,PE,KK)110F



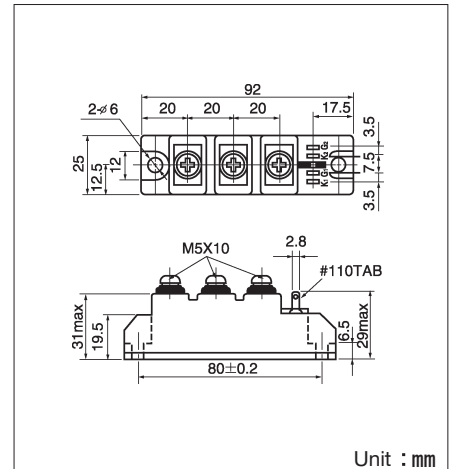
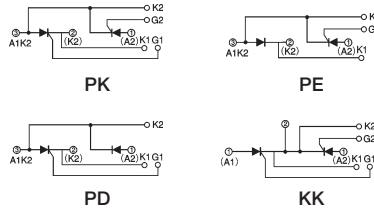
UL:E76102 (M)

Power Thyristor/Diode Module PK110F 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. High precision 25mm (1inch) width package and electrically isolated mounting base make your mechanical design easy.

- $I_{T(AV)}$ 110A, $I_{T(RMS)}$ 172A, I_{TSM} 2550A
- di/dt 200 A/ μ s
- dv/dt 500V/ μ s

(Applications)

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



Maximum Ratings

| Symbol | Item | Ratings | | | | Unit |
|--------|--------------------------------------|--|--|--|--|------|
| | | PK110F40 PD110F40 PE110F40 KK110F40 | PK110F80 PD110F80 PE110F80 KK110F80 | PK110F120 PD110F120 PE110F120 KK110F120 | PK110F160 PD110F160 PE110F160 KK110F160 | |
| VRRM | *Repetitive Peak Reverse Voltage | 400 | 800 | 1200 | 1600 | V |
| VRSM | *Non-Repetitive Peak Reverse Voltage | 480 | 960 | 1300 | 1700 | V |
| VDRM | Repetitive Peak Off-State Voltage | 400 | 800 | 1200 | 1600 | V |

| Symbol | Item | Conditions | Ratings | Unit | |
|--------------------|---|---|-----------------------------|------------------|-----------------|
| $I_{T(AV)}$ | *Average On-State Current | Single phase, half wave, 180° conduction, $T_c : 88^\circ\text{C}$ | 110 | A | |
| $I_{T(RMS)}$ | *R.M.S. On-State Current | Single phase, half wave, 180° conduction, $T_c : 88^\circ\text{C}$ | 172 | A | |
| I_{TSM} | *Surge On-State Current | $\frac{1}{2}$ cycle, 50Hz/60Hz, peak Value, non-repetitive | 2300/2550 | A | |
| I^2t | * I^2t | Value for one cycle of surge current | 26500 | 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 | $I_G = 100\text{mA}$, $T_j = 25^\circ\text{C}$, $V_D = \frac{1}{\sqrt{2}}V_{DRM}$, $di_G/dt = 0.1\text{A}/\mu\text{s}$ | 200 | A/ μ s | |
| V _{ISO} | *Isolation Breakdown Voltage (R.M.S.) | A.C.1minute | 2500 | V | |
| T _j | *Operating Junction Temperature | | -40 ~ +125 | °C | |
| T _{stg} | *Storage Temperature | | -40 ~ +125 | °C | |
| | Mounting Torque | Mounting (M5) | Recommended 1.5~2.5 (15~25) | 2.7 (28) | N·m (kgf·cm) |
| | | Terminal (M5) | Recommended 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°C | 20 | mA |
| I _{RRM} | *Repetitive Peak Reverse Current, max. | at V _{DRM} , single phase, half wave, T _j =125°C | 20 | mA |
| V _{TM} | *Peak On-State Voltage, max. | On-State Current 350A, T _j =25°C Inst. measurement | 1.45 | V |
| I _{GT} /V _{GT} | Gate Trigger Current/Voltage, max. | T _j =25°C, I _T =1A, V _D =6V | 100/3 | mA/V |
| V _{GD} | Non-Trigger Gate, Voltage. min. | T _j =125°C, V _D =1/2V _{DRM} | 0.25 | V |
| t _{gt} | Turn On Time, max. | I _T =110A, I _G =100mA, T _j =25°C, V _D = $\frac{1}{\sqrt{2}}V_{DRM}$, $di_G/dt = 0.1\text{A}/\mu\text{s}$ | 10 | μ s |
| dv/dt | Critical Rate of Rise of Off-State Voltage, min. | T _j =125°C, V _D = $\frac{2}{3}V_{DRM}$, Exponential wave. | 500 | V/ μ s |
| I _H | Holding Current, typ. | T _j =25°C | 50 | mA |
| I _L | Latching Current, typ. | T _j =25°C | 100 | mA |
| R _{th(j-c)} | *Thermal Impedance, max. | Junction to case | 0.25 | °C/W |

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

