

16 A MOLD ISOLATED TRIAC

DESCRIPTION

The AC16[]SM and AC16[]SMA are all diffused mold type triac granted RMS On-state current 16 Amps, with rated volt-ages up to 600 volts.

FEATURES

- Isolated plastic package (Modified TO-220AB)
- 150 A Surge current

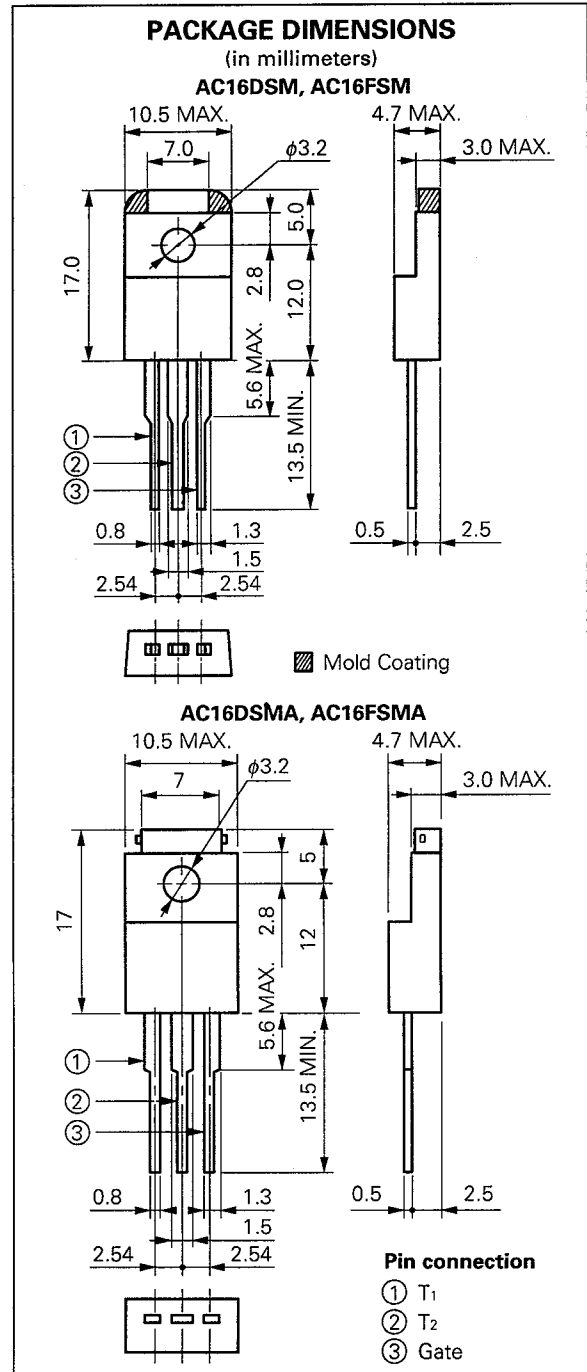
QUALITY GRADE

Standard

Please refer to "Quality grade on NEC Semiconductor Devices" (Document number IEI-1209) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

APPLICATIONS

- Motor speed control
- Lamp dimmer, Temperature controllers
- Various solid state switches, etc.



Phase-out/Discontinued

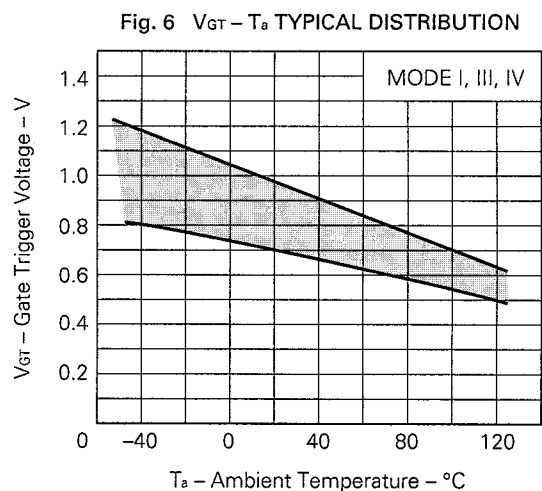
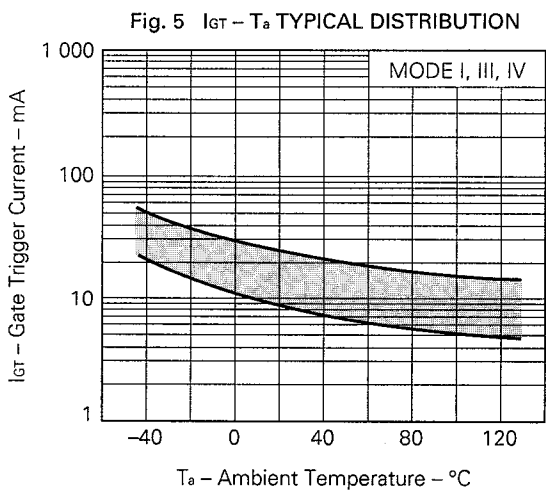
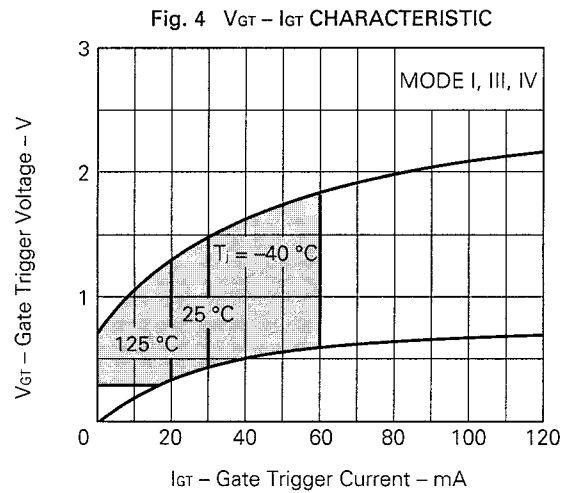
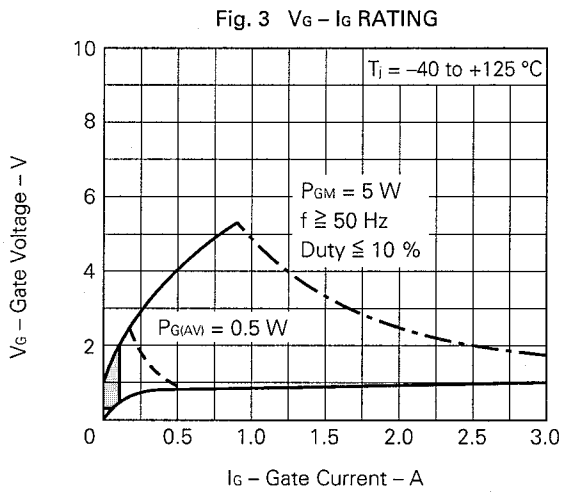
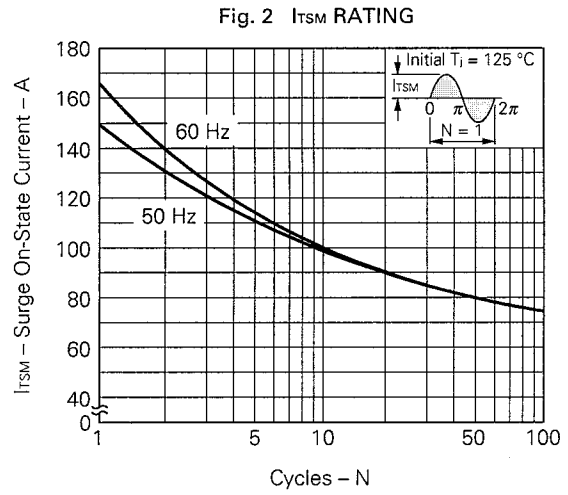
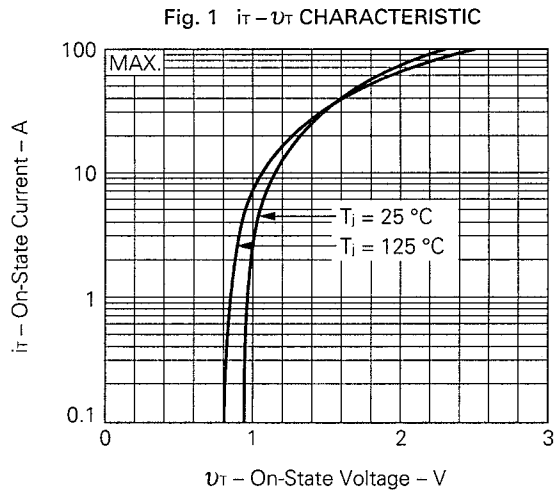
ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

| CHARACTERISTIC | SYMBOL | AC16DSM, AC16DSMA | AC16FSM, AC16FSMA | UNIT | NOTE |
|---------------------------------|---------------------|-----------------------------|-------------------|------------------|----------------------------|
| Repetitive Peak-off Voltage | V _{DRM} | 400 | 600 | V | |
| Non-Repetitive Peak-Off Voltage | V _{DSM} | 500 | 700 | V | |
| RMS On-state Current | I _{T(RMS)} | 16 (T _c = 68 °C) | | A | See Fig. 11 |
| Surge On-state Current | I _{TSM} | 150 (50 Hz Non-repetitive) | | A | See Fig. 2 |
| Fusing Current | $\int i^2 dt$ | 100 (1 ms ≤ t ≤ 10 ms) | | A ² s | |
| Peak Gate Power Dissipation | P _{GM} | 5 | | W | See Fig. 3 |
| Average Gate Power Dissipation | P _{G(AV)} | 0.5 | | W | |
| Peak Gate Current | I _{GM} | ±3 | | A | |
| Junction Temperature | T _j | -40 to +125 | | °C | |
| Storage Temperature | T _{stg} | -55 to +150 | | °C | |
| Isolation Voltage | - | 1500 (AC 1 min) | | V _{RMS} | Only AC16 ₁ DSM |

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

| CHARACTERISTIC | SYMBOL | TEST CONDITIONS | MIN. | TYP. | MAX. | UNIT | NOTE | |
|--|----------------------|---|-------------------------|------|------|------|-------------|------------------|
| Peak Off-State Current | I _{DRM} | V _{DM} = V _{DRM} | T _j = 25 °C | - | - | 0.1 | mA | - |
| | | | T _j = 125 °C | - | - | 2 | | |
| On-State Voltage | V _{TM} | I _{TM} = 25 A | - | - | 1.4 | V | See Fig. 1 | |
| Critical Rate of Rise of Off-state Voltage | dv/dt | T _j = 125 °C V _{DM} = 2/3 V _{DRM} | - | 100 | - | V/μs | - | |
| DC Gate Trigger Current | I | V _{DM} = 12 V, R _L = 30 Ω | T ₂ +, G+ | - | - | 30 | mA | See Fig. 4, 5, 7 |
| | II | | T ₂ -, G+ | - | - | - | | |
| | III | | T ₂ -, G- | - | - | 30 | | |
| | IV | | T ₂ +, G- | - | - | 30 | | |
| DC Gate Trigger Voltage | I | V _{DM} = 12 V, R _L = 30 Ω | T ₂ +, G+ | - | - | 1.5 | V | See Fig. 4, 6, 8 |
| | II | | T ₂ -, G+ | - | - | - | | |
| | III | | T ₂ -, G- | - | - | 1.5 | | |
| | IV | | T ₂ +, G- | - | - | 1.5 | | |
| Gate Non-Trigger Voltage | V _{GD} | T _j = 125 °C, V _{DM} = 1/2 V _{DRM} | 0.3 | - | - | V | - | |
| DC Holding Current | I _H | V _{DM} = 24 V, I _{TM} = 20 A | - | 30 | - | mA | See Fig. 9 | |
| Critical Rate of Rise of Commutating Off-State Voltage | (dv/dt) _c | T _j = 125 °C, I _{TM} = 22 A (di _T /dt) _c = -8 A/ms V _D = 400 V | 10 | - | - | V/μs | | |
| Thermal Resistance | R _{th(j-c)} | Junction to Case | - | - | 3.3 | °C/W | See Fig. 13 | |
| | R _{th(j-a)} | Junction to Ambient | - | - | 60 | °C/W | | |

TYPICAL CHARACTERISTICS ($T_a = 25\text{ }^\circ\text{C}$)



Phase-out/Discontinued

Fig. 7 $i_{GT} - \tau$ TYPICAL DISTRIBUTION

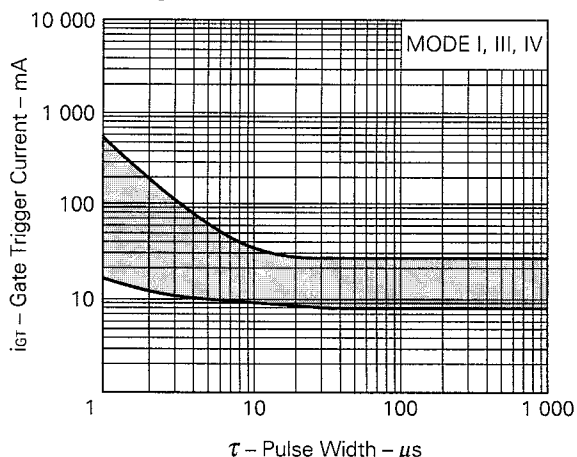


Fig. 8 $v_{GT} - \tau$ TYPICAL DISTRIBUTION

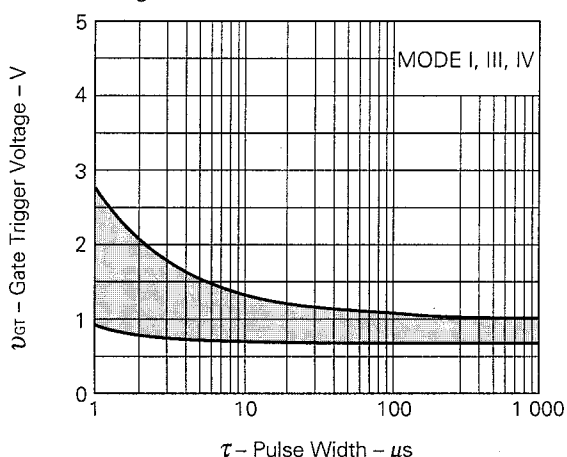


Fig. 9 $I_H - T_a$ TYPICAL DISTRIBUTION

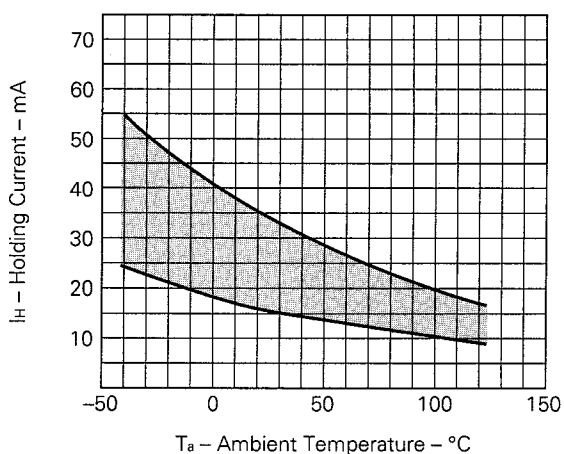


Fig. 10 $P_{T(AV)} - I_{T(RMS)}$ CHARACTERISTIC

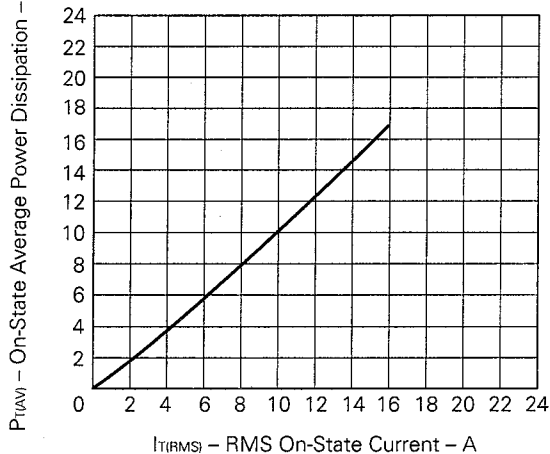


Fig. 11 $T_c - I_{T(RMS)}$ RATING

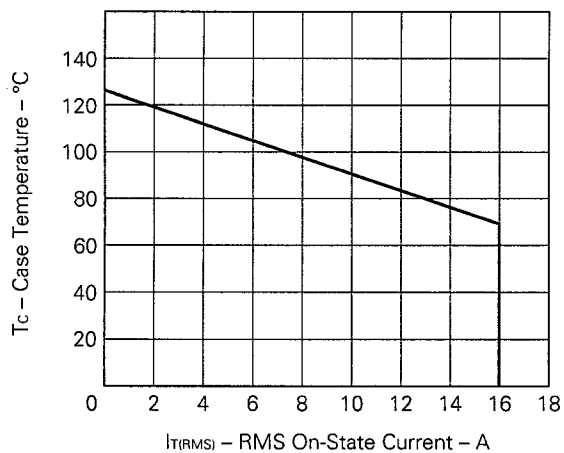
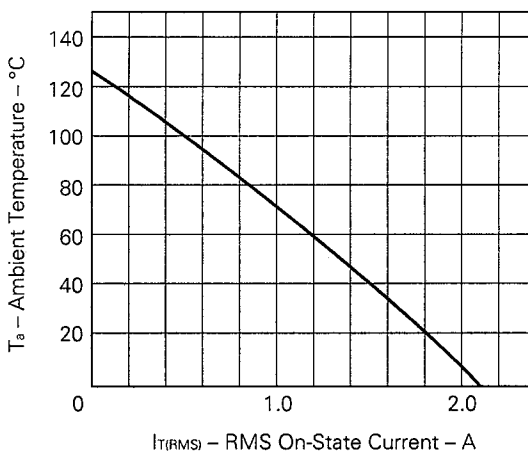
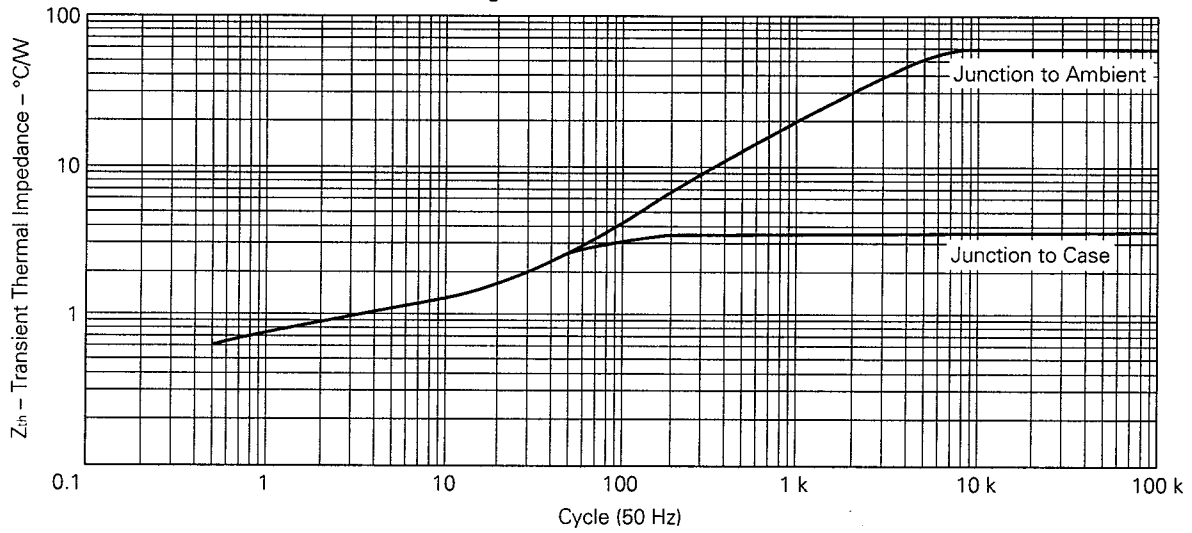


Fig. 12 $T_a - I_{T(RMS)}$ RATING



Phase-out/Discontinued

Fig. 13 Z_{th} CHARACTERISTIC



REFERENCE

| Document name | Document No. |
|--|--------------|
| Quality control guide of semiconductor devices | MEI-1202 |
| Assembly manual of semiconductor devices | IEI-1207 |

[MEMO]

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