

600V, 6A 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

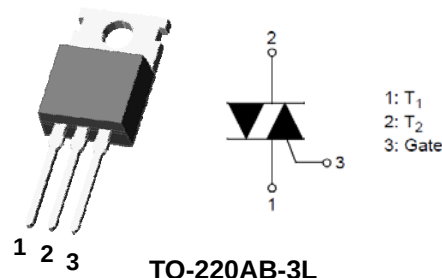
- Repetitive Peak Off-State Voltage : $V_{DRM}=600V$
- R.M.S On-State Current : $I_{T(RMS)}=6A$
- Gate trigger current : $I_{GT}=40mA$ max (Mode I - II - III)
- High Commutation : $(di/dt)_C=10.9 A/ms$ (Min)

Applications

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

Ordering Information

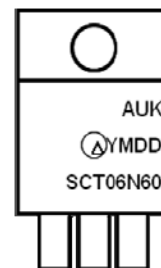
Device	Marking Code	Package	Packaging
SCT06N60P	SCT06N60	TO-220AB-3L	Tube



Product Characteristics

Symbol	Rating
$I_{T(RMS)}$	6A
V_{DRM}	600V

Marking Diagram



Column 1 : Manufacture Logo
Column 2 : Production Information
- Δ : Factory Management Code
- YMDD : Date Code (Year, Month, Date)
Column 3 : Device code

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)	$I_{T(RMS)}$	6	A
Non- repetitive surge peak on-state current (full cycle, T_j initial = 25°C)	I_{TSM}	63	A
I^2t Value for fusing	I^2t	21	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	$^{\circ}\text{C}/\text{W}$
Maximum thermal resistance junction to ambient (AC)	$R_{th(j-a)}$	60	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, 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

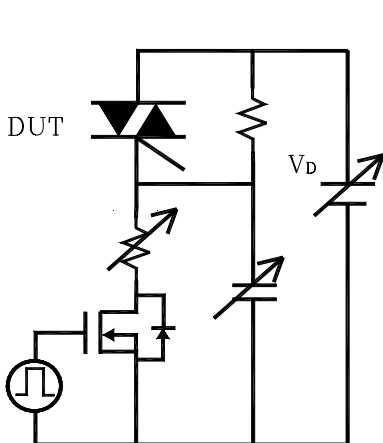
On Characteristics

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Peak On-state voltage	V_{TM}	$I_T = 8.5\text{A}$	-	-	1.55	V
Holding current	I_H	$V_D = 12\text{V}, I_T = 0.2\text{A}$	-	-	50	mA
Gate trigger current	$I_{GT} \text{ (I - II - III)}$	$V_D = 12\text{V}, R_L = 30\Omega$	-	-	40	mA
	$I_{GT} \text{ (IV)}$	-	-	-	-	mA
Gate trigger voltage	$V_{GT} \text{ (I - II - III)}$	$V_D = 12\text{V}, R_L = 30\Omega$	-	-	1.3	V
Gate Non-trigger voltage	V_{GD}	$V_D = 2/3 V_{DRM}, T_J=125^{\circ}\text{C}$	0.2	-	-	V

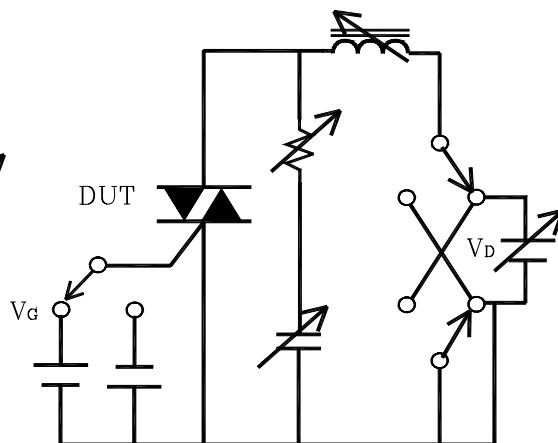
Dynamic Characteristics

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Critical rate of rise of Off-state Voltage	$(dV/dt)_S$	$V_D = 2/3 V_{DRM}, T_J=125^{\circ}\text{C}$	900	-	-	$\text{V}/\mu\text{S}$
Rate of Change of Commutation Current	$(dI/dt)_C$	$(dV/dt)_C=10\text{V}/\mu\text{S} \downarrow, T_J=125^{\circ}\text{C}$	10.9	-	-	A/ms
Critical rate of rise of on-state current	dI/dt	$f=120\text{Hz}, I_G = 2 \times I_{GT}, t_r \leq 100 \text{ ns}, T_J=125^{\circ}\text{C}$	-	-	50	$\text{A}/\mu\text{S}$

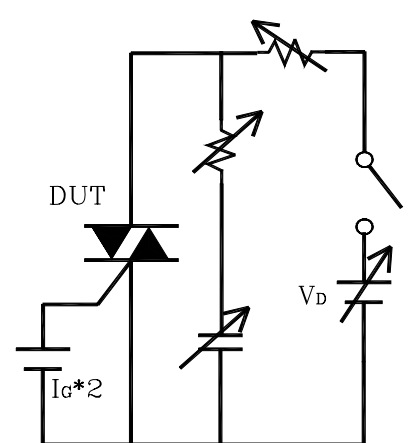
Simple circuit for $(dV/dt)_S$



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



Simple circuit for dI/dt



Electrical Characteristic Curves

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

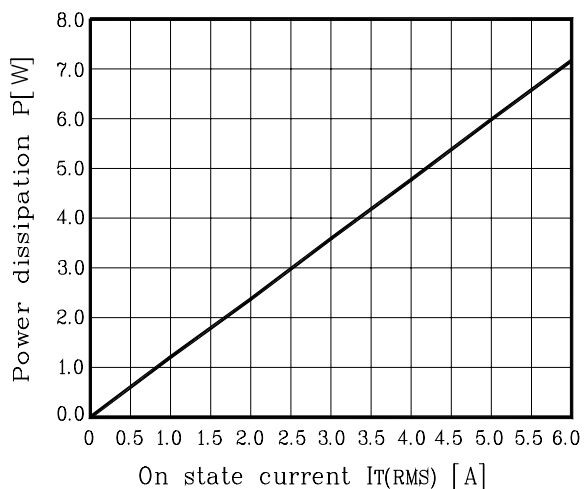


Fig. 2 $I_{T(RMS)} - T_c$

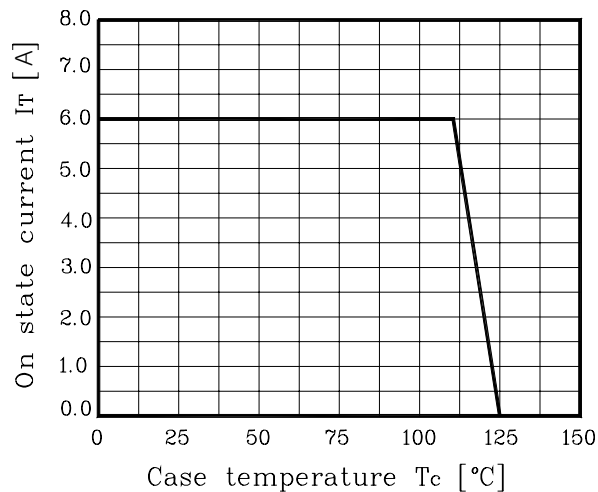


Fig. 3 $I_T - V_T$

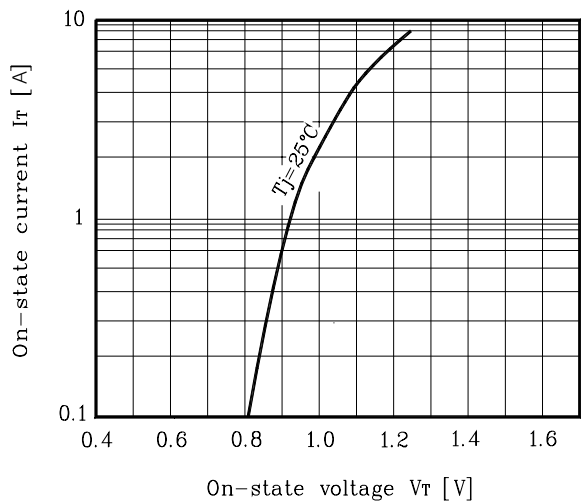


Fig. 4 $(di/dt)_c - (dV/dt)_c$

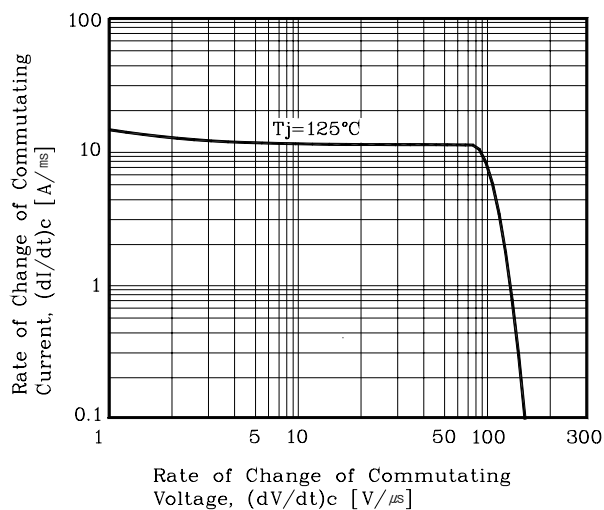


Fig. 5 $I_{GT} - T_j$

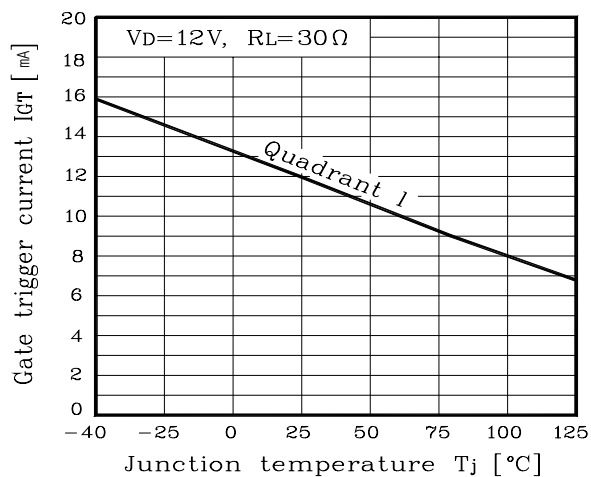
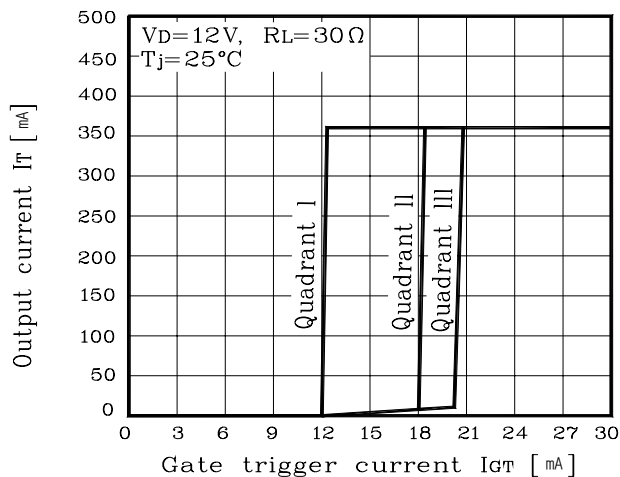


Fig. 6 $I_T - I_{GT}$



Electrical Characteristic Curves

Fig. 7 $V_{GT}-T_j$

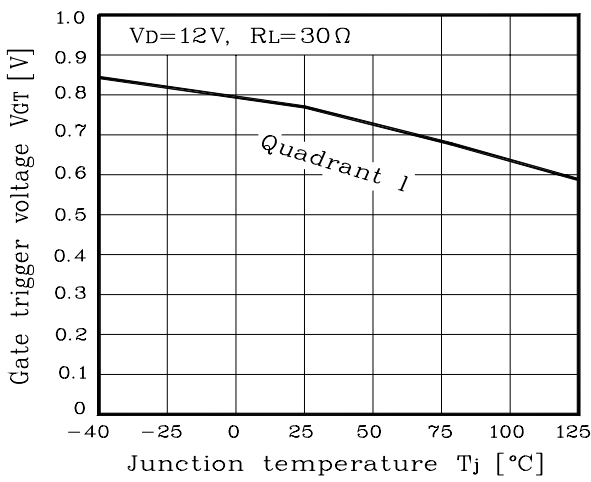


Fig. 8 $I_T - V_{GT}$

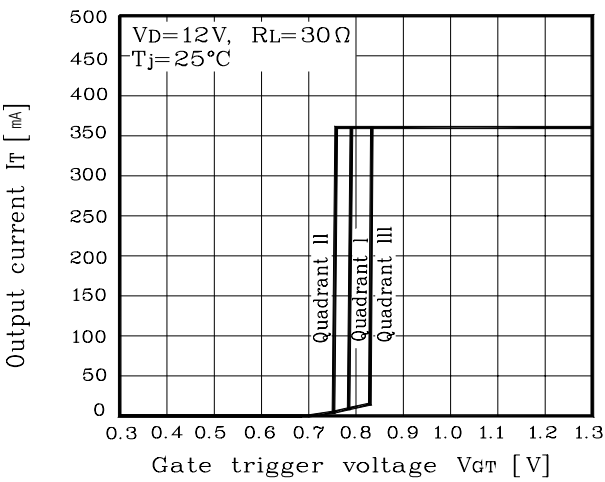
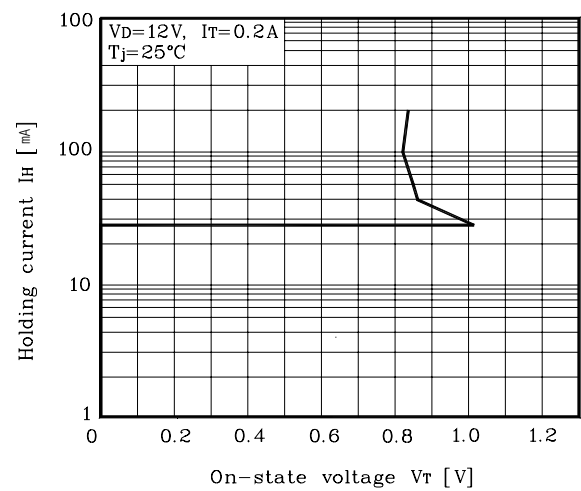
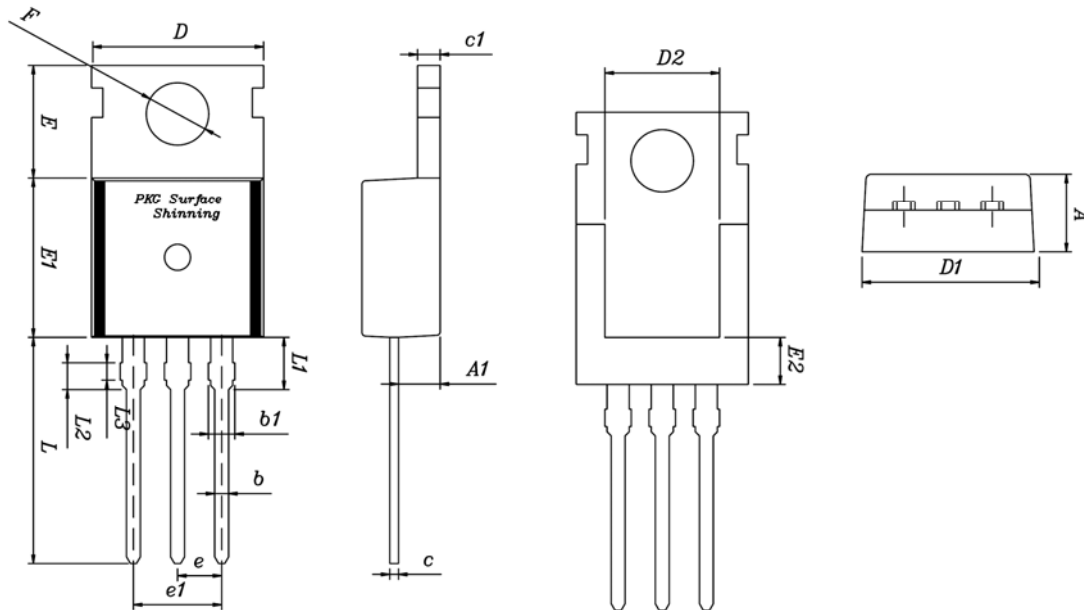


Fig. 9 I_H-V_T



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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