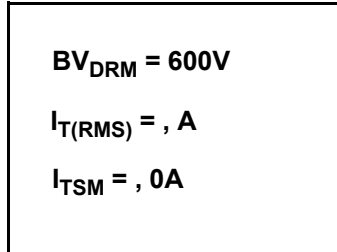
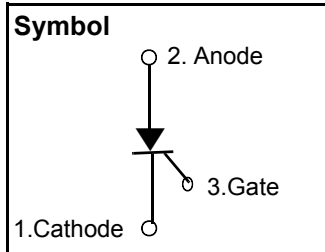
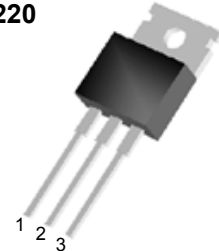


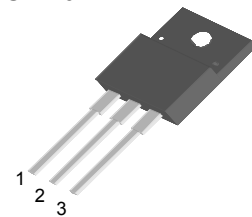
## Standard Gate Silicon Controlled Rectifiers



TO-220



TO-220F



### Features

- ◆ Repetitive Peak Off-State Voltage : 600V
- ◆ R.M.S On-State Current (  $I_{T(RMS)} = 8A$  )
- ◆ Isolated, Non-isolated Type

### General Description

Apollo Electron's SCR is suitable for the application where requiring high bidirectional blocking voltage capability and also suitable for over voltage protection, motor control circuit in power tool, inrush current limit circuit and heating control system.

### Absolute Maximum Ratings ( $T_j = 25^{\circ}C$ unless otherwise specified )

Symbol	Parameter	Condition	Ratings	Units
$V_{DRM}$	Repetitive Peak Off-State Voltage	sine wave, 50 to 60Hz, gate open	600	V
$I_{T(RMS)}$	R.M.S On-State Current	180° Conduction Angle	8	A
$I_{TSM}$	Surge On-State Current	1/2 Cycle, 60Hz, Sine Wave Non-Replicative	80	A
di/dt	Critical rate of rise of on-state current	I <sub>pk</sub> =20A, I <sub>GT</sub> =20mA	50	A/us
$P_{G(AV)}$	Forward Average Gate Power Dissipation	$T_j = 110^{\circ}C$	0.5	W
$T_j$	Operating Junction Temperature		- 40 ~ 125	°C
$T_{STG}$	Storage Temperature		- 40 ~ 150	°C

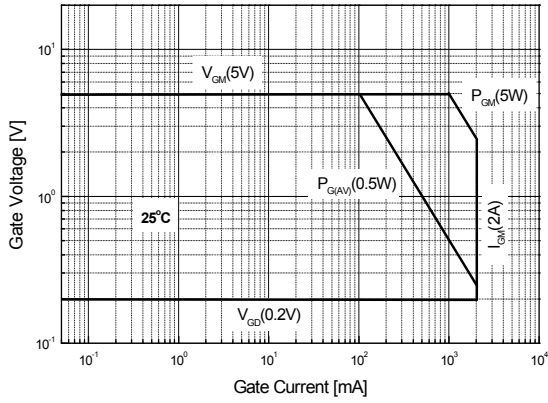


## Electrical Characteristics ( $T_j = 25\text{ }^\circ\text{C}$ unless otherwise noted )

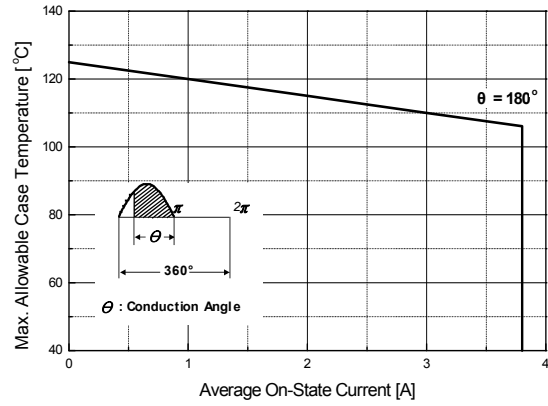
Symbol	Items	Conditions	Ratings			Unit
			Min.	Typ.	Max.	
$I_{DRM}$	Repetitive Peak Off-State Current	$V_{AK} = V_{DRM}$	—	—	1	mA
$V_{TM}$	Peak On-State Voltage (1)	$I_T = 8\text{ A}$	—	—	1.7	V
$I_{GT}$	Gate Trigger Current (2)	$V_D = 12\text{ V}, R_L = 100\ \Omega$	—	—	20	mA
$V_{GT}$	Gate Trigger Voltage (2)	$V_D = 12\text{ V}, R_L = 100\ \Omega$	—	—	1.3	V
dv/dt	Critical Rate of Rise Off-State Voltage	Linear slope upto $V_D = V_{DRM} 67\%$ , Gate open $T_j = 110\text{ }^\circ\text{C}$	20	—	—	V/us
$I_H$	Holding Current	$V_D = 24\text{ V}, I_{GT} = 50\text{ mA}$	—	—	30	mA



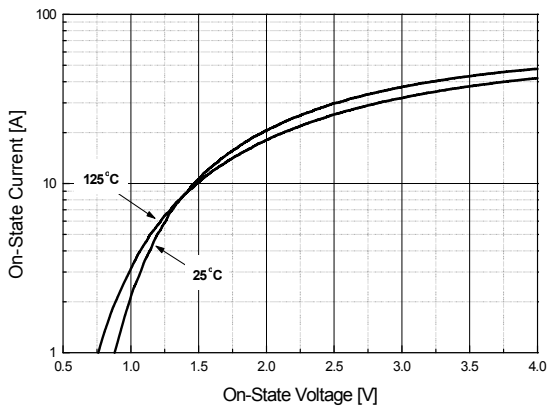
**Fig 1. Gate Characteristics**



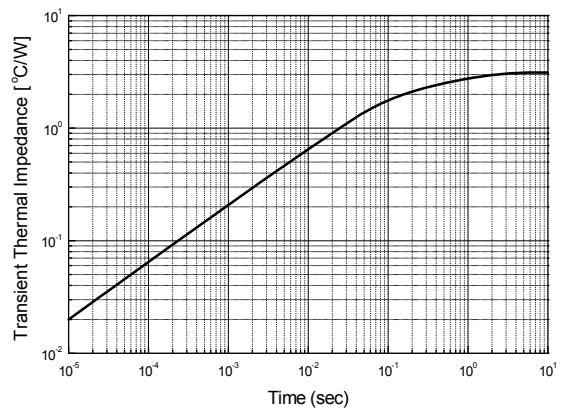
**Fig 2. Maximum Case Temperature**



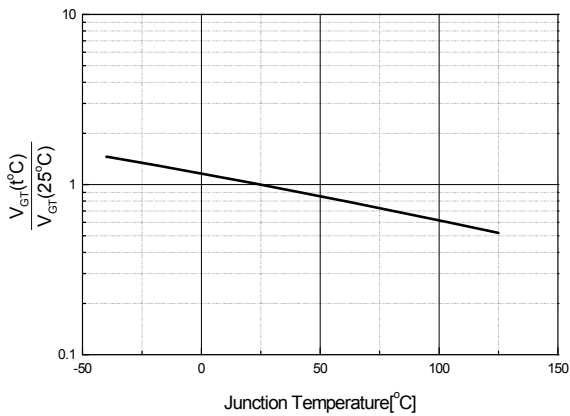
**Fig 3. Typical Forward Voltage**



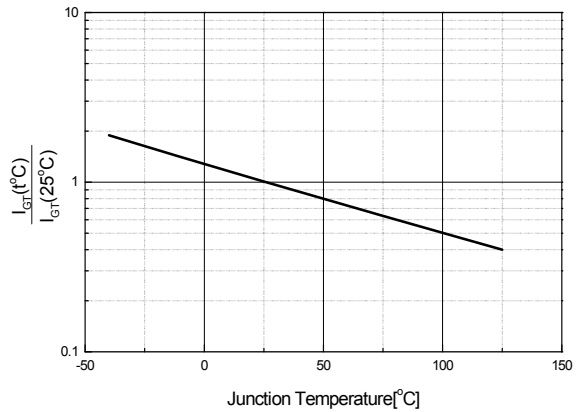
**Fig 4. Thermal Response**



**Fig 5. Typical Gate Trigger Voltage vs. Junction Temperature**



**Fig 6. Typical Gate Trigger Current vs. Junction Temperature**





# CP6C60

Fig 7. Typical Holding Current

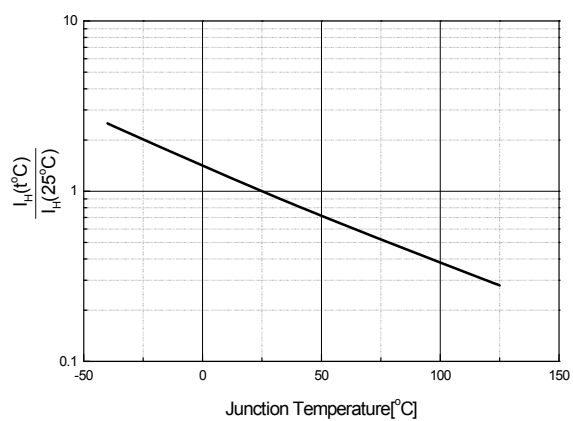
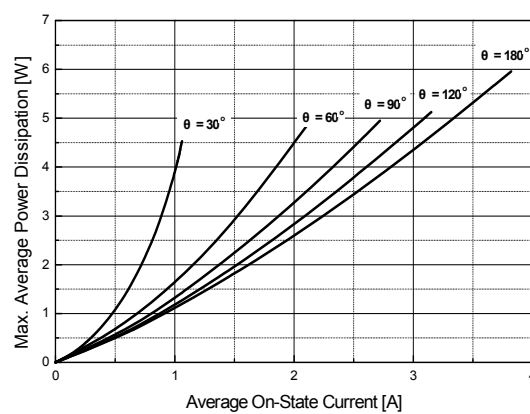
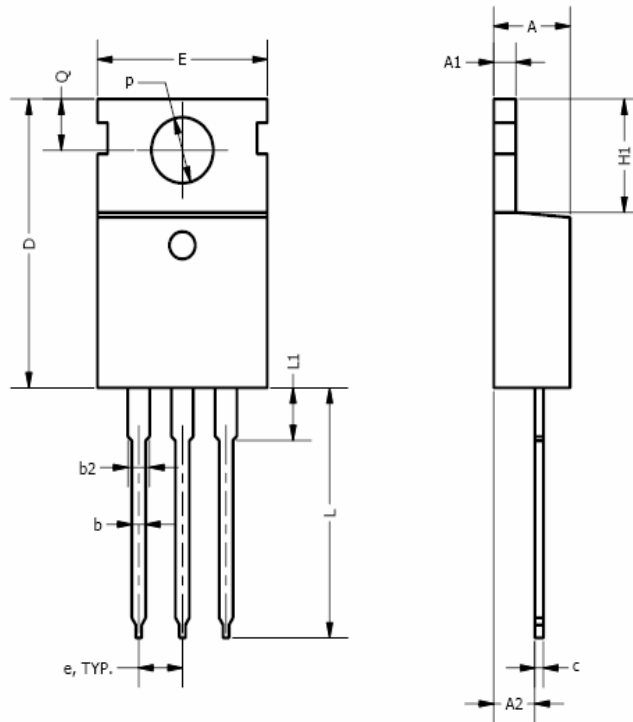


Fig 8. Power Dissipation





**TO-220 Package Dimension**



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.14	0.19	3.56	4.83
A1	0.02	0.055	0.51	1.4
A2	0.08	0.115	2.03	2.92
b	0.015	0.04	0.38	1.02
b2	0.045	0.07	1.14	1.78
c	0.014	0.024	0.36	0.61
D	0.56	0.65	14.22	16.51
e	0.096	0.104	2.44	2.64
E	0.38	0.42	9.65	10.67
H1	0.23	0.27	5.84	6.86
L	0.5	0.58	12.7	14.73
L1	-	0.25	-	6.35
∅ P	0.139	0.161	3.53	4.09
Q	0.1	0.135	2.54	3.43

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## TO-220F Package Dimension6

Dim.	mm			Inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	10.4		10.6	0.409		0.417
B	6.18		6.44	0.243		0.254
C	9.55		9.81	0.376		0.386
D	13.47		13.73	0.530		0.540
E	6.05		6.15	0.238		0.242
F	1.26		1.36	0.050		0.054
G	3.17		3.43	0.125		0.135
H	1.87		2.13	0.074		0.084
I	2.57		2.83	0.101		0.111
J		2.54			0.100	
K		5.08			0.200	
L	2.51		2.62	0.099		0.103
M	1.25		1.55	0.049		0.061
N	0.45		0.63	0.018		0.025
O	0.6		1.0	0.024		0.039
		3.7			0.146	
1		3.2			0.126	
2		1.5			0.059	

