

TOSHIBA Thyristor Silicon Planar Type

SF5G49,SF5J49,USF5G49,USF5J49

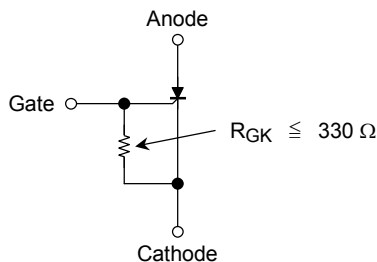
Medium Power Control Applications

- Repetitive peak off-state voltage: $V_{DRM} = 400, 600$ V
Repetitive peak reverse voltage: $V_{RRM} = 400, 600$ V
- Average on-state current: $I_T (AV) = 5$ A
- Gate trigger current: $I_{GT} = 70 \mu\text{A}$ max

Maximum Ratings

| Characteristics | Symbol | Rating | Unit |
|---|-------------------|------------|----------------------|
| Repetitive peak off-state voltage and Repetitive peak reverse voltage ($R_{GK} = 330 \Omega$) | SF5G49 USF5G49 | 400 | V |
| | SF5J49 USF5J49 | 600 | |
| Non-repetitive peak reverse voltage (non-repetitive < 5 ms, $T_j = 0\sim 125^\circ\text{C}$, $R_{GK} = 330 \Omega$) | SF5G49 USF5G49 | 500 | V |
| | SF5J49 USF5J49 | 720 | |
| Average on-state current | $I_T (AV)$ | 5 | A |
| R.M.S on-state current | $I_T (RMS)$ | 7.8 | A |
| Peak one cycle surge on-state current (non-repetitive) | I_{TSM} | 65 (50 Hz) | A |
| I^2t limit value | I^2t | 20 | A^2s |
| Peak gate power dissipation | P_{GM} | 0.5 | W |
| Average gate power dissipation | $P_G (AV)$ | 0.05 | W |
| Peak forward gate voltage | V_{FGM} | 5 | V |
| Peak reverse gate voltage | V_{RGM} | -5 | V |
| Peak forward gate current | I_{GM} | 200 | mA |
| Junction temperature | T_j | -40~125 | $^\circ\text{C}$ |
| Storage temperature range | T_{stg} | -40~125 | $^\circ\text{C}$ |

Note: Should be used with gate resistance as follows:



Unit: mm

| SF5G49 SF5J49 | |
|----------------------|---------|
| | |
| 1. CATHODE | |
| 2. ANODE (HEAT SINK) | |
| 3. GATE | |
| JEDEC | — |
| JEITA | — |
| TOSHIBA | 13-7F1A |

Weight: 0.36 g (typ.)

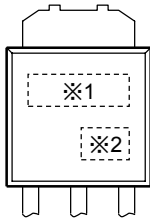
| USF5G49 USF5J49 | |
|----------------------|--------|
| | |
| 1. CATHODE | |
| 2. ANODE (BACK SIDE) | |
| 3. GATE | |
| JEDEC | — |
| JEITA | — |
| TOSHIBA | 13-F2A |

Weight: 0.28 g (typ.)

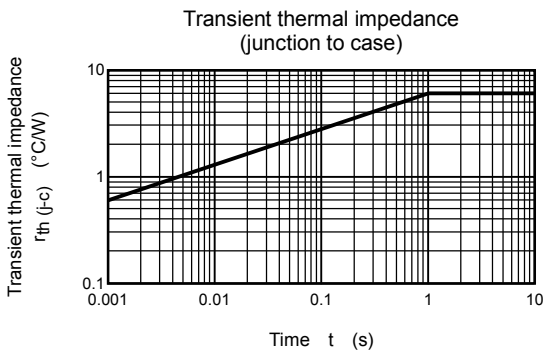
Electrical Characteristics (Ta = 25°C)

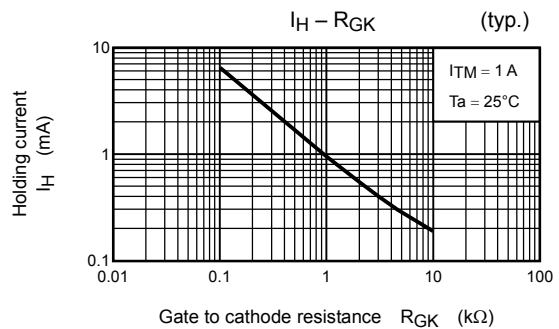
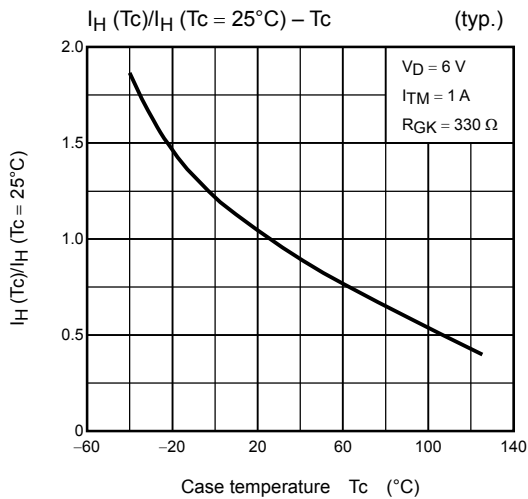
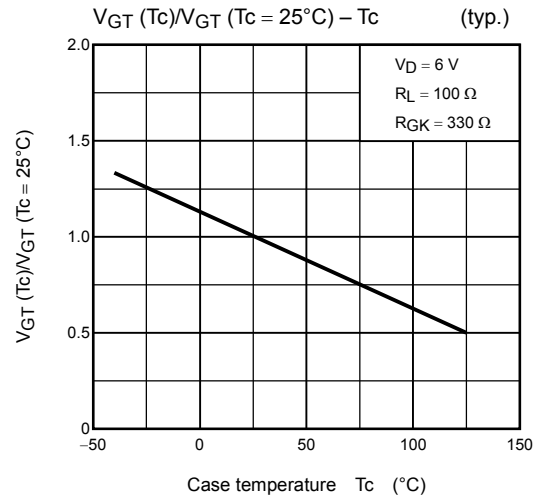
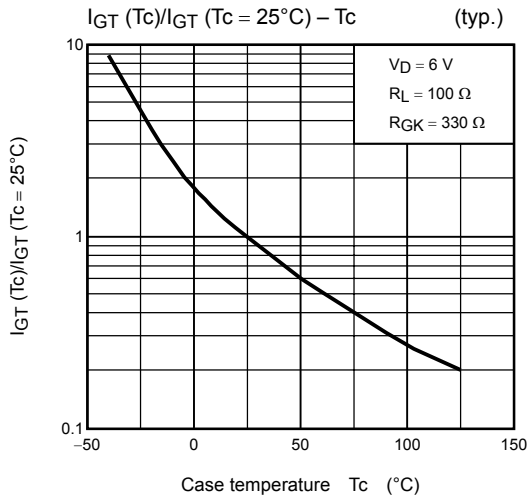
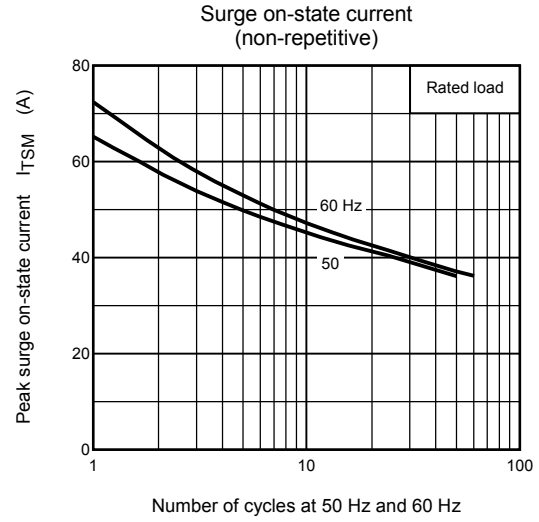
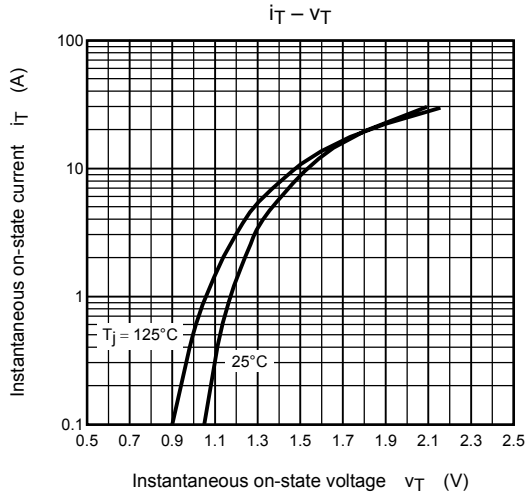
| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|------------------------|---|-----|------|-----|--------------------|
| Repetitive peak off-state current and Repetitive peak reverse current | I_{DRM} I_{RRM} | $V_{DRM} = V_{RRM} = \text{Rated}$ $R_{GK} = 330 \Omega$ | — | — | 20 | μA |
| Peak on-state voltage | V_{TM} | $I_{TM} = 12 \text{ A}$ | — | — | 1.6 | V |
| Gate trigger voltage | V_{GT} | $V_D = 6 \text{ V}, R_L = 100 \Omega$ $R_{GK} = 330 \Omega$ | — | — | 0.8 | V |
| Gate trigger current | I_{GT} | | 3 | — | 70 | μA |
| Gate non-trigger voltage | V_{GD} | $V_D = \text{Rated} \times 2/3, T_c = 125^\circ\text{C}$ | 0.2 | — | — | V |
| Critical rate of rise of off-state voltage | dv/dt | $V_{DRM} = \text{Rated} \times 2/3, T_c = 75^\circ\text{C}$ $R_{GK} = 330 \Omega, \text{Exponential rise}$ | — | 50 | — | V/ μs |
| Holding current | I_H | $R_L = 100 \Omega, R_{GK} = 330 \Omega$ | — | 2.5 | — | mA |
| Thermal resistance (junction to case) | $R_{th(j-c)}$ | DC | — | — | 6.0 | $^\circ\text{C/W}$ |

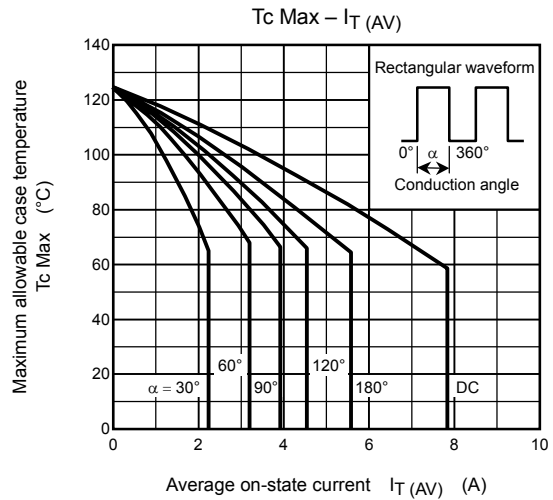
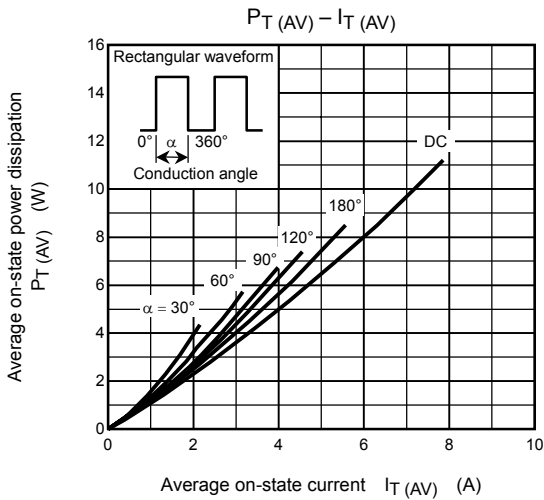
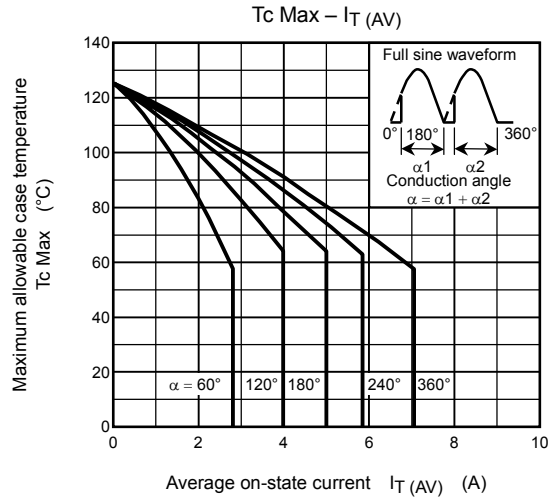
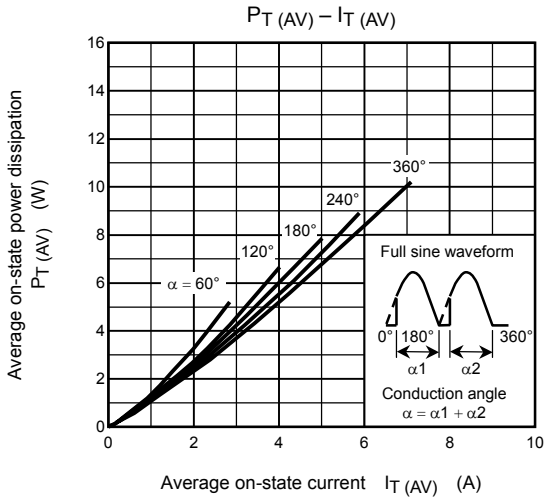
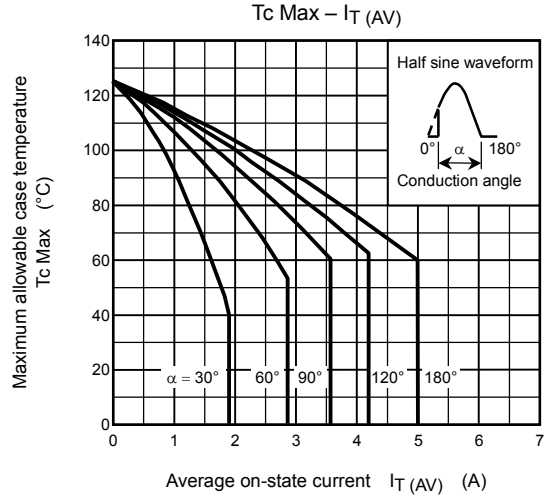
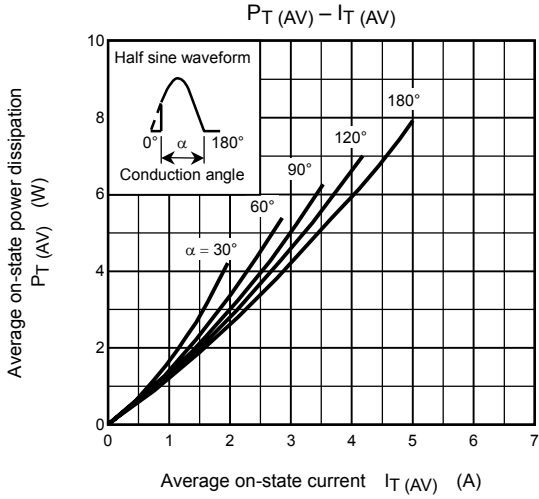
Marking

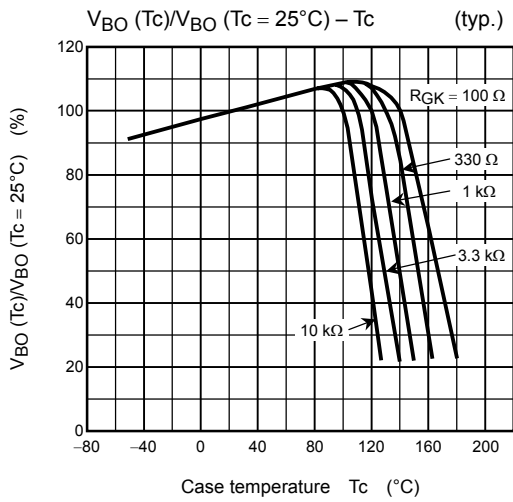
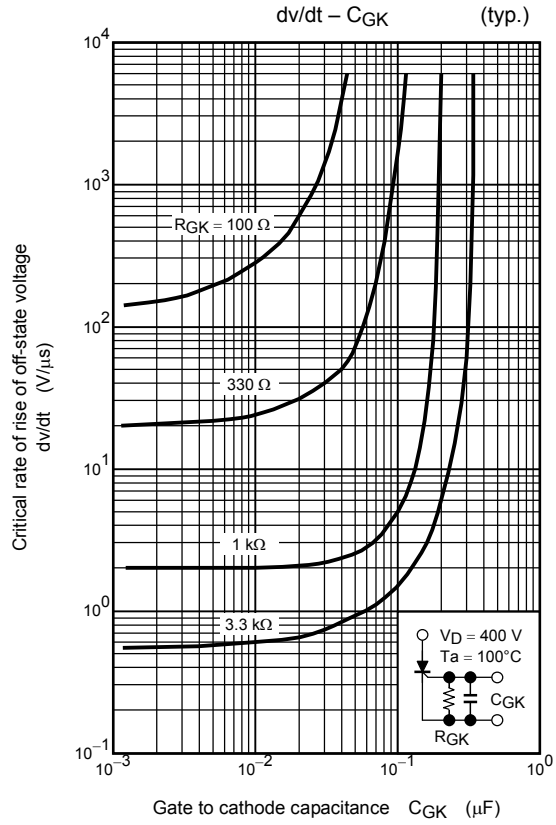
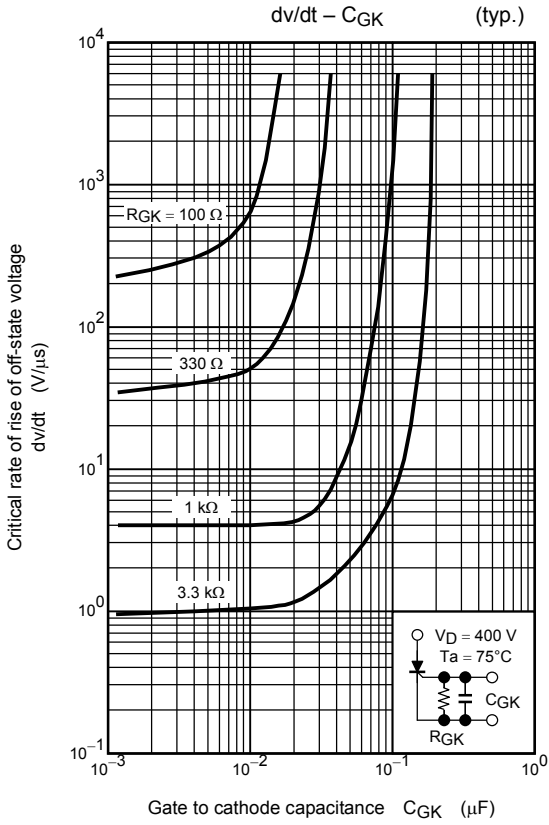


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|----|---|-------|-----------|-----------------|
| ※1 | Mark | F5G49 | Type Name | SF5G49, USF5G49 |
| | | F5J49 | | SF5J49, USF5J49 |
| ※2 | Lot Number Month (starting from alphabet A) Year (last decimal digit of the current year) | | | |









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