

THYRISTOR MODULE

PK(PD,PE)55FG

UL:E76102(M)

Power Thyristor/Diode Module PK55FG series are designed for various rectifier circuits and power controls. For your circuit application, following internal connections and wide voltage ratings up to 1600V are available. and electrically isolated mounting base make your mechanical design easy.

- $I_{T(AV)}$ 55A, $I_{T(RMS)}$ 86A, I_{TSM} 1300A
- di/dt 100A/ μ s
- dv/dt 1000V/ μ s

(Applications)

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

Internal Configurations



Unit : mm

Maximum Ratings

($T_j=25^\circ\text{C}$ unless otherwise specified)

| Symbol | Item | Ratings | | | | Unit |
|-----------|---------------------------------------|----------------------------------|----------------------------------|-------------------------------------|-------------------------------------|------|
| | | PK55FG40 PD55FG40 PE55FG40 | PK55FG80 PD55FG80 PE55FG80 | PK55FG120 PD55FG120 PE55FG120 | PK55FG160 PD55FG160 PE55FG160 | |
| V_{RRM} | * Repetitive Peak Reverse Voltage | 400 | 800 | 1200 | 1600 | V |
| V_{RSM} | * Non-Repetitive Peak Reverse Voltage | 480 | 960 | 1300 | 1700 | V |
| V_{DRM} | * Repetitive Peak off-state Voltage | 400 | 800 | 1200 | 1600 | V |

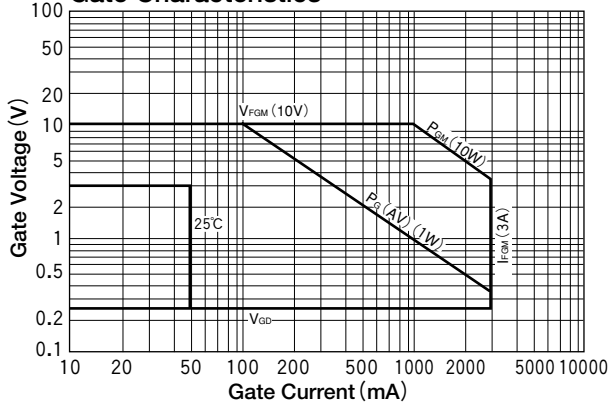
| Symbol | Item | Conditions | Ratings | Unit | |
|--------------|---|---|-----------------------------------|------------------------|---|
| $I_{T(AV)}$ | * Average On-state Current | Single phase, half wave, 180° conduction, $T_c=81^\circ\text{C}$ | 55 | A | |
| $I_{T(RMS)}$ | * R.M.S. On-state Current | Single phase, half wave, 180° conduction, $T_c=81^\circ\text{C}$ | 86 | A | |
| I_{TSM} | * Surge On-state Current | $\frac{1}{2}$ Cycle, 50/60Hz, Peak Value, non-repetitive | 1190/1300 | A | |
| I^2t | * I^2t | Value for one cycle surge current | 7040 | A^2S | |
| 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 | $I_G=100\text{mA}$, $V_D=\frac{1}{2}V_{DRM}$, $di_G/dt=0.1\text{A}/\mu\text{s}$ | 100 | $\text{A}/\mu\text{s}$ | |
| V_{ISO} | * Isolation Breakdown Voltage (R.M.S) | A.C. 1minute | 2500 | V | |
| T_j | * Operating Junction Temperature | | -40 to +125 | $^\circ\text{C}$ | |
| T_{stg} | * Storage Temperature | | -40 to +125 | $^\circ\text{C}$ | |
| | Mounting Torque | Mounting (M5) | Recommended Value 1.5-2.5 (15-25) | 2.7 (28) | $\text{N}\cdot\text{m}$ ($\text{kgf}\cdot\text{cm}$) |
| | | Terminal (M5) | Recommended Value 1.5-2.5 (15-25) | 2.7 (28) | |
| | Mass | Typical Value | | 170 | g |

Electrical Characteristics

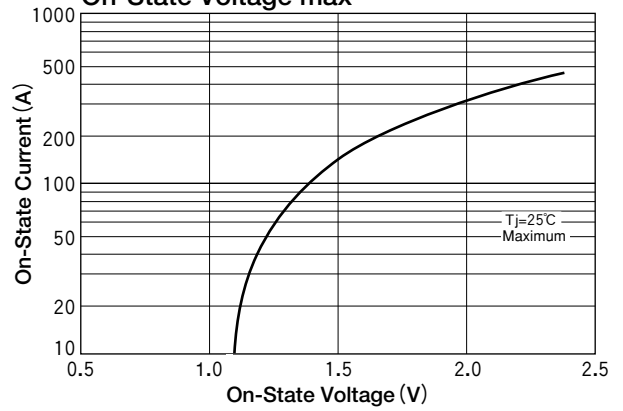
| Symbol | Item | Conditions | Ratings | Unit |
|---------------|--|--|---------|---------------------------|
| I_{DRM} | Repetitive Peak off-state Current,max | $T_j=125^\circ\text{C}$, $V_D=V_{DRM}$ | 15 | mA |
| I_{RRM} | * Repetitive Peak Reverse Current,max | $T_j=125^\circ\text{C}$, $V_D=V_{DRM}$ | 15 | mA |
| V_{TM} | * On-state Voltage,max | $I_T=165\text{A}$ | 1.6 | V |
| I_{GT} | Gate Trigger Current,max | $V_D=6\text{V}$, $I_T=1\text{A}$ | 50 | mA |
| V_{GT} | Gate Trigger Voltage,max | $V_D=6\text{V}$, $I_T=1\text{A}$ | 3 | V |
| V_{GD} | Gate Trigger Voltage,min | $T_j=125^\circ\text{C}$, $V_D=\frac{1}{2}V_{DRM}$ | 0.25 | V |
| dv/dt | Critical Rate of Rise of off-state Voltage,min | $T_j=125^\circ\text{C}$, $V_D=\frac{2}{3}V_{DRM}$ | 1000 | $\text{V}/\mu\text{s}$ |
| $R_{th(j-c)}$ | * Thermal Impedance,max | Junction to case | 0.5 | $^\circ\text{C}/\text{W}$ |

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

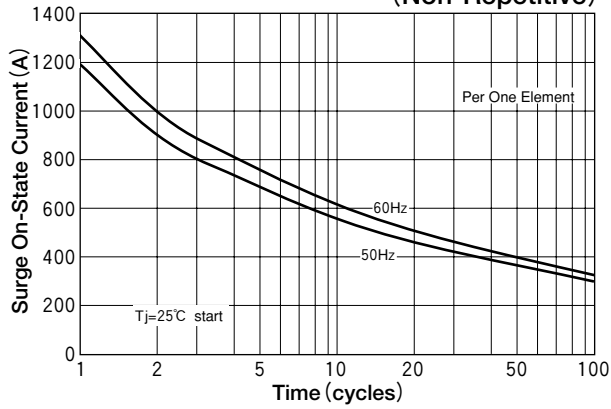
Gate Characteristics



On-State Voltage max



Surge On-State Current Rating (Non-Repetitive)



Transient Thermal Impedance

