Ordering number: EN 4732

SANYO No.4732

# DTN12

Silicon Diffused Junction Type

## 12A Bidirectional Thyristor

### Features

- AC power control.
- Peak OFF-state voltage : 400, 600V.
- RMS ON-state current : 12A.

### Absolute Maximum Ratings at Ta = 25°C

| | | | DTN12E | DTN12G | unit |
|---|---|---|---|---|---|
| Repetitive Peak OFF-State Voltage | $V_{DRM}$ | | 400 | 600 | V |
| RMS ON-State Current | $I_{T(RMS)}$ | Single-phase full-wave, Tc = 72°C | → | 12 | A |
| Surge ON-State Current | $I_{TSM}$ | Peak 1 cycle, 50Hz | → | 120 | A |
| Amperes Squared-Seconds | $SiT^2 \cdot dt$ | 1ms ≦ t ≦ 10ms | → | 72 | $A^2S$ |
| Critical Rate of Rise of ON-State Current | diT/dt | | → | 50 | A/μs |
| Peak Gate Power Dissipation | $P_{GM}$ | | → | 5 | W |
| Average Gate Power Dissipation | $P_{G(AV)}$ | | → | 0.5 | W |
| Peak Gate Forward Current | $I_{GM}$ | | → | ±2 | A |
| Peak Gate Forward Voltage | $V_{GM}$ | | → | ±10 | V |
| Junction Temperature | Tj | | → | 125 | °C |
| Storage Temperature | Tstg | | → | −40 to +125 | °C |
| Weight | | | → | 1.7 | g |

### Electrical Characteristics at Ta = 25°C

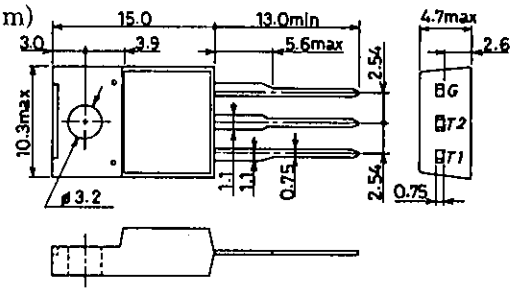
| | | | min | typ | max | unit |
|---|---|---|---|---|---|---|
| Repetitive Peak OFF-State Current | $I_{DRM}$ | $V_D = V_{DRM}$ | | | 20 | μA |
| Peak ON-State Voltage | $V_{TM}$ | $I_{TM}$ = 17A | | | 1.5 | V |
| Critical Rate of Rise of Commutating OFF-State Voltage | (dv/dt)c | $V_D$ = 400V, Tj = 125°C | 4 | | | V/μs |
| Holding Current | $I_H$ | $I_{TM}$ = 1A, $V_D$ = 12V | | | 50 | mA |
| Gate · Trigger Current ※(Ⅰ) | $I_{GT}$ | $V_D$ = 12V, $R_L$ = 20Ω | | | 20 | mA |
| " (Ⅱ) | $I_{GT}$ | $V_D$ = 12V, $R_L$ = 20Ω | | | 20 | mA |
| " (Ⅲ) | $I_{GT}$ | $V_D$ = 12V, $R_L$ = 20Ω | | 30 | | mA |
| " (Ⅳ) | $I_{GT}$ | $V_D$ = 12V, $R_L$ = 20Ω | | | 20 | mA |
| Gate · Trigger Voltage ※(Ⅰ) | $V_{GT}$ | $V_D$ = 12V, $R_L$ = 20Ω | | | 1.5 | V |
| " (Ⅱ) | $V_{GT}$ | $V_D$ = 12V, $R_L$ = 20Ω | | | 1.5 | V |
| " (Ⅲ) | $V_{GT}$ | $V_D$ = 12V, $R_L$ = 20Ω | | 1.0 | | V |
| " (Ⅳ) | $V_{GT}$ | $V_D$ = 12V, $R_L$ = 20Ω | | | 1.5 | V |
| Gate · Nontrigger Voltage | $V_{GD}$ | Tc = 125°C, $V_D = V_{DRM}$ | 0.2 | | | V |
| Thermal Resistance | Rth(j-c) | AC | | | 3.0 | °C/W |

※ : The gate trigger modes are shown below.

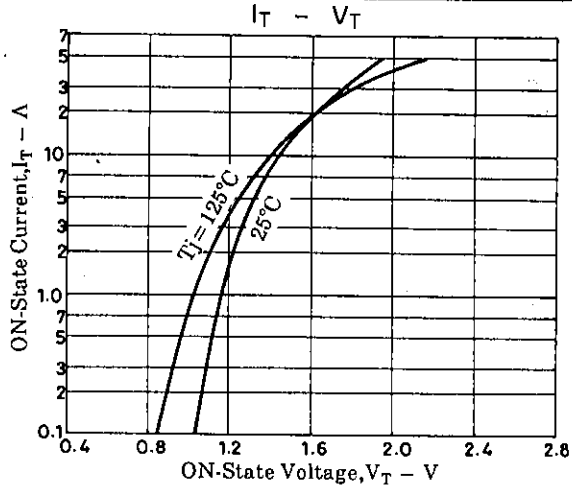
| Trigger mode | T2 | T1 | G |
|---|---|---|---|
| Ⅰ | + | − | + |
| Ⅱ | + | − | − |
| Ⅲ | − | + | + |
| Ⅳ | − | + | − |

### Package Dimensions 1263

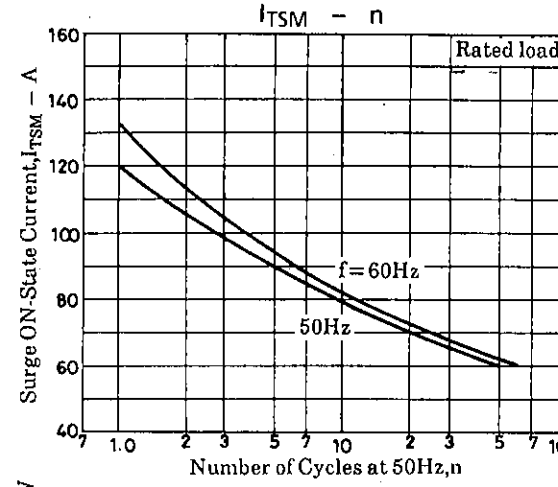
(unit : mm)



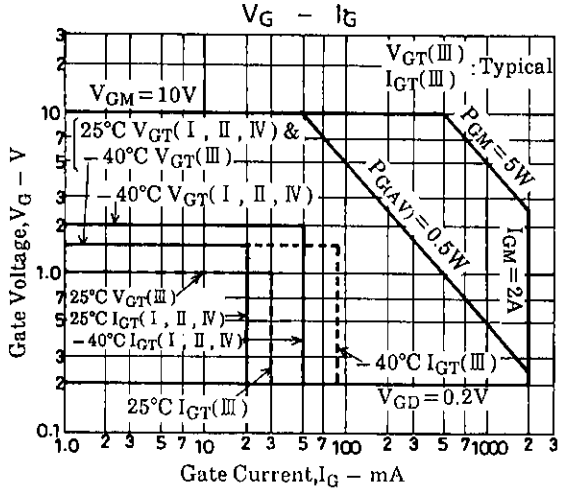
$I_T - V_T$



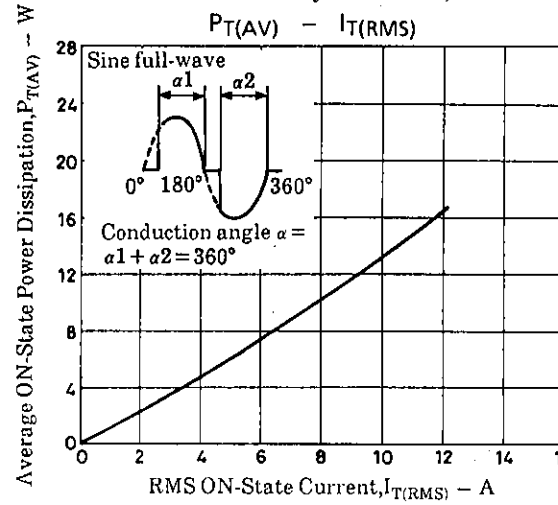

$I_{TSM} - n$



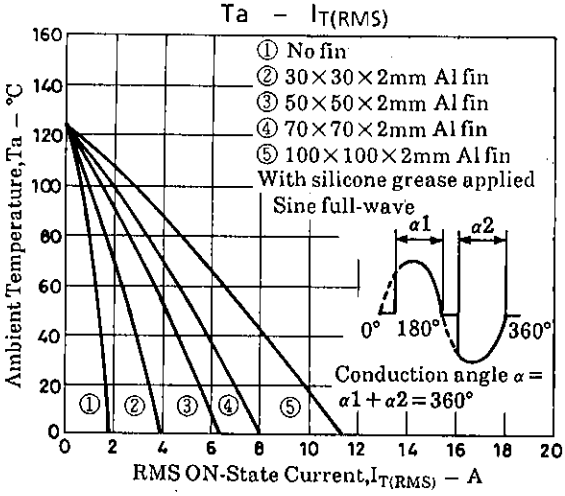

$V_G - I_G$



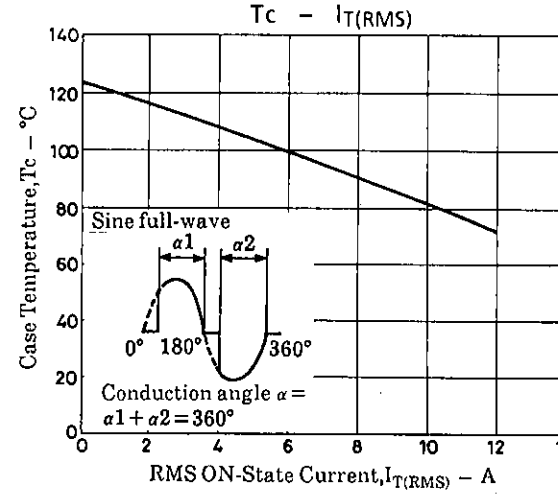

$P_{T(AV)} - I_{T(RMS)}$



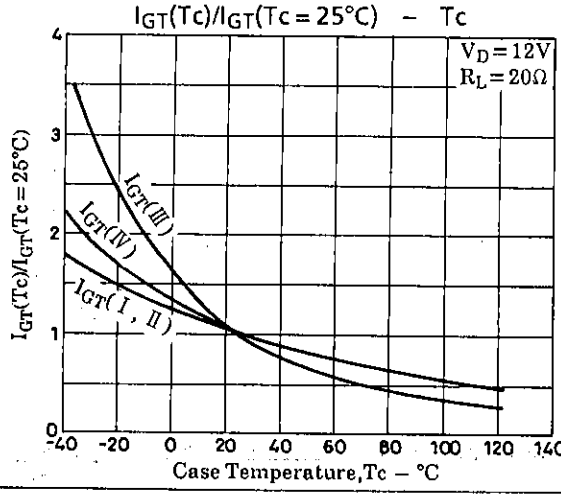

$Ta - I_{T(RMS)}$



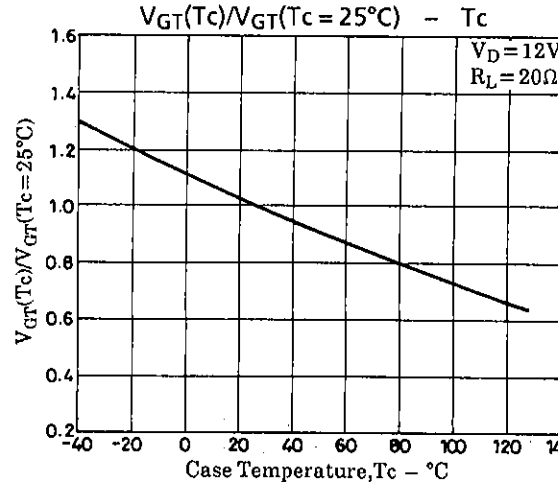

$Tc - I_{T(RMS)}$

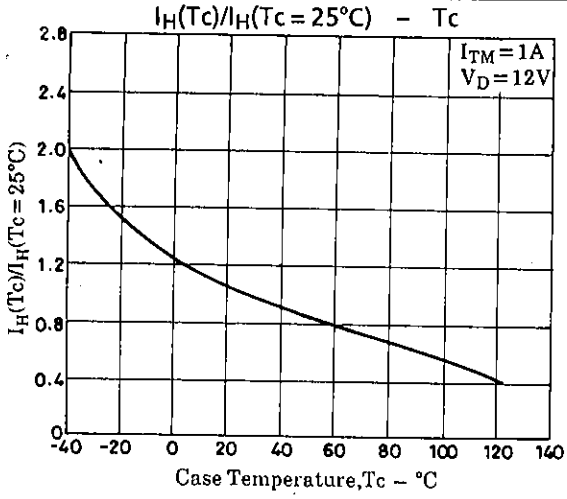


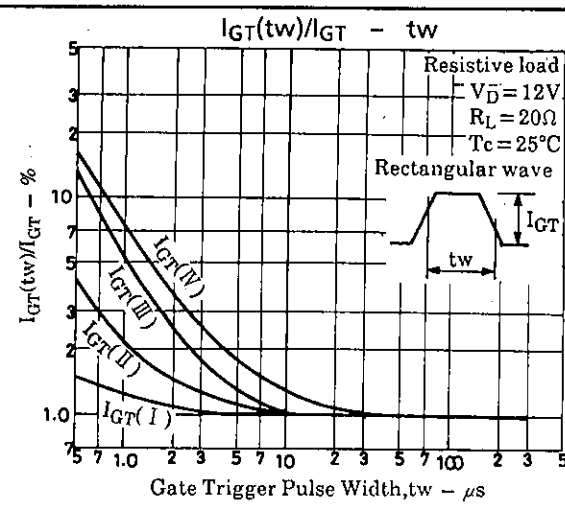

$I_{GT}(Tc)/I_{GT}(Tc=25°C) - Tc$

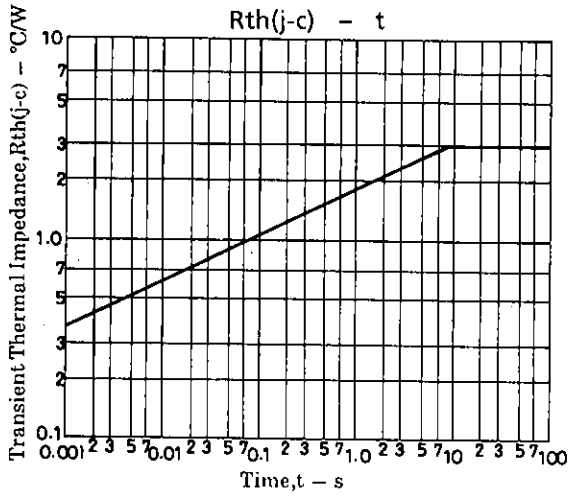



$V_{GT}(Tc)/V_{GT}(Tc=25°C) - Tc$






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