

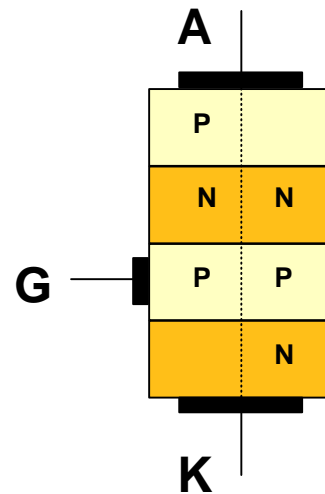
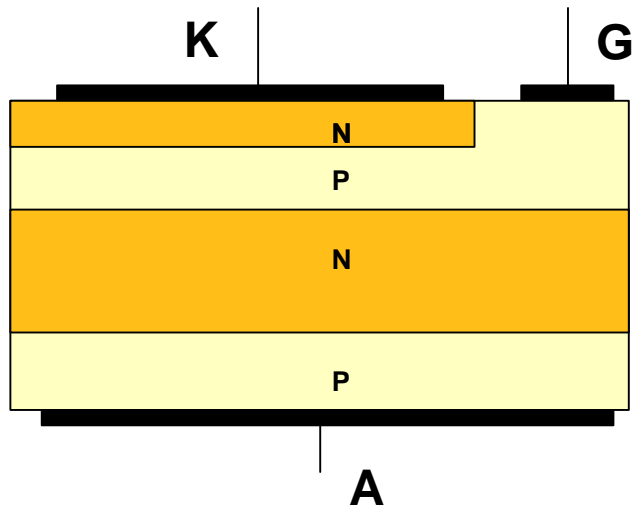
LES THYRISTORS

- **SCRs** (Silicon Controlled Rectifier)
- **Triacs**
- **Diacs**

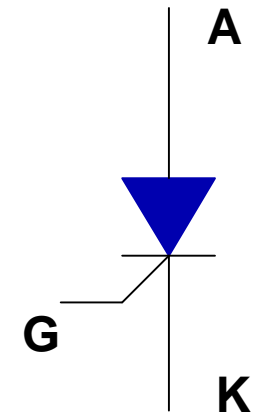
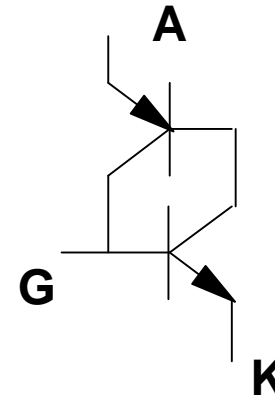
SCR

Structure - Schéma équivalent

STRUCTURE 4 couches :



modèle à 2 transistors

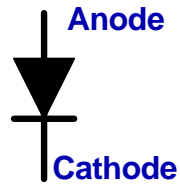


Symbole

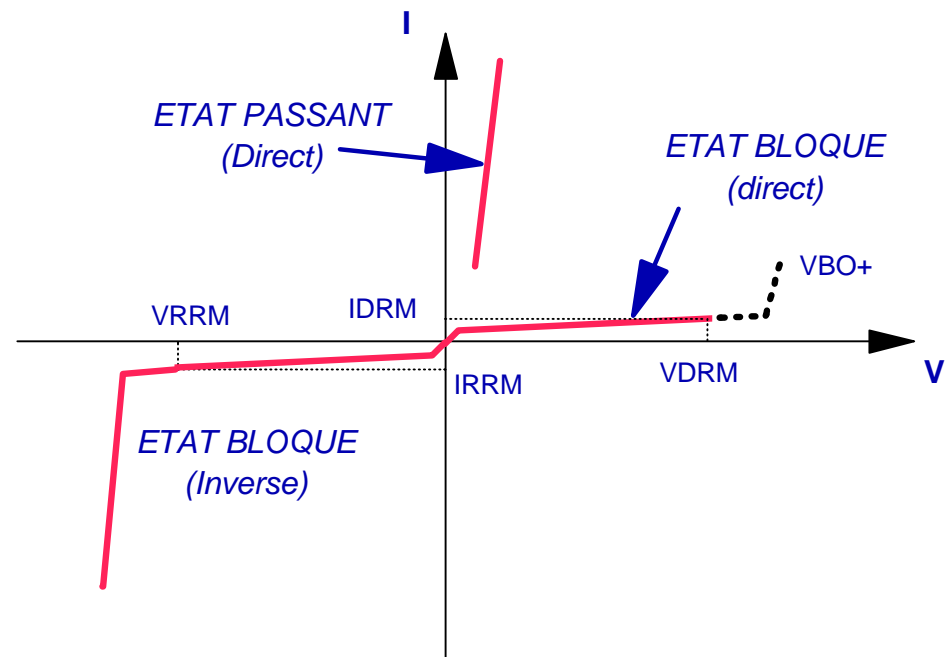
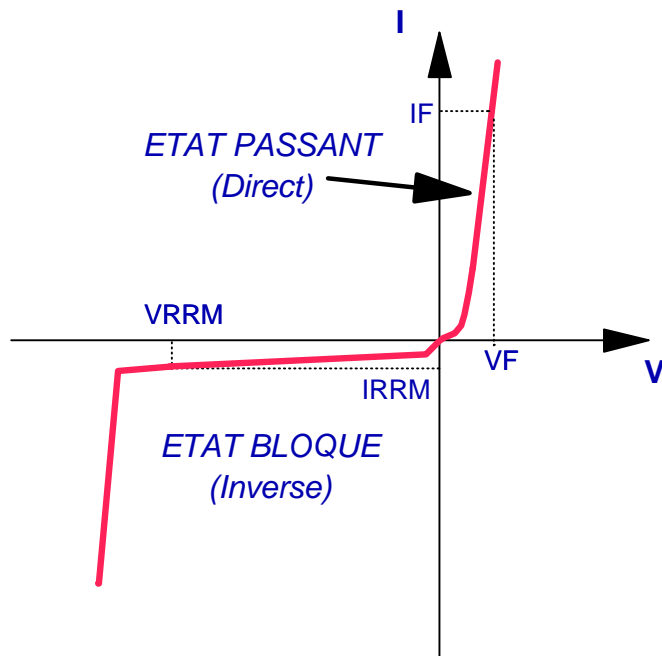
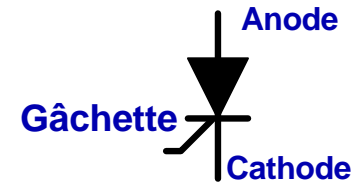
SCR

Caractéristique Tension-Courant

DIODE



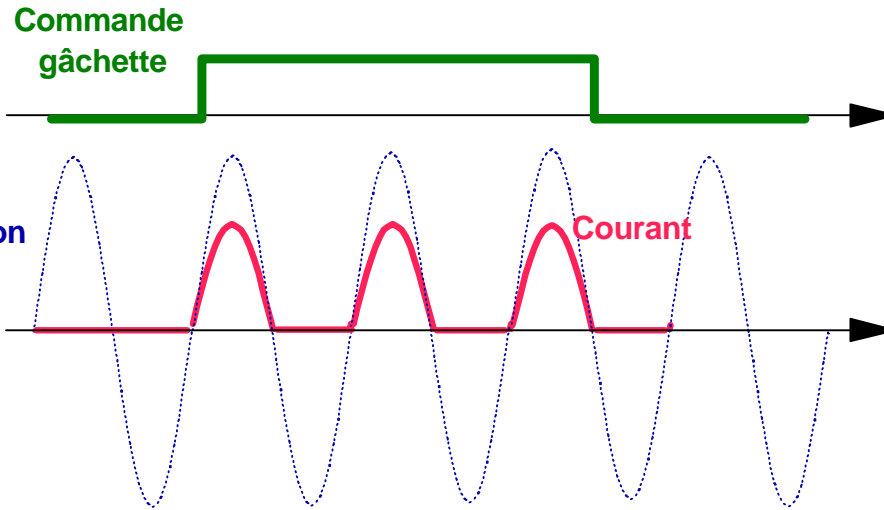
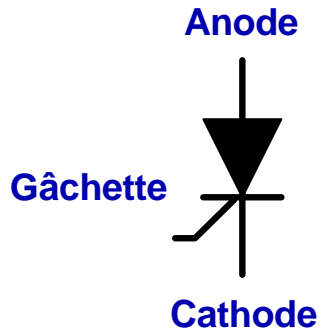
SCR



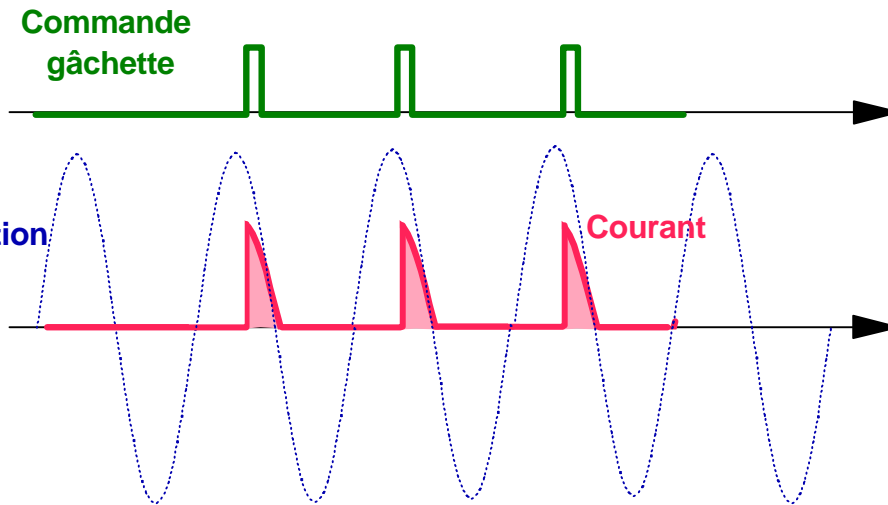
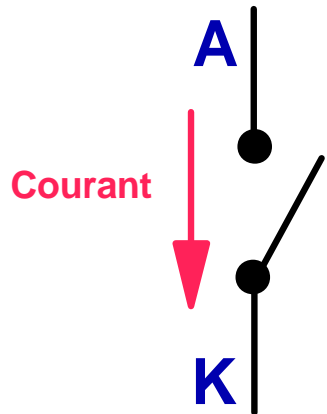
Excellence in Power Processing and Protection

SCR

Interrupteur unidirectionnel



Commande en "tout ou rien"



Commande en angle de phase

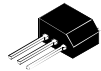
GAMME SCRs

- ▶ Sensitive gate SCRs : from 0.8 to 8A
($I_{gt} < 200\mu A$)
- ▶ Standard SCRs : from 0.8 to 45A
- ▶ SCR modules : from 50A to 70A

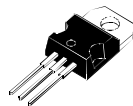
Product series : X006... to X04...
TS.. / TYN.. / TN..
BTW.. / MDS.. / MSS..



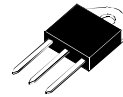
TO92



TO202-3



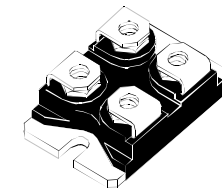
TO220



TOP3



RD91



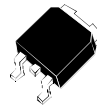
ISOTOP™



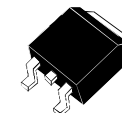
SOT23
0.2 Amp



SOT223
0.8 & 1.25 Amp



DPAK
4 to 12 Amps



D2PAK
12 to 25 Amps

Excellence in Power Processing and Protection

LES APPLICATIONS

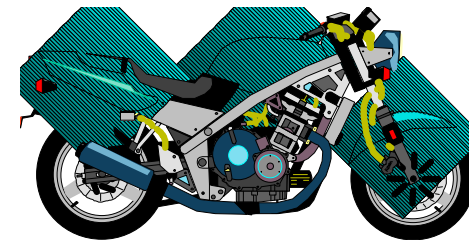
Variateur vitesse petits moteurs:

Electroménager
Outillage électrique



Applications industrielles:

Disjoncteurs différentiels
Detecteur de proximité, de fumée...etc.
Chargeur de batterie

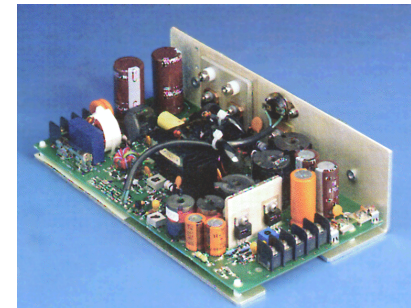


Allumage moteurs

(décharge capacitive)

Protection secondaire alimentation (PC)

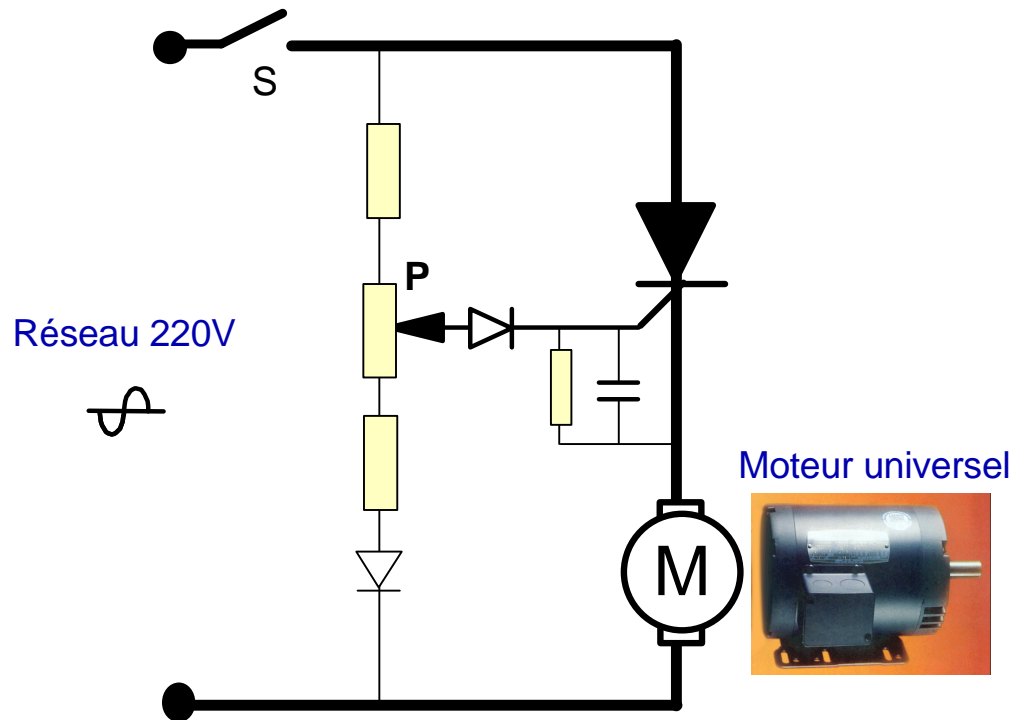
(fonction crowbar)



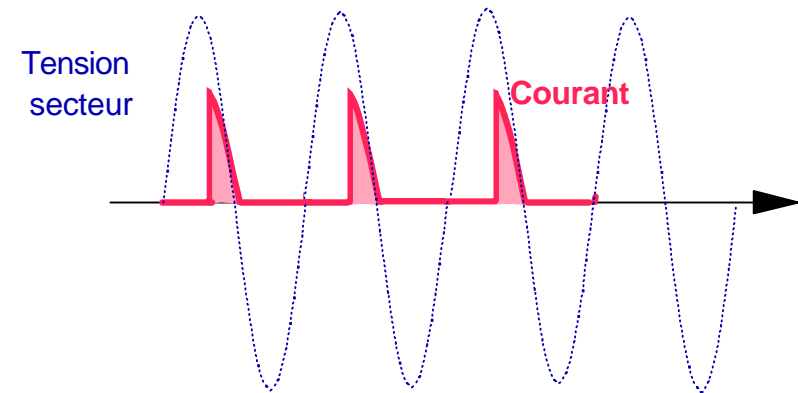
APPLICATION SCR

Variateur de vitesse

Thyristors sensibles ($I_{gt} < 200\mu A$)

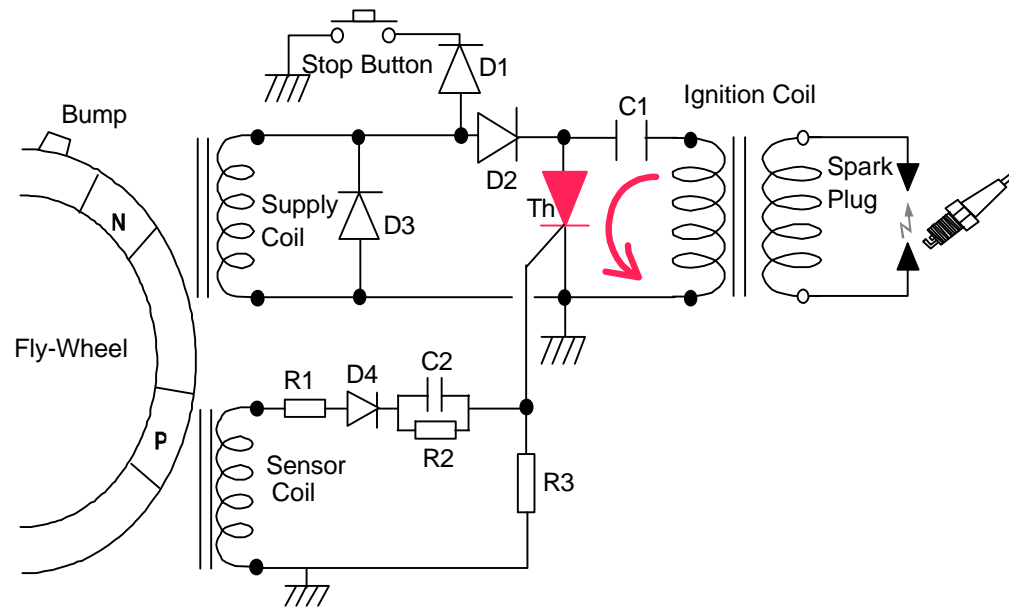


Variation de vitesse par commande en angle de phase



APPLICATION SCR

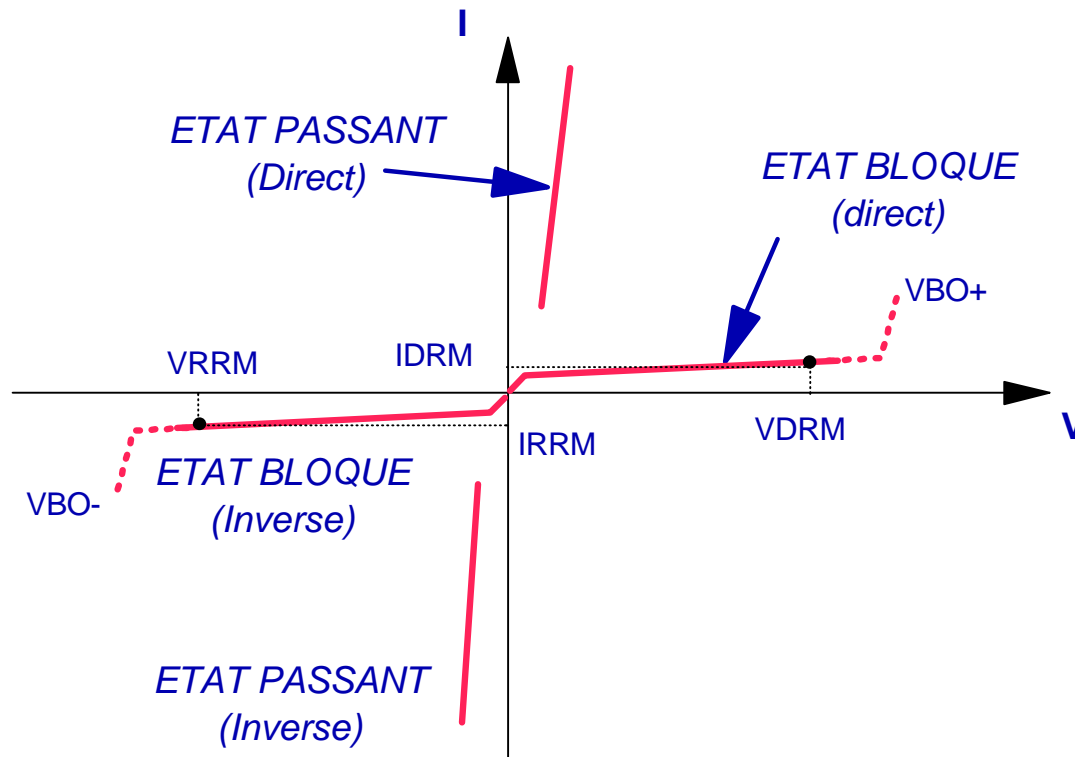
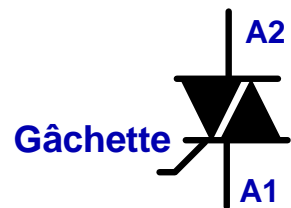
Allumage petits moteurs



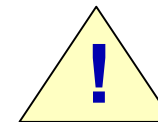
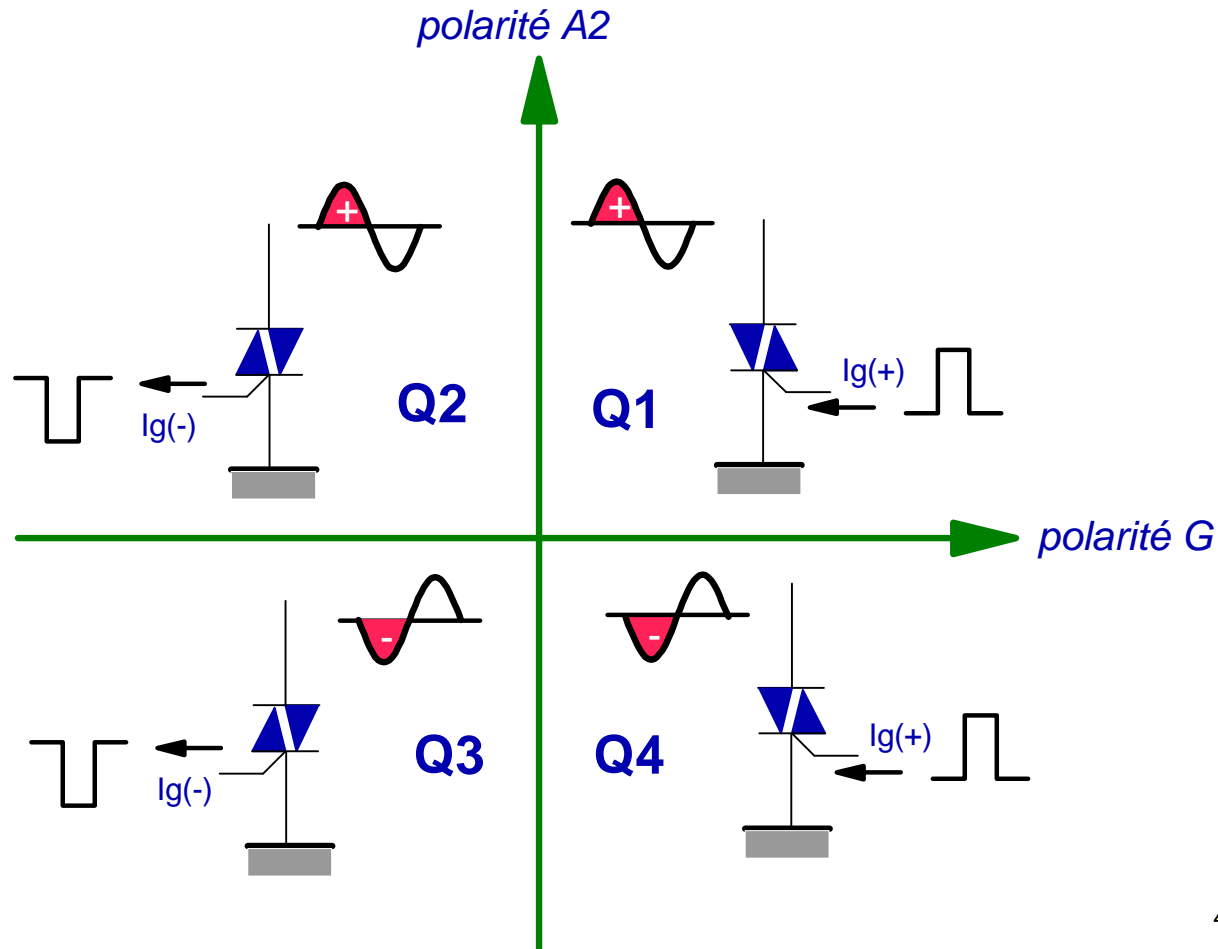
Allumage à décharge capacitive

TRIAC

Caractéristique Tension - Courant



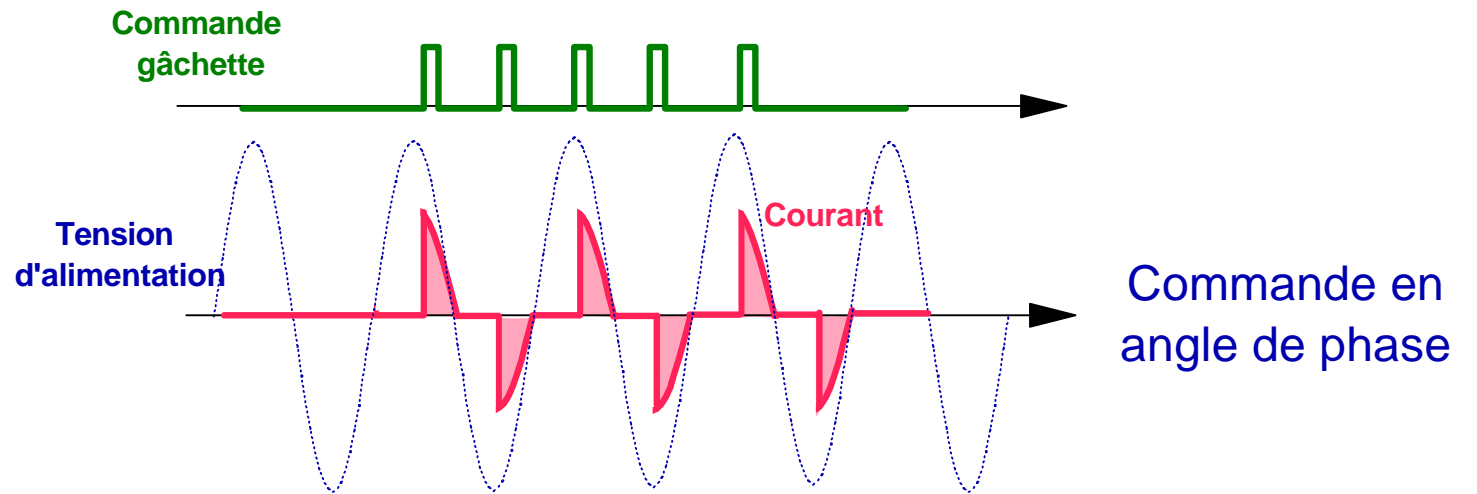
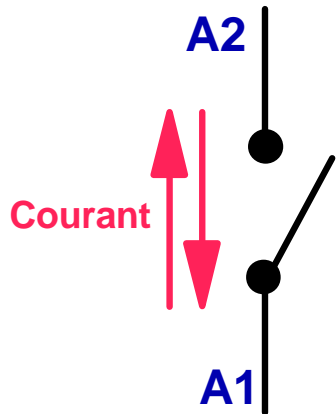
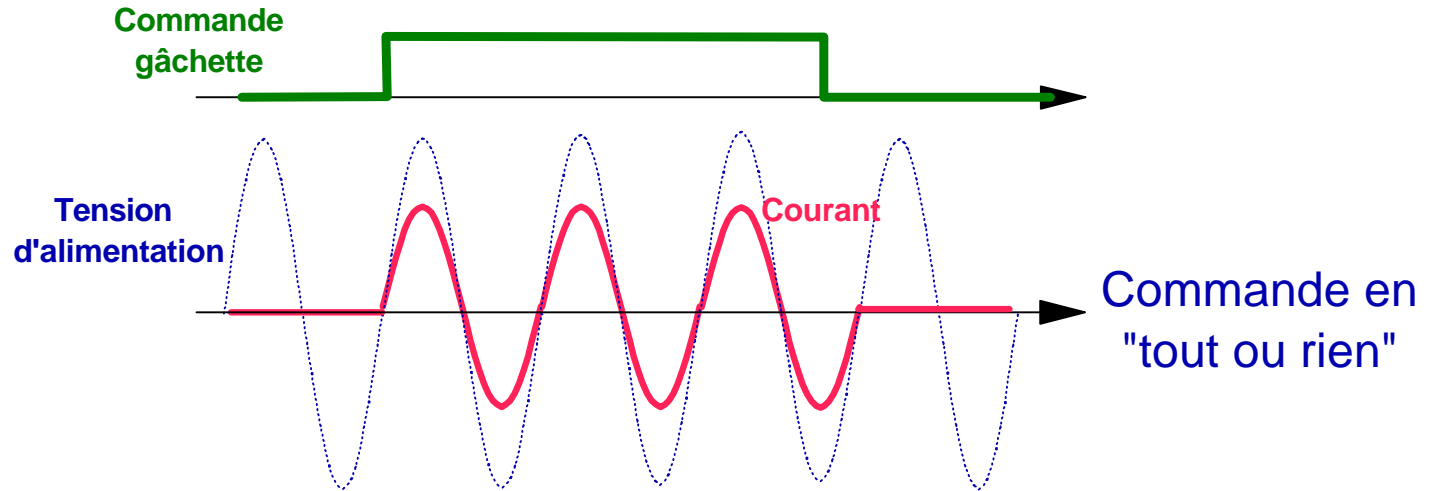
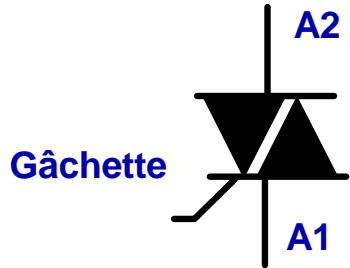
AMORCAGE DU TRIAC



Le 4ème quadrant n'est pas utilisable avec certaines structures

TRIAC

Interrupteur bidirectionnel



GAMME TRIACS

- ▶ *Sensitive and Logic Level triacs* : from 4A to 16A
($IGT < 10mA$)
- ▶ *Snubberless™ - 3Quadrants-* : from 4A to 25A
- ▶ *Standard triacs (4Q)* : from 0.8A to 40A

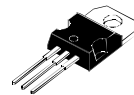
Product series : **Z006.. to Z04.. / T4.. to T25..**
BTB.. / BTA..
(UL approved)



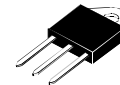
TO92



TO202-3



TO220



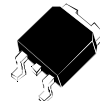
TOP3



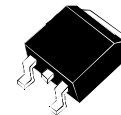
RD91



SOT223
0.8 Amp



DPAK
4 to 12 Amps

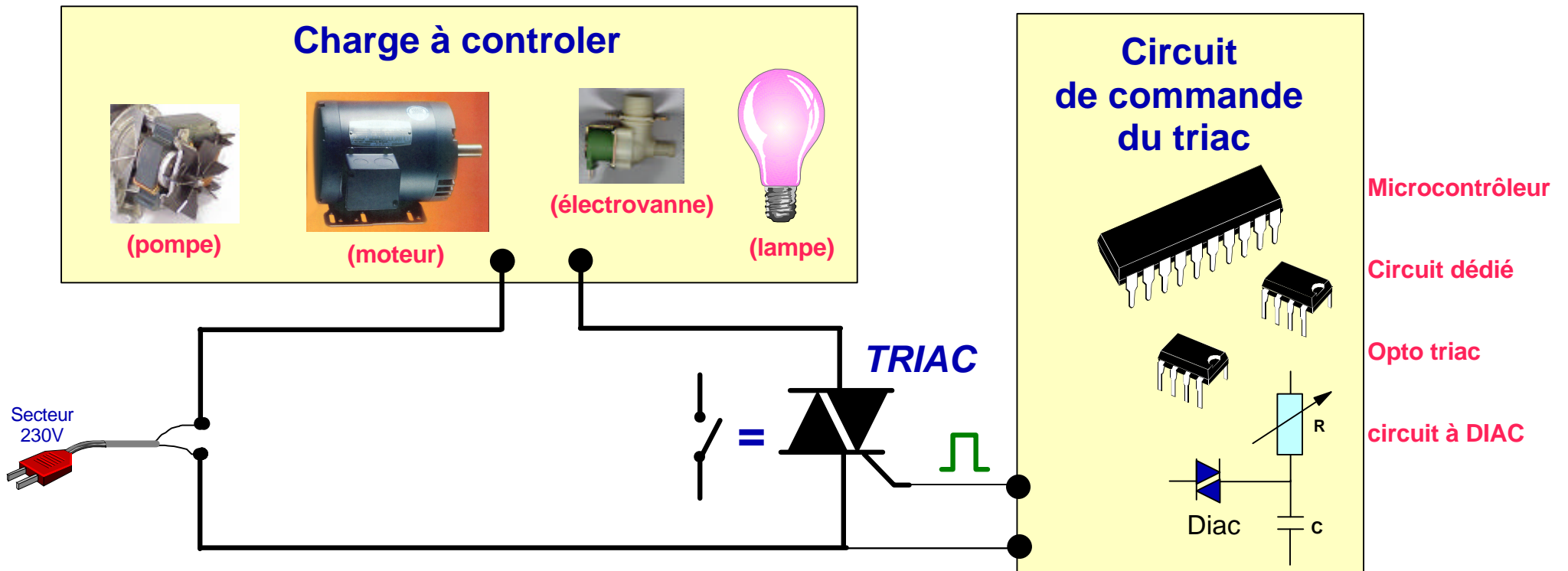


D2PAK
12 to 25 Amps

Excellence in Power Processing and Protection

TRIAC

Interrupteur bidirectionnel

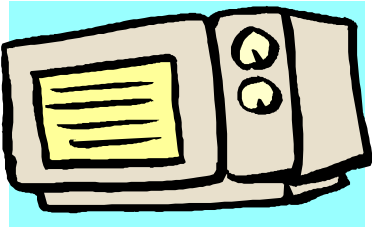


LES APPLICATIONS

- ▶ Electroménager
- ▶ Eclairage
- ▶ HVAC (Heating, Ventilation, Air conditioning)
- ▶ TV - Equipements de bureau
- ▶ Industriel
- ▶ Automobile

LES APPLICATIONS DES TRIACS

Gros Electroménager



Transfo magneton
Plateau tournant
Lampe
Grill

- ▶ Machines à laver
- ▶ Réfrigérateur
- ▶ Aspirateur
- ▶ Cuisinière
- ▶ Four Micro-ondes



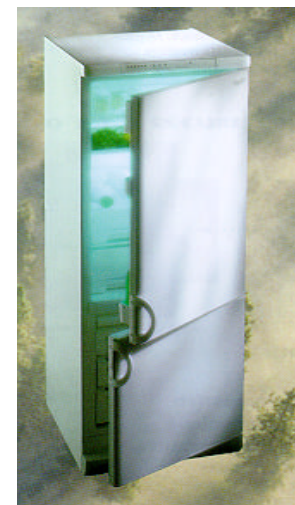
Moteur tambour
Pompe
Electrovannes
Résistance chauffante
Moteur timer
Boîte détergent...



Moteur
(vitesse turbine)



Plaques chauffantes
Four

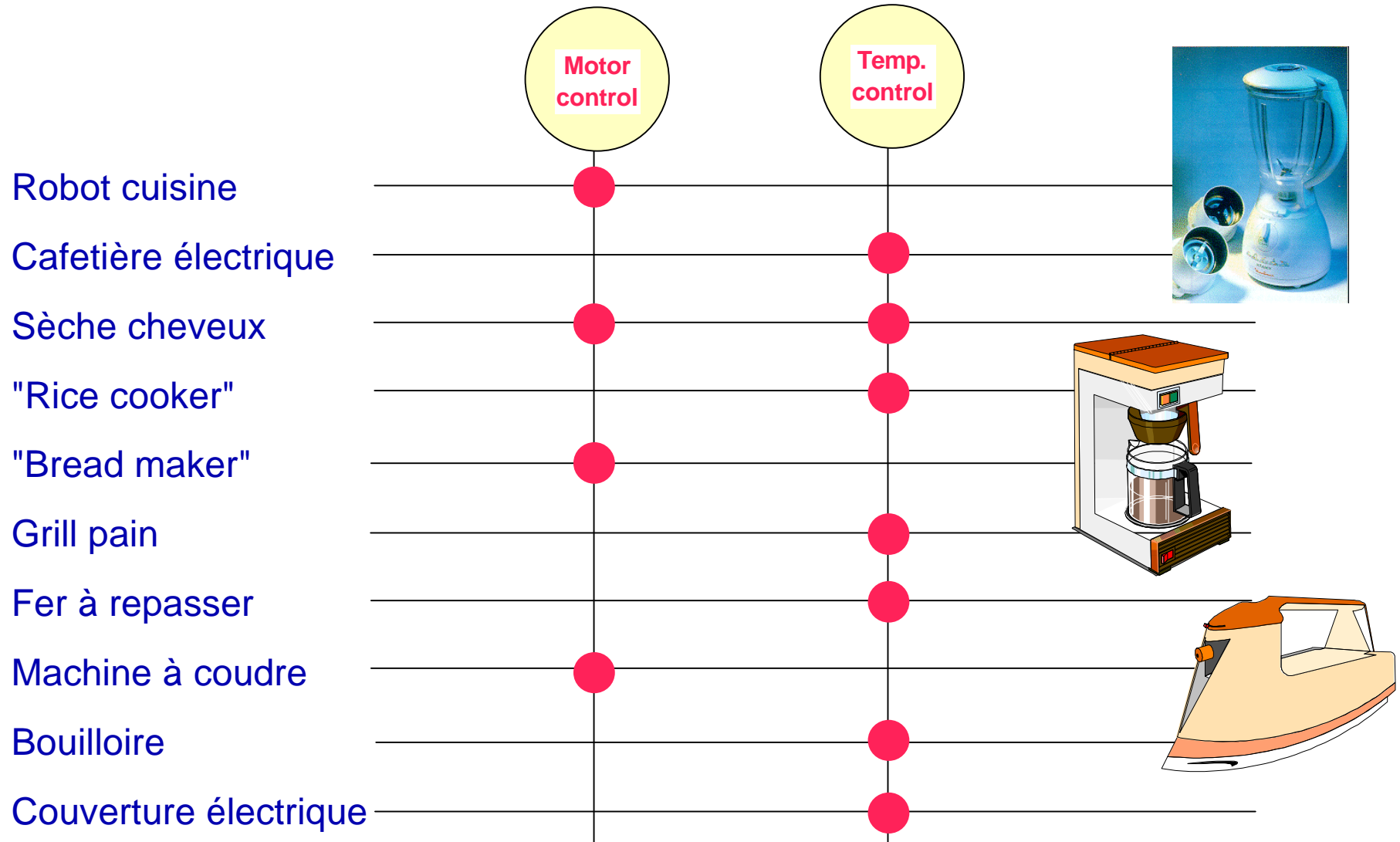


Moteur compresseur
Ventilateur evap.
Dégivrage
Lampe
Electrovannes

Excellence in Power Processing and Protection

LES APPLICATIONS DES TRIACS

Petit Electroménager

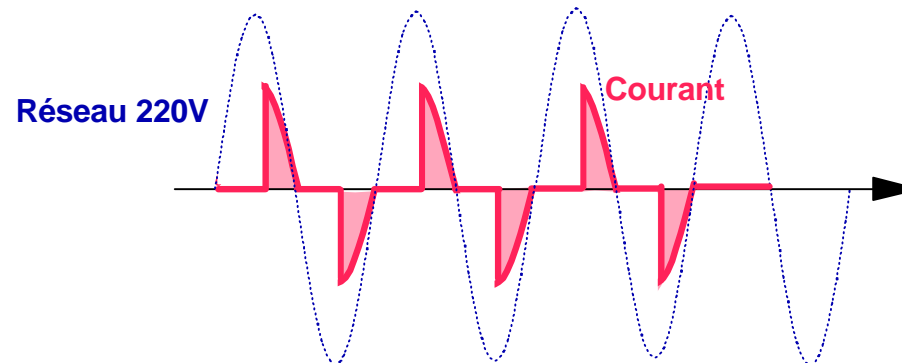
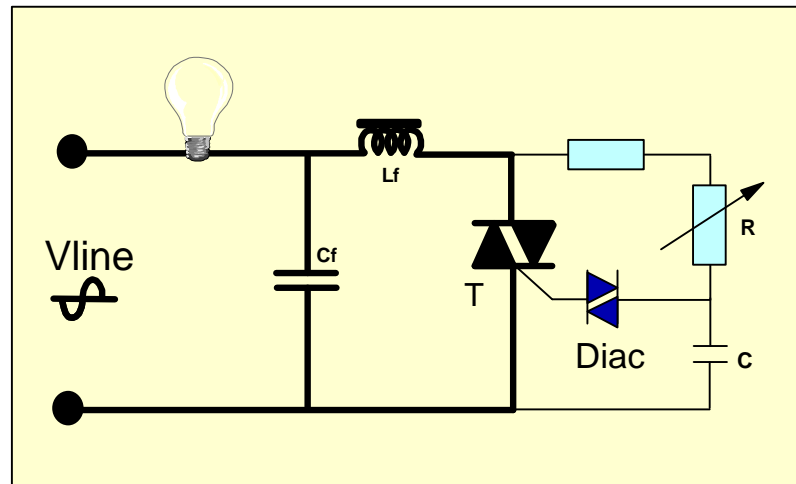
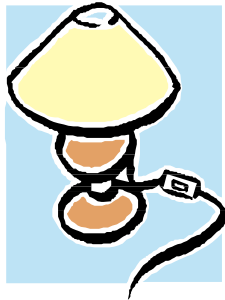


Excellence in Power Processing and Protection

LES APPLICATIONS DES TRIACS

Eclairage

Gradateur de lumière



Contrôle de la puissance par angle de phase

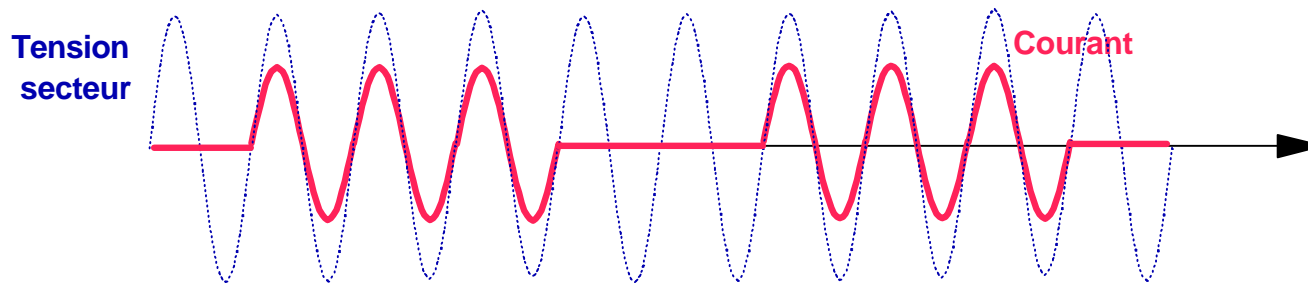
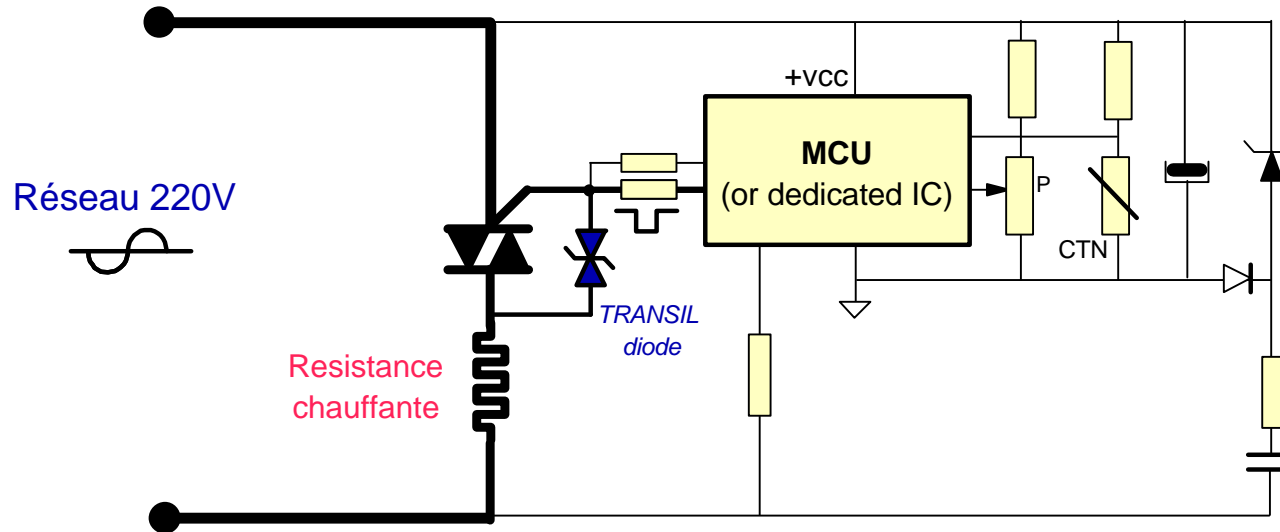
LES APPLICATIONS DES TRIACS

H.V.A.C

- ▶ Air Conditionné
- ▶ Ventilateurs
- ▶ Chauffage électrique
- ▶ Chauffe eau (instantané)



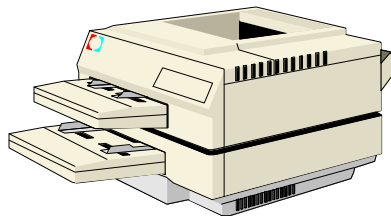
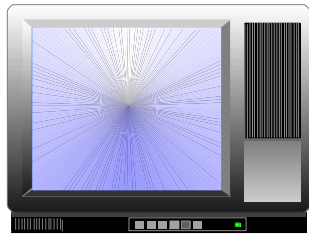
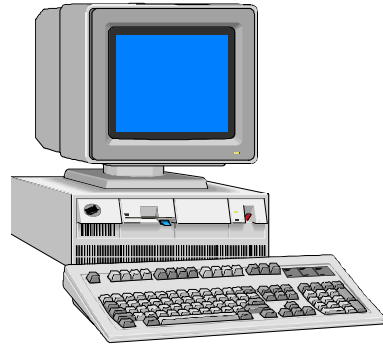
CHAUFFAGE ELECTRIQUE



Contrôle de la puissance par trains d'alternances

LES APPLICATIONS DES TRIACS

TV - Equipements de bureau



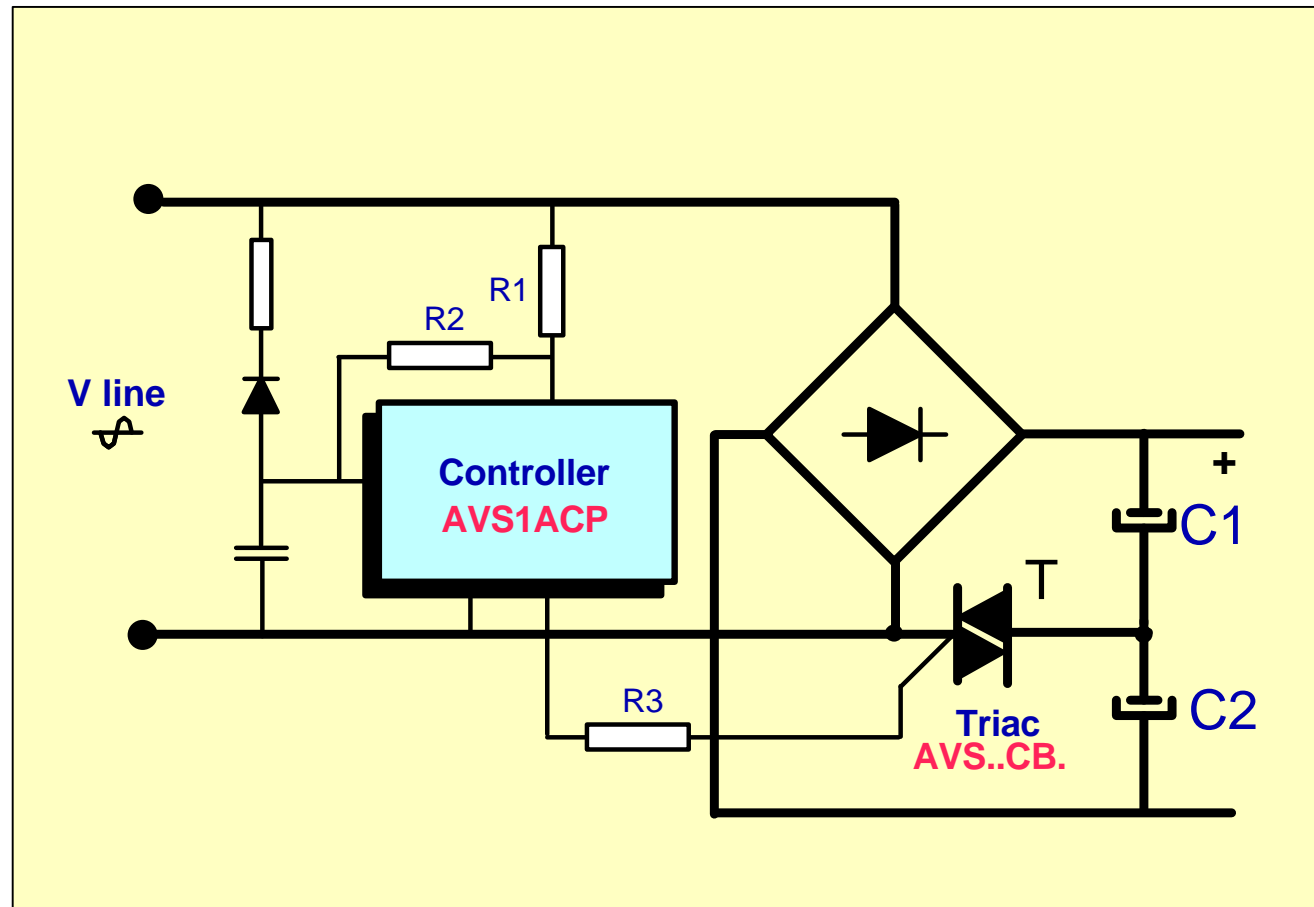
- ▶ **Automatic Voltage Switch**
(Commuteur automatique 110-220v)
- ▶ Limitation courant d'appel
(Alimentation)
- ▶ circuit de démagnétisation
- ▶ "Toner heater"
- ▶ " Copying lamp "
- ▶

LES APPLICATIONS DES TRIACS

SMPS - PC

Automatic Voltage Switch (AVS kit)

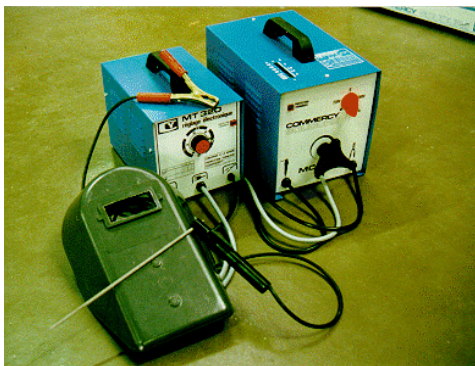
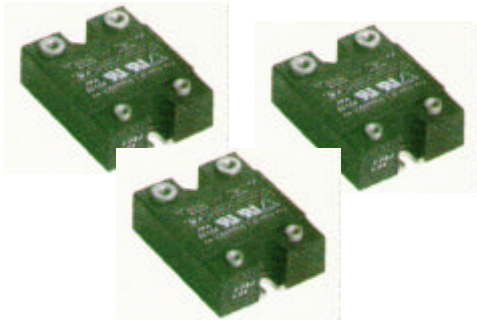
Commutation automatique 100 /220 V



Excellence in Power Processing and Protection

LES APPLICATIONS DES TRIACS

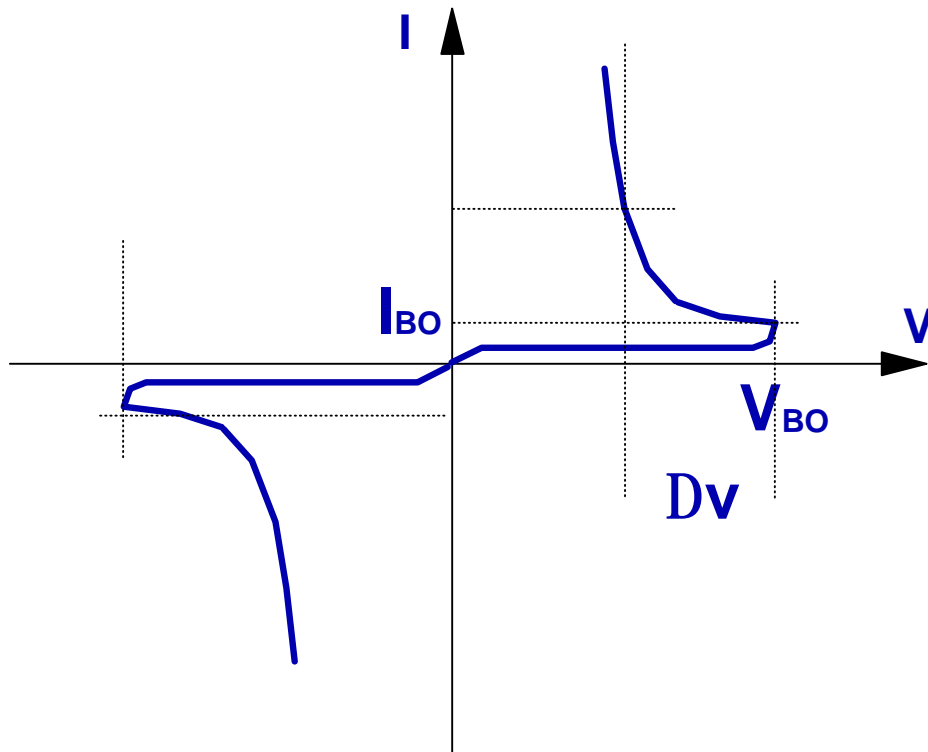
Industriel



- ▶ Relais statique
"Solid State Relay" (**SSR**)
- ▶ Soudure à l'arc
- ▶ Chargeur de batterie
- ▶ Automate programmable
- ▶ Distributeur automatique
- ▶ Système d'irrigation
- ▶



DIAC trigger diode



DB3 :

$V_{BO} = 32 \text{ V}$

$I_{BO} = 100 \mu\text{A}$



Applications :

- ▶ Gradateurs
- ▶ Variateurs de vitesse
(Aspirateurs...)
- ▶ Ballasts électroniques