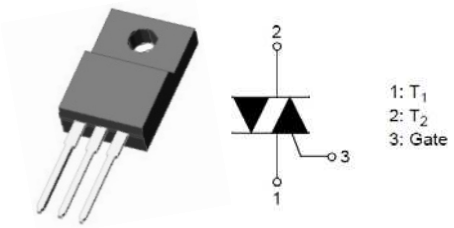
KODENSHI AUK

SCT12N60FD

Triac

600V, 12A 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.



1 2 3 **TO-220F-3L**

Features

- Repetitive Peak Off-State Voltage : V_{DRM}=600V
- R.M.S On-State Current : $I_{T(RMS)}$=12A
- Gate trigger current : I_{GT}=40mA max (Mode Ⅰ-Ⅱ-Ⅲ)
- High Commutation: $(dI/dt)_C$ = 6.0A/㎳(Min)

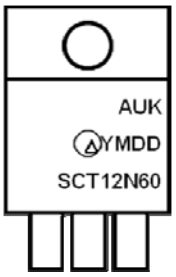
Product Characteristics

Symbol	Rating
$I_{T(RMS)}$	12A
V_{DRM}	600V

Applications

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

Marking Diagram



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

Ordering Information

Device	Marking Code	Package	Packaging
SCT12N60FD	**SCT12N60**	**TO-220F-3L**	**50 Units / Tube**

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)	$I_{T(RMS)}$	12	A
Non- repetitive surge peak on-state current (full cycle, Tj initial = 25℃)	I_{TSM}	126	A
I^2t Value for fusing	I^2t	78	A^2s
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	℃
Operating junction temperature range	T_j	-40 to +125	℃

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum thermal resistance junction to case (AC)	$R_{th(j-c)}$	4.0	℃/W
Maximum thermal resistance junction to ambient (AC)	$R_{th(j-a)}$	60	℃/W

Electrical Characteristics (T_J=25℃, 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	uA
Repetitive peak reverse current	I_{RRM}	$V_R = V_{RRM}$	-	-	5	μA

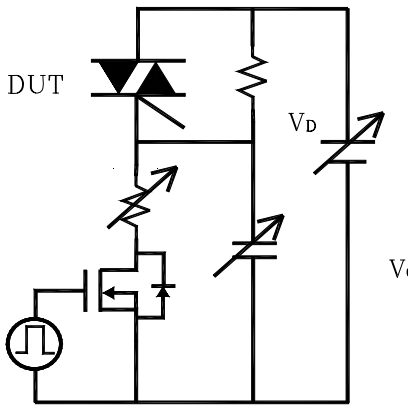
On Characteristics

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Peak On-state voltage	V_{TM}	I_T = 17A	-	-	1.55	V
Holding current	I_H	V_D = 12V, I_T = 0.2A	-	-	60	mA
Gate trigger current	I_{GT} (Ⅰ-Ⅱ-Ⅲ)	V_D = 12V, R_L = 30Ω	-	-	40	mA
	I_{GT} (Ⅳ)	-	-	-	-	mA
Gate trigger voltage	V_{GT} (Ⅰ-Ⅱ-Ⅲ)	V_D = 12V, R_L = 30Ω	-	-	1.3	V
Gate Non-trigger voltage	V_{GD}	V_D = 2/3 V_{DRM}, T_j=125℃	0.2	-	-	V

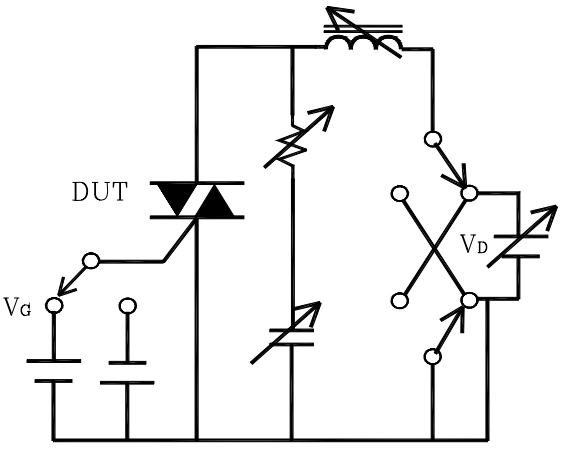
Dynamic Characteristics

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℃	2000	-	-	V/ μS
Rate of Change of Commutation Current	$(dI/dt)_C$	$(dV/dt)_C$=10V/μs ↓, T_j=125℃	6.0	-	-	A/㎳
Critical rate of rise of on-state current	dI/dt	f=120hz, I_G = 2×I_{GT} $t_r \leq$ 100 ㎱, T_j=125℃	-	-	50	A/ μS

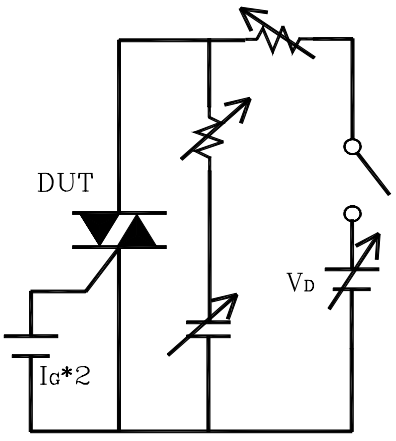
Simple circuit for $(dV/dt)_S$



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



Simple circuit for dI/dt



Electrical Characteristic Curves

Fig. 1 P – $I_{T(RMS)}$

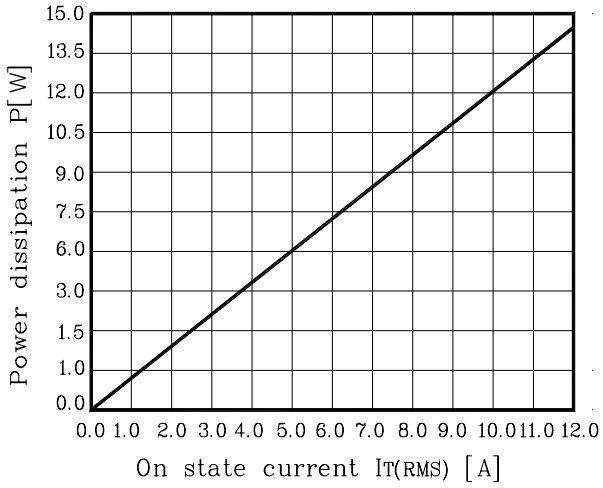


Fig. 2 $I_{T(RMS)}$ – T_C

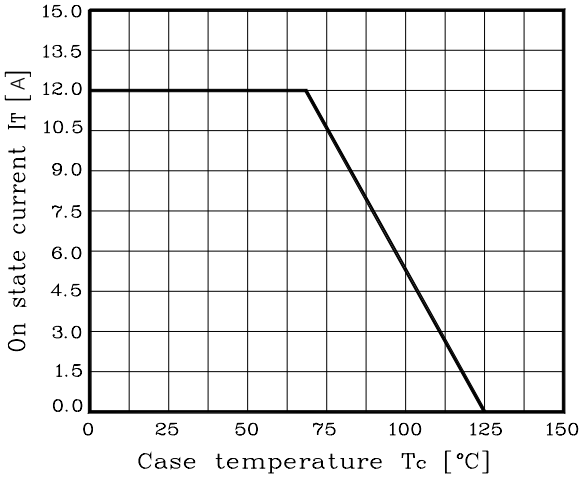


Fig. 3 I_T - V_T

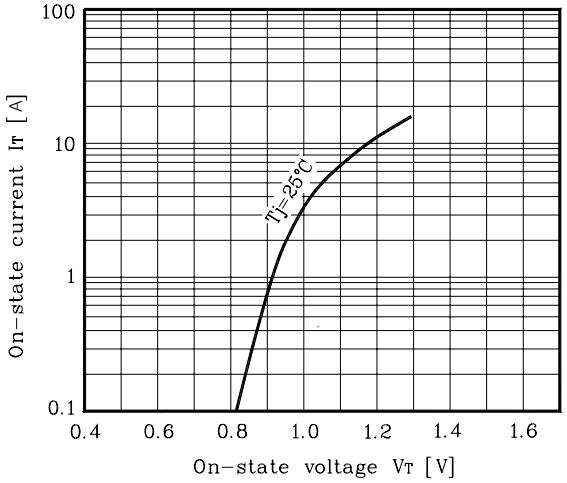


Fig. 4 $(dI/dt)_C$ - $(dV/dt)_C$

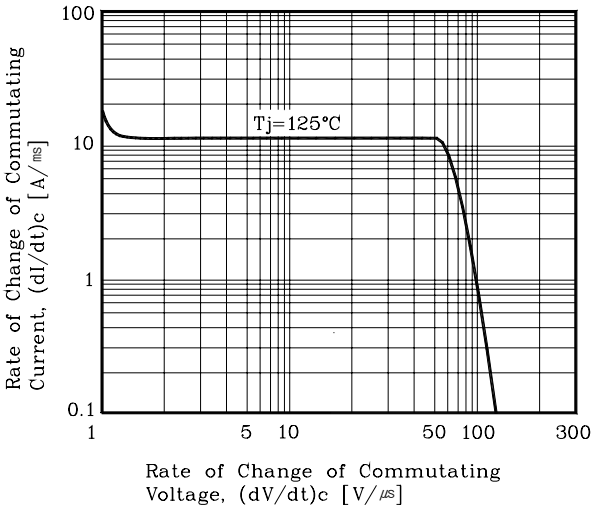


Fig. 5 I_{GT}. T_j

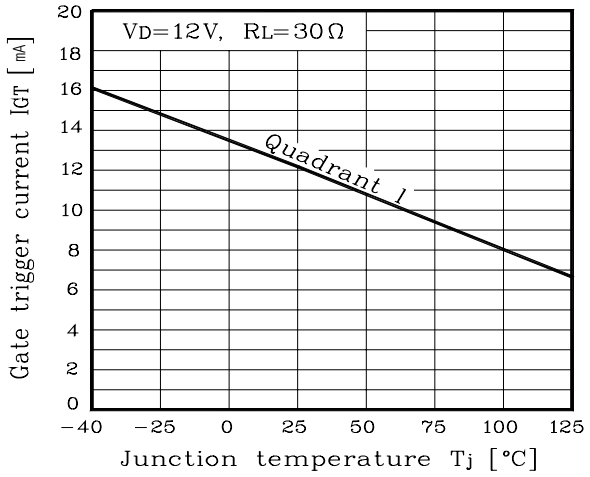
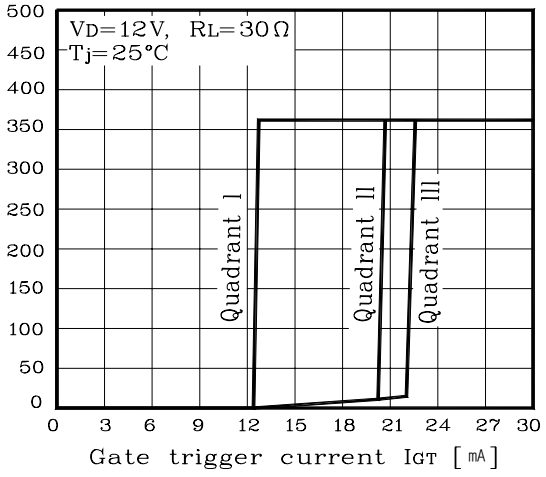


Fig. 6 I_T - I_{GT}



Electrical Characteristic Curves

Fig. 7 V_{GT}- T_j

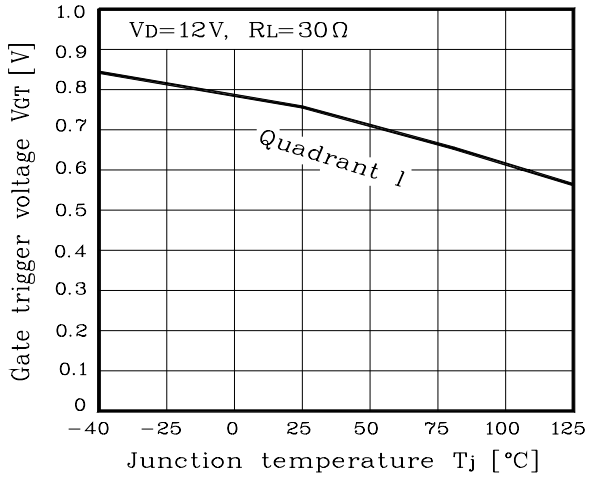


Fig. 8 I_T - V_{GT}

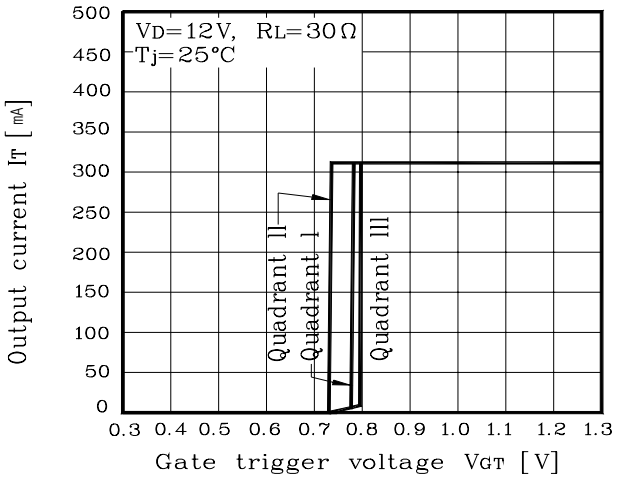
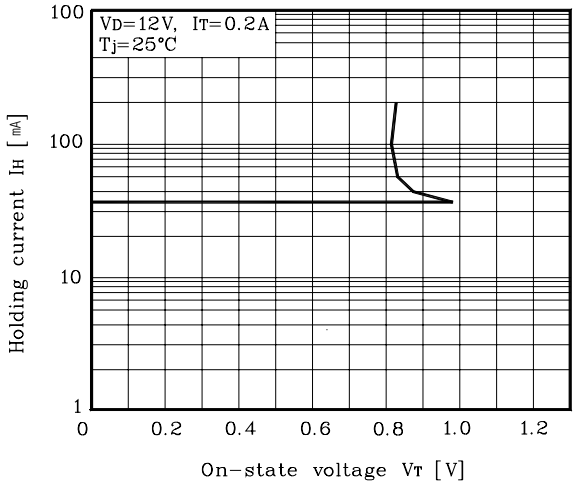
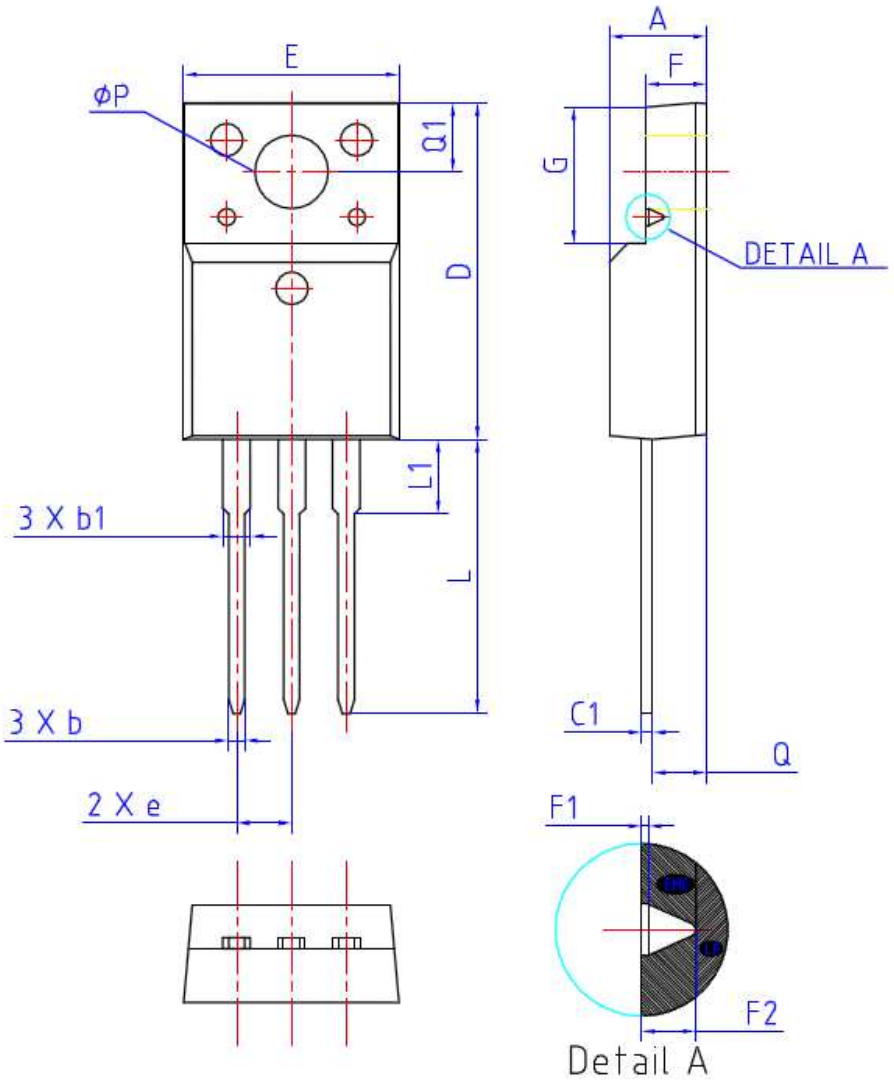


Fig. 9 I_H- V_T



Package Outline Dimensions



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	4.50	4.70	4.90	
b	0.70	0.80	0.90	
b1	1.33	1.40	1.47	
C1	0.45	0.50	0.60	
D	15.67	15.87	16.07	
E	9.96	10.16	10.36	
e	2.54BSC			
F	2.34	2.54	2.74	
F1	(0.10 REF)			
F2	(0.84 REF)			
G	6.48	6.68	6.88	
L	12.78	12.98	13.18	
L1	3.03	3.23	3.43	
Q	2.56	2.76	2.96	
Q1	3.10	3.30	3.50	
ØP	3.08	3.18	3.28	

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