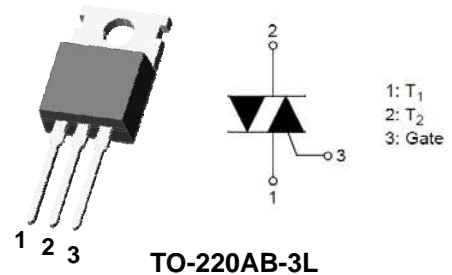


600V, 16A STANDARD TRIAC

This device is suitable for low power AC switching application, phase control application such as fan speed and temperature modulation control, lighting control and static switching relay.



Features

- Repetitive Peak Off-State Voltage : $V_{DRM}=600V$
- R.M.S On-State Current : $I_{T(RMS)}=16A$
- Gate trigger current : $I_{GT}=35mA$ max (Mode I - II - III)
- High Commutation: $(di/dt)_C = 8.0A/ms$ (Min)

Applications

- Switching mode power supply, light dimmet
- TV sets, stereo, refrigerator, washing machine
- Electric blanket, solenoid driver, small motor control
- Photo copier, electric tool

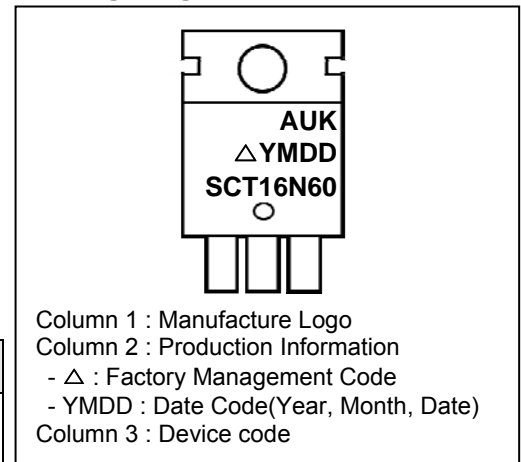
Ordering Information

| Device | Marking Code | Package | Packaging |
|------------------|-----------------|--------------------|------------------------|
| SCT16N60P | SCT16N60 | TO-220AB-3L | 50 Units / Tube |

Product Characteristics

| Symbol | Rating |
|--------------|--------|
| $I_{T(RMS)}$ | 16A |
| V_{DRM} | 600V |

Marking Diagram



Absolute Maximum Ratings (Limiting Values)

| Characteristic | Symbol | Value | Unit |
|--|--------------|-------------|------------------|
| Repetitive Peak Off-state Voltage | V_{DRM} | 600 | V |
| RMS on-state current (full sine wave) | $I_{T(RMS)}$ | 16 | A |
| Non- repetitive surge peak on-state current (full cycle, T_j initial = 25°C) | I_{TSM} | 168 | A |
| I^2t Value for fusing | I^2t | 144 | A ² s |
| Peak gate current | I_{GM} | 4 | A |
| Peak gate power dissipation | P_{GM} | 5 | W |
| Average gate peak dissipation | $P_{G(AV)}$ | 1 | W |
| Storage temperature range | T_{stg} | -40 to +150 | °C |
| Operating junction temperature range | T_j | -40 to +125 | °C |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---------------|-------|---------------|
| Maximum thermal resistance junction to case (AC) | $R_{th(j-c)}$ | 2.0 | $^{\circ}C/W$ |
| Maximum thermal resistance junction to ambient (AC) | $R_{th(j-a)}$ | 60 | $^{\circ}C/W$ |

Electrical Characteristics ($T_J=25^{\circ}C$, unless otherwise specified)

Off Characteristics

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|-----------------------------------|-----------|-----------------|------|------|------|---------|
| Repetitive peak Off-state current | I_{DRM} | $V_D = V_{DRM}$ | - | - | 5 | μA |
| Repetitive peak reverse current | I_{RRM} | $V_R = V_{RRM}$ | - | - | 5 | μA |

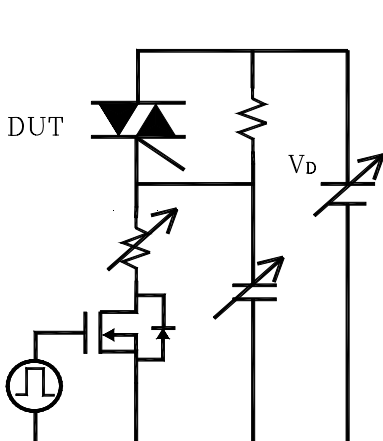
On Characteristics

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------|-------------------------|-----------------------------------|------|------|------|------|
| Peak On-state voltage | V_{TM} | $I_T = 10A$ | - | - | 1.55 | V |
| Holding current | I_H | $V_D = 6V, I_T = 0.5A$ | - | - | 50 | mA |
| Gate trigger current | $I_{GT} (I - II - III)$ | $V_D = 6V, R_L = 10\Omega$ | - | - | 35 | mA |
| | $I_{GT} (IV)$ | - | - | - | - | mA |
| Gate trigger voltage | $V_{GT} (I - II - III)$ | $V_D = 6V, R_L = 10\Omega$ | - | - | 1.3 | V |
| Gate Non-trigger voltage | V_{GD} | $V_D = V_{DRM}, T_J=125^{\circ}C$ | 0.2 | - | - | V |

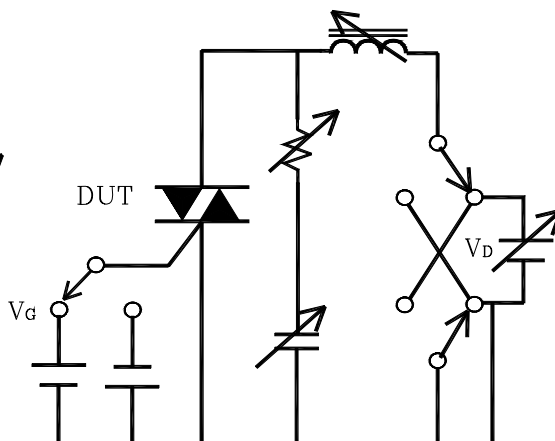
Dynamic Characteristics

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--|-------------|---|------|------|------|-----------|
| Critical rate of rise of Off-state Voltage | $(dV/dt)_s$ | $V_D = 2/3 V_{DRM}, T_J=125^{\circ}C$ | 2000 | - | - | $V/\mu S$ |
| Rate of Change of Commutation Current | $(dI/dt)_c$ | $(dV/dt)_c=10V/\mu s \downarrow, T_J=125^{\circ}C$ | 8.0 | - | - | A/ms |
| Critical rate of rise of on-state current | dI/dt | $f=120Hz, I_G = 2 \times I_{GT}, t_r \leq 100 ns, T_J=125^{\circ}C$ | - | - | 50 | $A/\mu S$ |

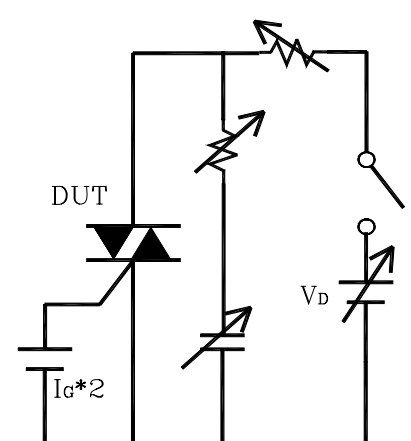
Simple circuit for $(dV/dt)_s$



Simple circuit for $(dI/dt)_c$ vs $(dV/dt)_c$



Simple circuit for dI/dt



Electrical Characteristic Curves

Fig. 1 $P - I_{T(RMS)}$

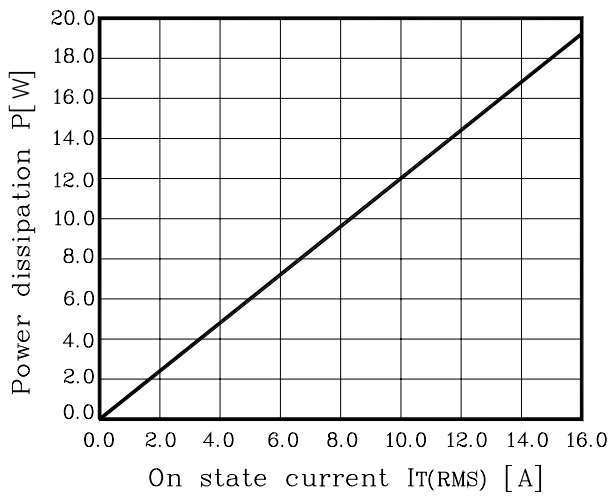


Fig. 2 $I_{T(RMS)} - T_c$

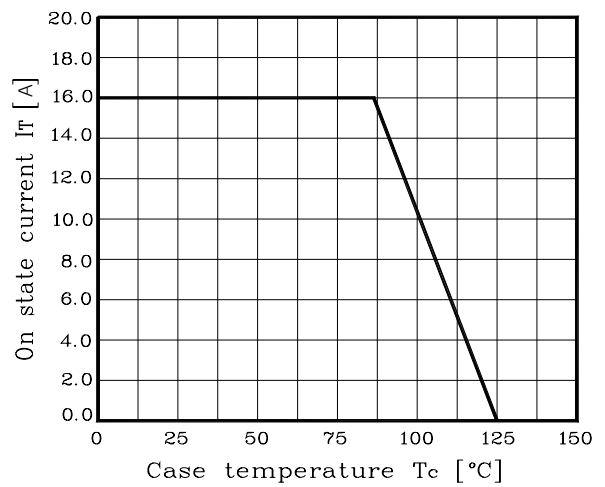


Fig. 3 $I_T - V_T$

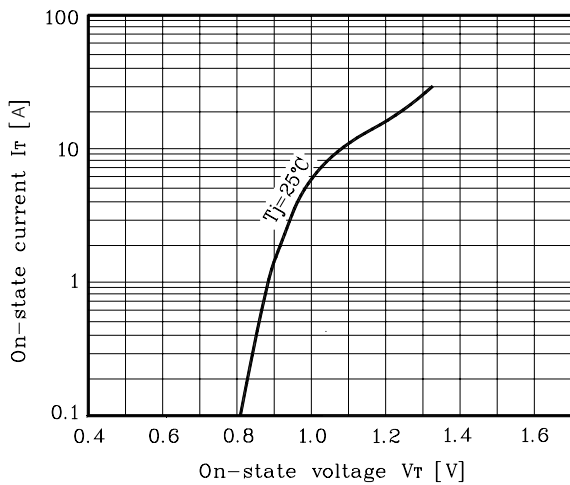


Fig. 4 $(di/dt)_c - (dV/dt)_c$

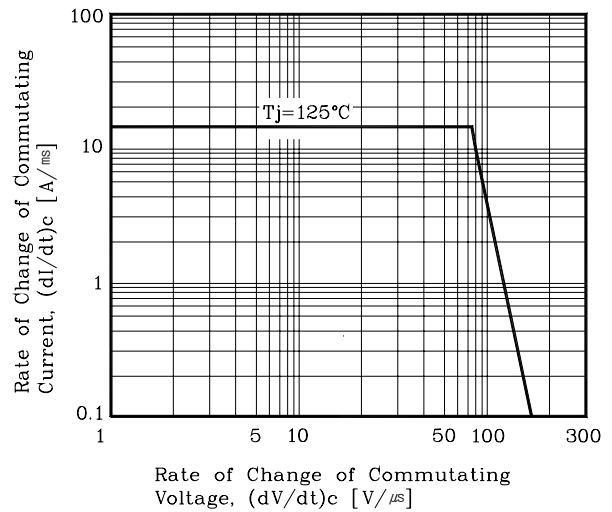


Fig. 5 $I_{GT} - T_j$

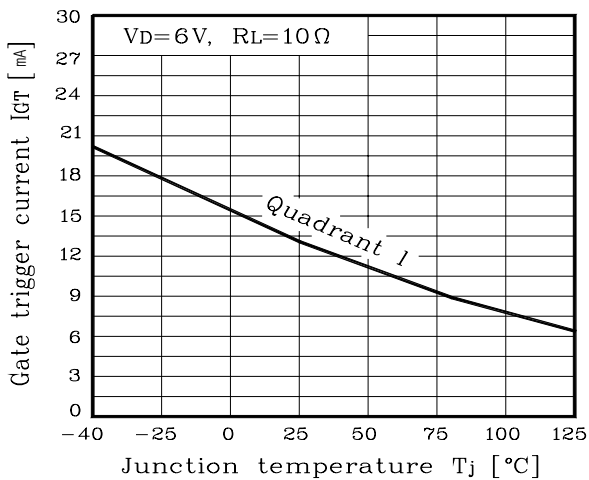
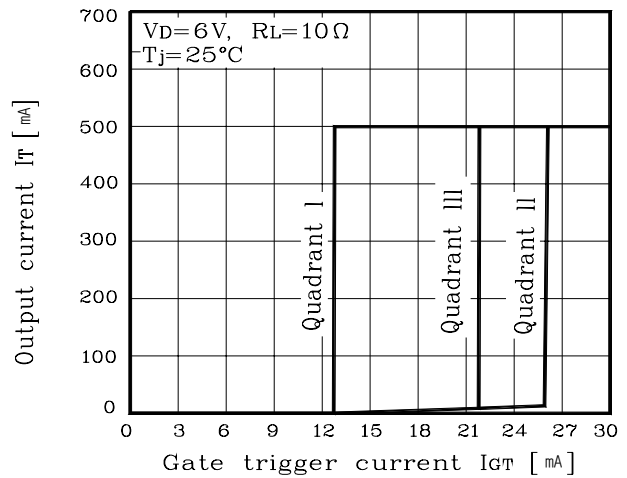


Fig. 6 $I_T - I_{GT}$



Electrical Characteristic Curves

Fig. 7 $V_{GT} - T_j$

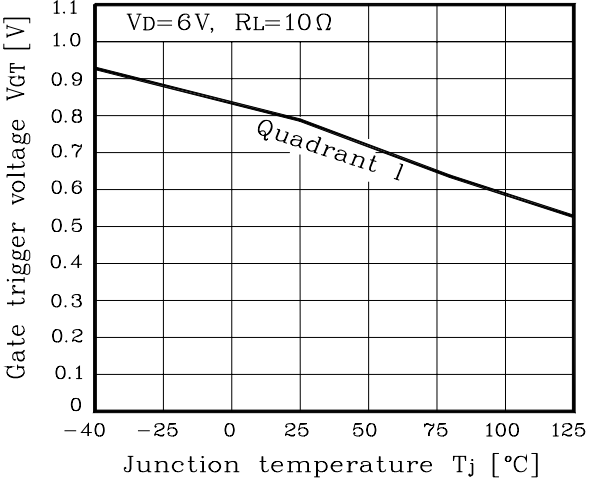


Fig. 8 $I_T - V_{GT}$

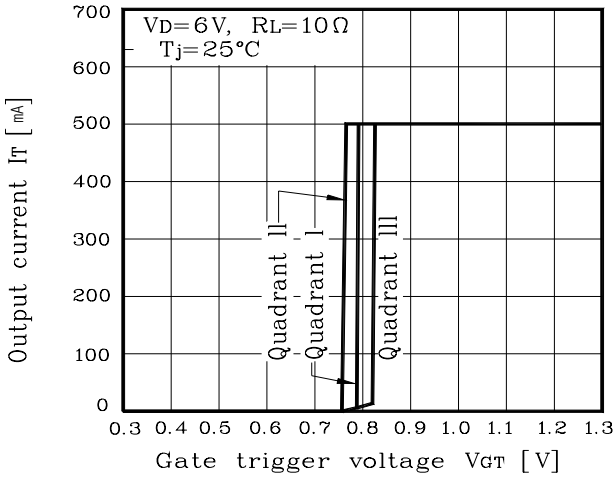
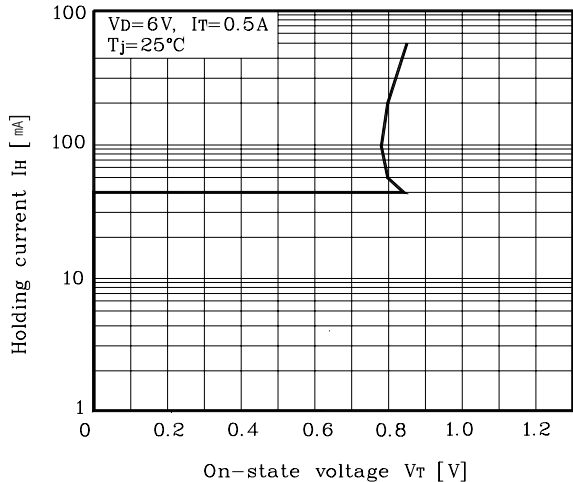
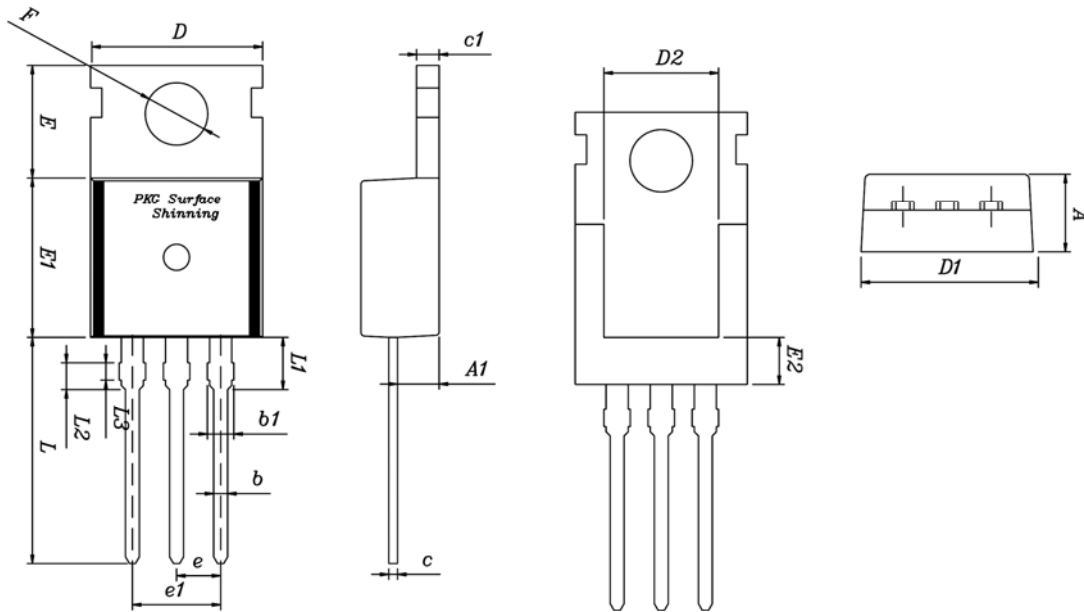


Fig. 9 $I_H - V_T$



Package Outline Dimension



| SYMBOL | MILLIMETERS | | | NOTE |
|--------|-------------|---------|---------|------|
| | MINIMUM | NOMINAL | MAXIMUM | |
| A | 4.35 | 4.50 | 4.65 | |
| A1 | 2.20 | 2.40 | 2.60 | |
| b | 0.65 | 0.80 | 0.95 | |
| b1 | 1.42 | 1.52 | 1.62 | |
| C | 0.40 | 0.50 | 0.60 | |
| C1 | 1.20 | 1.30 | 1.40 | |
| D | 9.80 | 10.00 | 10.20 | |
| D1 | 9.85 | 10.00 | 10.15 | |
| D2 | 6.40 | 6.60 | 6.80 | |
| E | 6.30 | 6.50 | 6.70 | |
| E1 | 9.05 | 9.20 | 9.35 | |
| E2 | 2.50 | 2.70 | 2.90 | |
| F | 3.50 | 3.60 | 3.70 | |
| e | 2.34 | 2.54 | 2.64 | |
| e1 | 4.88 | 5.08 | 5.28 | |
| L | 12.68 | 13.08 | 13.48 | |
| L1 | 2.80 | 3.00 | 3.20 | |
| L2 | 1.49 | 1.54 | 1.59 | |
| L3 | 0.95 | 1.00 | 1.05 | |

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