ShinDengen

# KC5FB40H

## Thyristors
## 400V, 5A

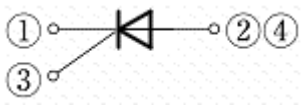
### Feature

- Small SMD
- tq guaranteed
- High Sensitivity
- Pb free terminal
- RoHS:Yes

### OUTLINE

**Package (House Name):** FB
**Package (JEDEC Code):** TO-252AA

### Equivalent circuit




### Absolute Maximum Ratings (unless otherwise specified : Tc=25℃)

| Item | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Storage temperrature | $T_{stg}$ | | -55 to 150 | ℃ |
| Junction temperature | Tj | | -40 to 125 | ℃ |
| non-Repetitive peak off-state voltage | $V_{DSM}$ | RGK=1KΩ | 500 | V |
| non-Repetitive peak reverse voltage | $V_{RSM}$ | RGK=1KΩ | 500 | V |
| Repetitive peak off-state voltage | $V_{DRM}$ | RGK=1KΩ | 400 | V |
| Repetitive peak reverse voltage | $V_{RRM}$ | RGK=1KΩ | 400 | V |
| Average on-state Current | $I_T$(AV) | Tc=101℃, 50Hz sine wave, θ=180° | 5 | A |
| On-state current (r.m.s.) | $I_T$(RMS) | Tc=101℃, 50Hz sine wave, θ=180° | 8 | A |
| Peak surge on-state current | $I_{TSM}$ | Tj=25℃, 50Hz sine wave, θ=180°, Non repetitive | 65 | A |
| Current squared time | $I^2t$ | Tj=25℃, 1ms≦t≦10ms, Non repetitive | 21 | $A^2s$ |
| Peak gate dissipation | $P_{FGM}$ | f≧50Hz, Duty≦10% | 2 | W |
| Average gate dissipation | $P_{FG}$(AV) | | 0.2 | W |
| Peak gate forward current | $I_{FGM}$ | f=50Hz, Duty≦10% | 1 | A |
| Peak gate reverse voltage | $V_{RGM}$ | | 6 | V |
| Critical rate of rise of on-state current | di/dt | | 50 | A/μs |

※ :See the original Specifications

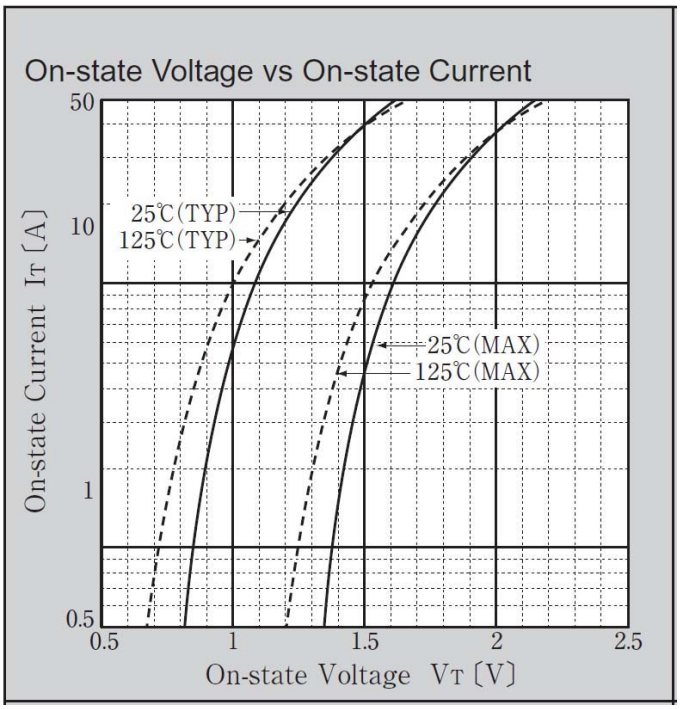
## Electrical Characteristics (unless otherwise specified : Tc=25°C)

| Item | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | MIN | TYP | MAX | |
| Repetitive off-state current | $I_{DRM}$ | VD=400V, RGK=1kΩ, Pulse measurement | | | 100 | μA |
| Repetitive reverse current | $I_{RRM}$ | VR=400V , RGK=1kΩ, Pulse measurement | | | 100 | μA |
| On-state voltage | $V_{TM}$ | ITM=10A, Pulse measurement | | | 1.6 | V |
| Gate trigger voltage | $V_{GT}$ | VD=6V, RL=100Ω | | | 0.8 | V |
| Gate trigger current | $I_{GT}$ | VD=6V, RL=100Ω | | | 200 | μA |
| Gate non-trigger voltage | $V_{GD}$ | Tj=125°C, VD=1/2VDRM, RGK=1kΩ | 0.2 | | | V |
| Holding Current | $I_H$ | ITM=10A, RGK=1kΩ | | 1 | | mA |
| Critical rate of rise of off-state voltage | dVD/dt | Tj=125°C, VD=2/3VDRM, RGK=1kΩ | | 1.75 | | V/μs |
| Turn-off time | tq | Tj=125°C, IT=3A, VR≧25V, di/dt=-15A/μs, VD=2/3VDRM, RGK=1kΩ | | 45 | | μs |
| Thermal Resistance | Rth(j-c) | Junction to case | | | 3 | °C/W |

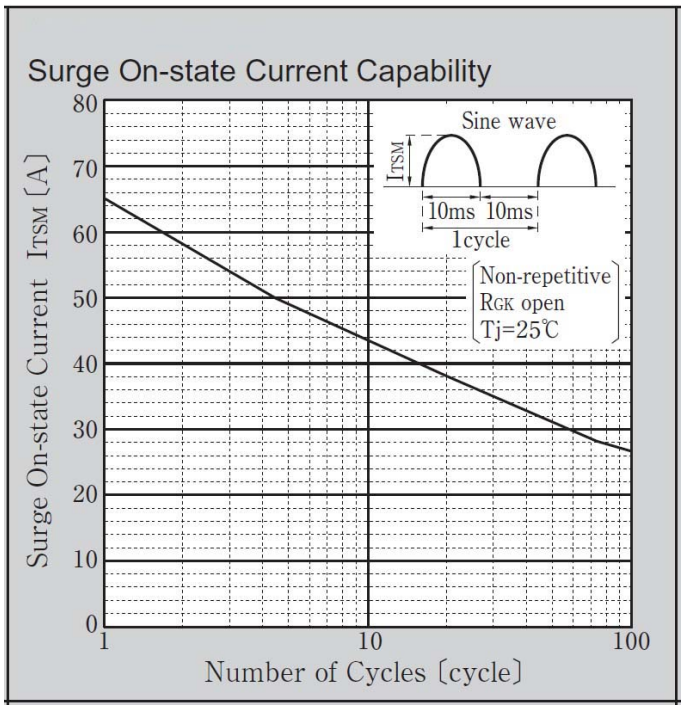
※ :See the original Specifications

## CHARACTERISTIC DIAGRAMS

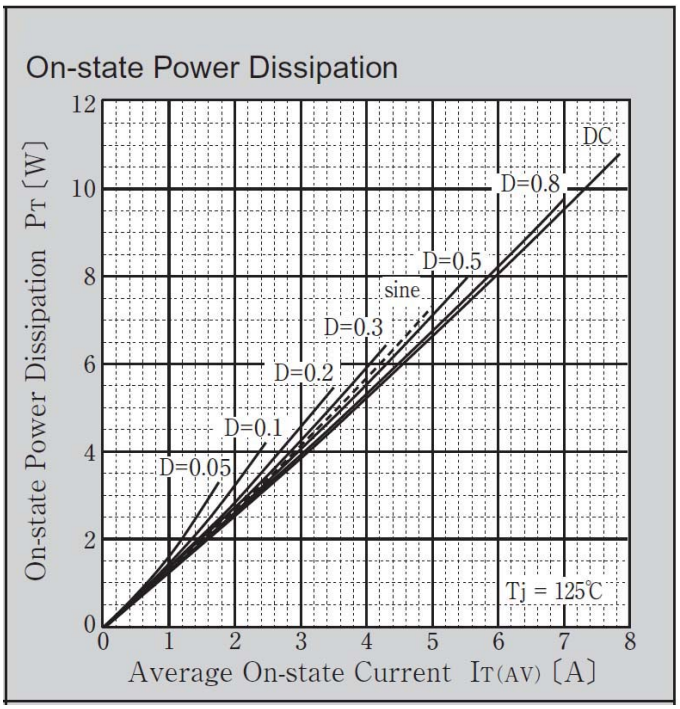
On-state Voltage vs On-state Current



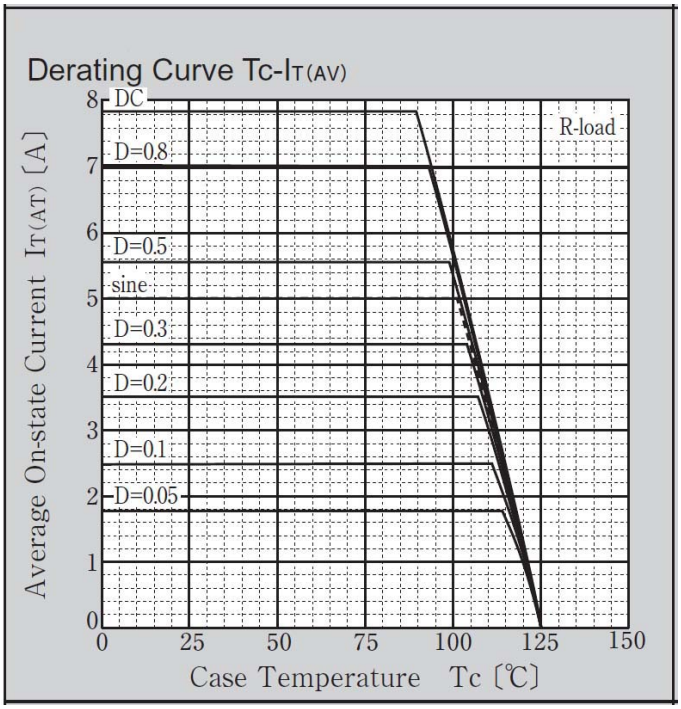

Surge On-state Current Capability



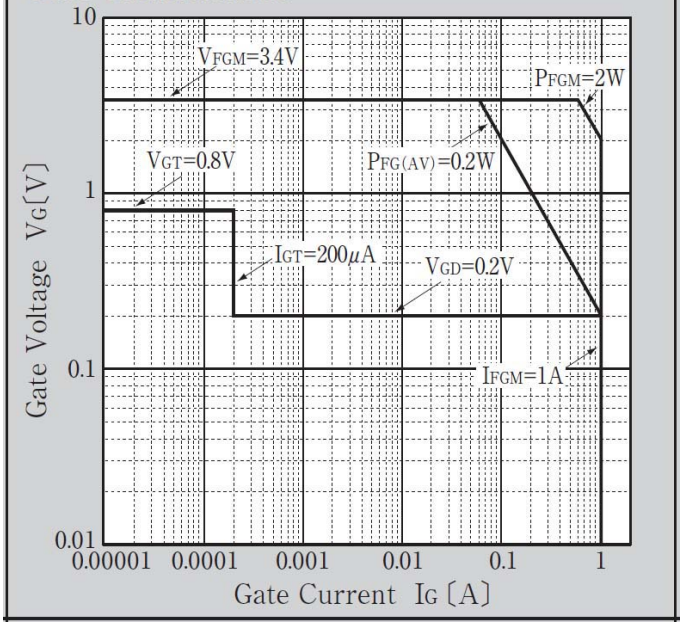

On-state Power Dissipation



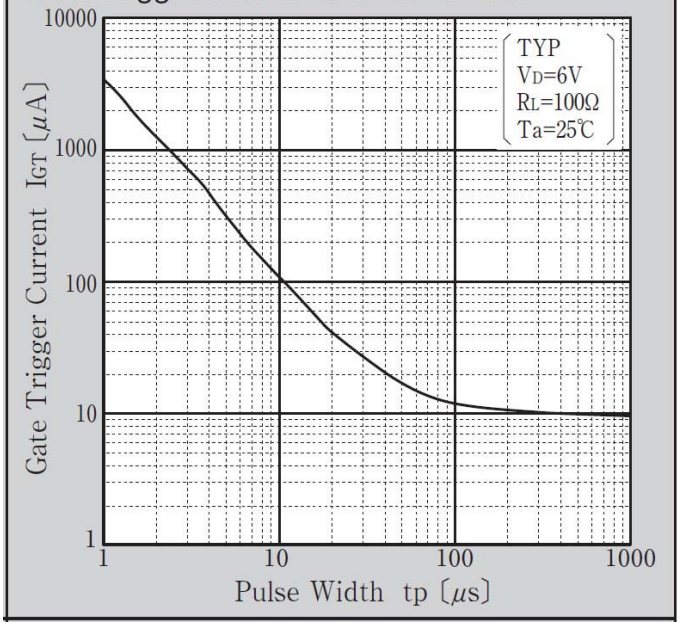

Derating Curve Tc-IT(AV)



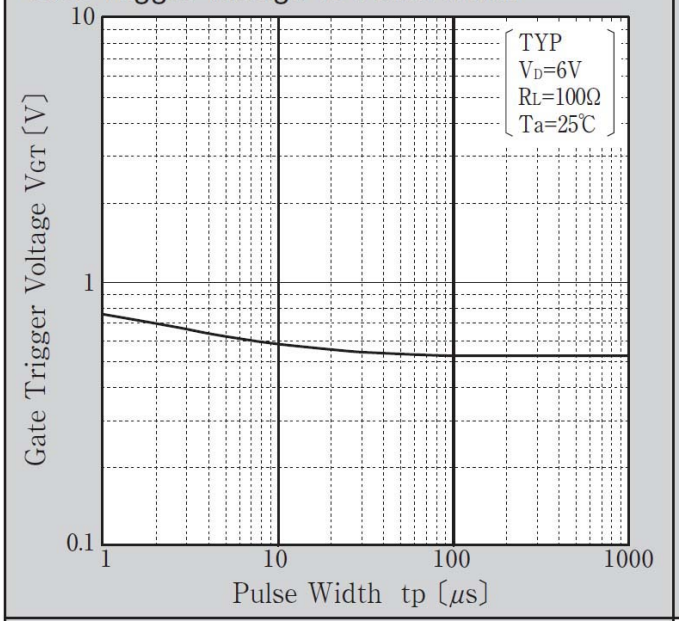
## Gate Characteristic



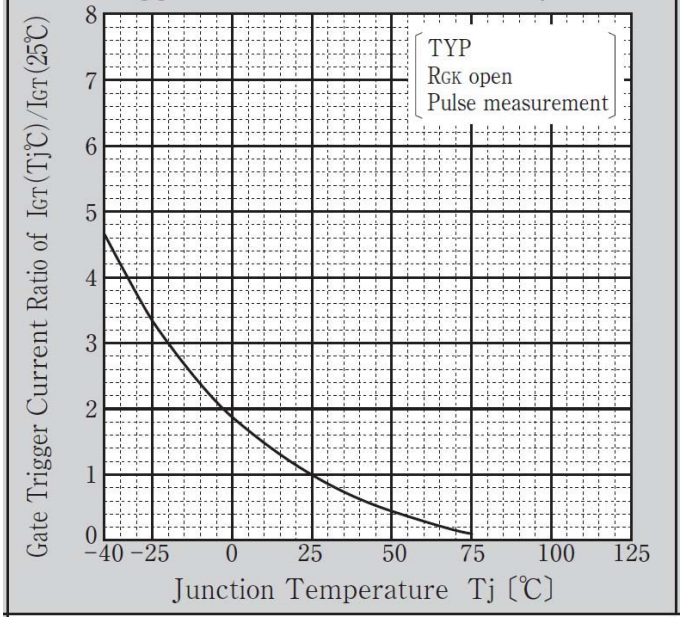

## Gate Trigger Current vs Pulse Width

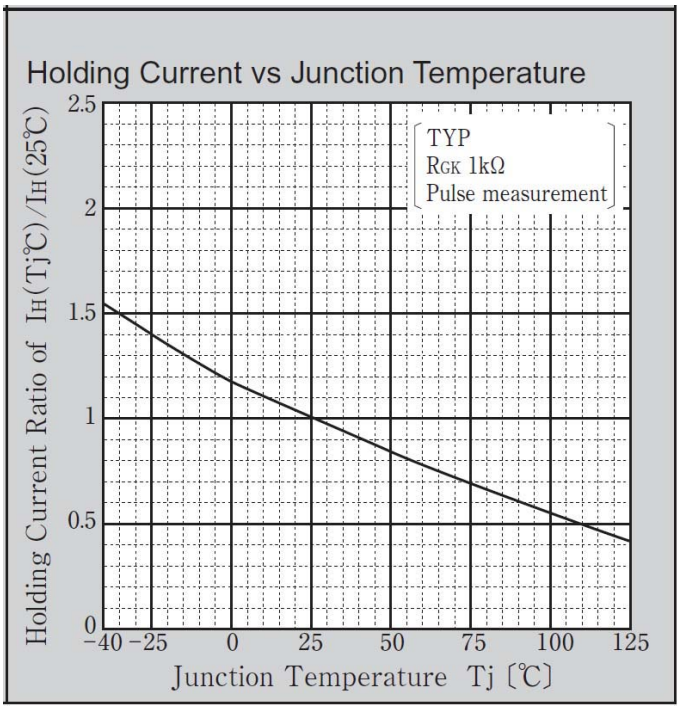


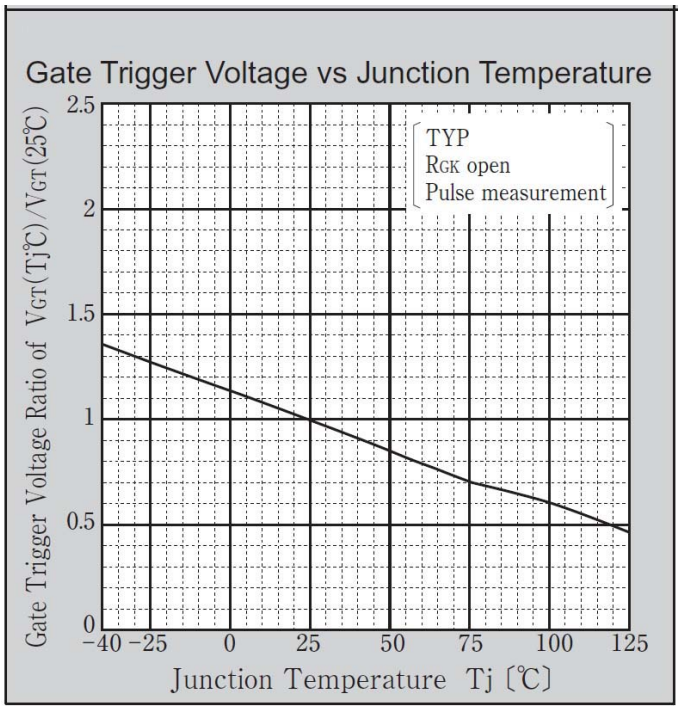

## Gate Trigger Voltage vs Pulse Width




## Gate Trigger Current vs Junction Temperature




Holding Current vs Junction Temperature
Holding Current Ratio of IH(Tj℃)/IH(25℃)
2.5
2
1.5
1
0.5
0
−40 −25 0 25 50 75 100 125
Junction Temperature Tj〔℃〕
TYP
RGK 1kΩ
Pulse measurement


Gate Trigger Voltage vs Junction Temperature
Gate Trigger Voltage Ratio of VGT(Tj℃)/VGT(25℃)
2.5
2
1.5
1
0.5
0
−40 −25 0 25 50 75 100 125
Junction Temperature Tj〔℃〕
TYP
RGK open
Pulse measurement

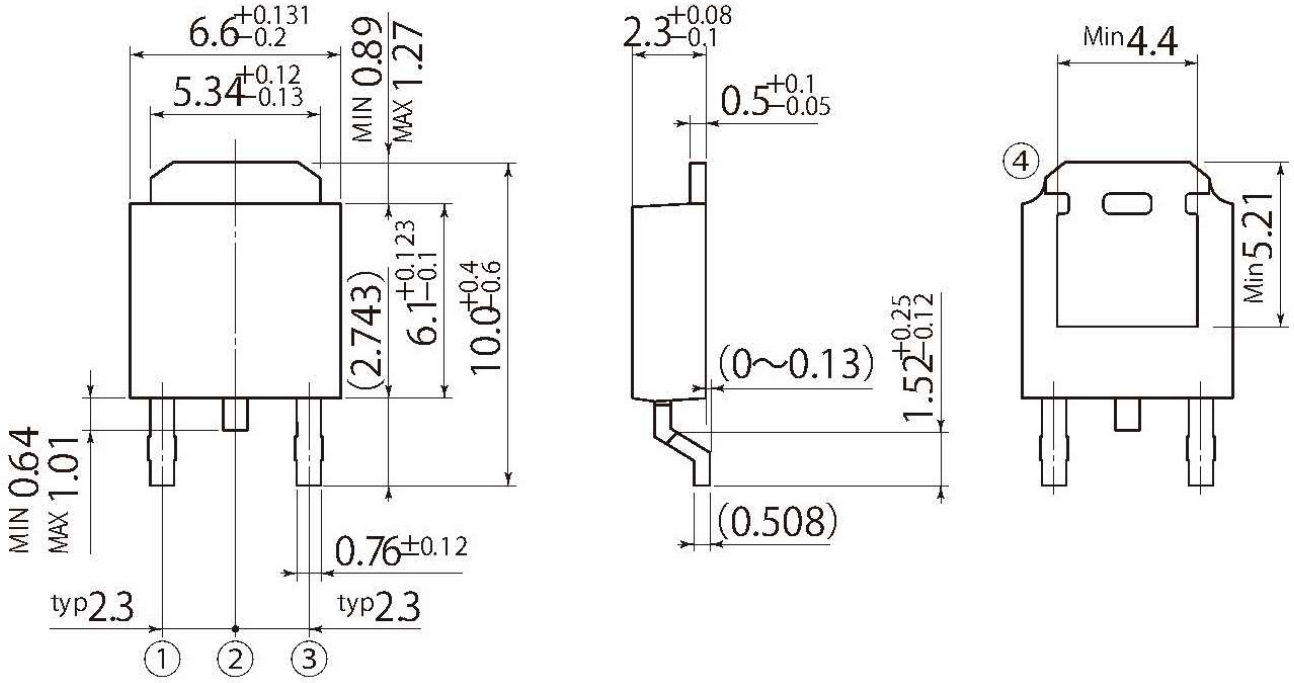
## Outline Dimensions

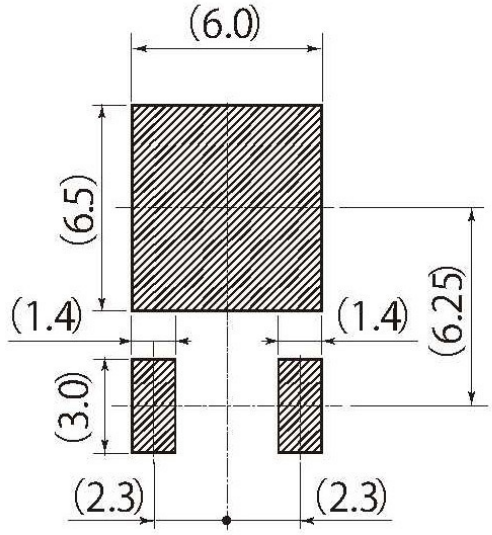
unit:mm

scale: 4/1

G2

| | |
|---|---|
| JEDEC Code | TO-252AA |
| JEITA Code | – |
| House Name | FB |




Referential Soldering Pad

• Optimize soldering pad to the board design and soldering condition.

## Notes

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