

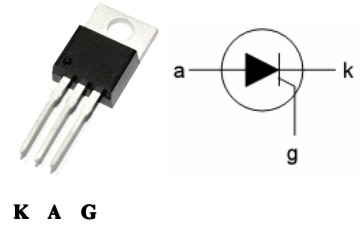
X0805

Thyristors

General Description

- Package: TO-220AB
- Glass passivated thyristors in a plastic envelope, Intended for use in applications requiring high bidirectional blocking voltage capability and high thermal cycling performance. Typical applications include motor control, industrial and domestic lighting, heating and static switching.

DRAWING



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Absolute Ratings (Limiting values)

SYMBOL	PARAMETER			Value	UNIT
I _{T(RMS)}	RMS on-state current (180℃ conduction angel)		T _{amb} =25℃	6	A
I _{T(AV)}	Average on-state current(180℃ conduction angel)		T _{amb} =25℃	5	A
I _{TSM}	Non repetitive surge peak on-state current	tp=8.3ms	T _j =25℃	65	A
		tp=10ms		60	
It	It Value for fusing	tp=10ms	T _j =25℃	18	A²S
Di/Dt	Critical rate of rise of on-state current Ig=2XI _{GT,TR≤100ns}	F=60HZ	T _j =125℃	50	A/us
I _{GM}	Peak gate current	tp=20us	T _j =125℃	1.5	A
Pg(AV)	Average gate power dissipation		T _j =125℃	0.3	W
Tstg	Storage junction temperature range			-40to+150	℃
Tj	Operating junction temperature range			-40to+125	

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

SYMBOL	Test Conditions		Spec		Unit
I_{GT}	$V_D=12V$ $R_L=140\Omega$		MIN	10	μA
			MAX	120	μA
V_{GT}			MAX	0.8	V
V_{GD}	$V_D=V_{DRM}$ $R_L=3.3K\Omega$ $R_{GK}=1K\Omega$	$T_j=125^{\circ}C$	MIN	0.2	V
V_{RG}	$I_{RG}=10\mu A$		MIN	8	V
I_h	$I_t=100mA$ $R_{GK}=1K\Omega$		MAX	3	mA
I_L	$I_G=1mA$ $R_{GK}=1K\Omega$		MIN	4	mA
DV/DT	$V_D=67\%V_{DRM}$ $R_{GK}=1K\Omega$	$T_j=110^{\circ}C$	MIN	15	V/us
V_{TM}	$I_{TM}=12A$ $t_p=380us$	$T_j=25^{\circ}C$	MAX	1.6	V
V_{to}	Threshold voltage	$T_j=125^{\circ}C$	MAX	0.95	V
R_d	Dynamic resistance	$T_j=125^{\circ}C$	MAX	100	$m\Omega$
I_{DRM}	$V_{DRM}=V_{RRM}$ $R_{GK}=1K\Omega$	$T_j=25^{\circ}C$	MAX	5	μA
I_{RRM}		$T_j=125^{\circ}C$		100	μA
V_{DRM}/V_{RRM}			MIN	600	V

Thermal Resistances

SYMBOL	PARAMETER	Value	Unit
Rth(j-l)	Junction to leads(DC)	15	°C/W
Rth(j-a)	Junction to ambient(DC)	100	

Typical Characteristics

Fig. 1: Maximum average power dissipation versus average on-state current.

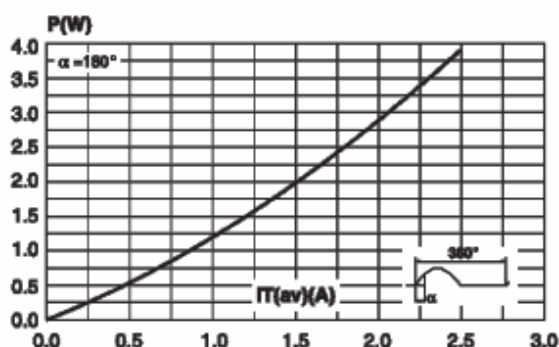


Fig. 2-1: Average and D.C. on-state current versus lead temperature.

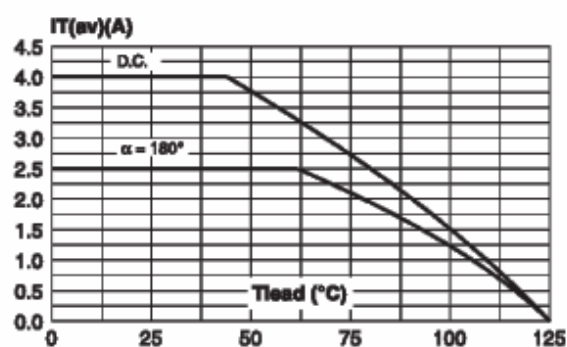


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout).

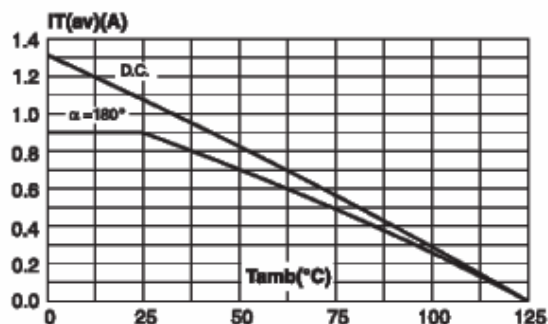


Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.

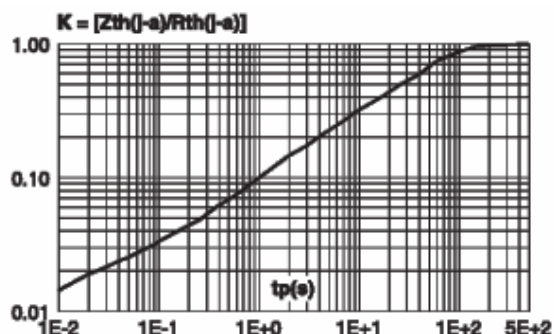


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

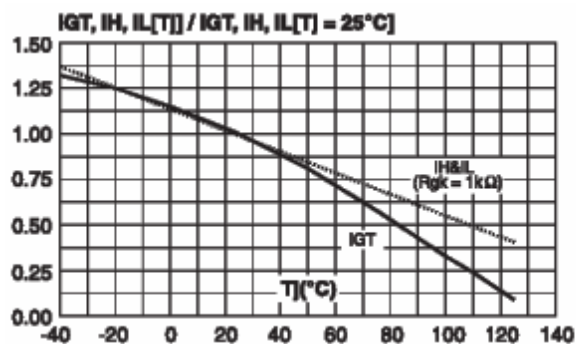


Fig. 5: Relative variation of holding current versus gate-cathode resistance (typical values).

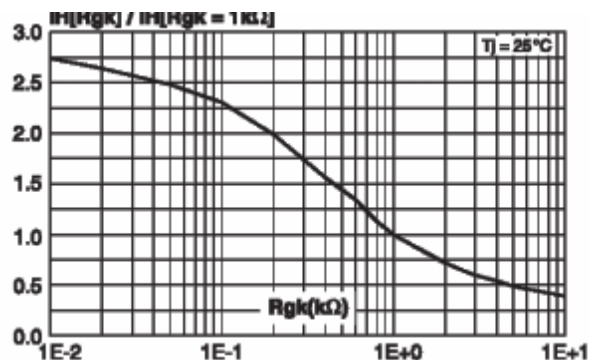


Fig. 6: Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).

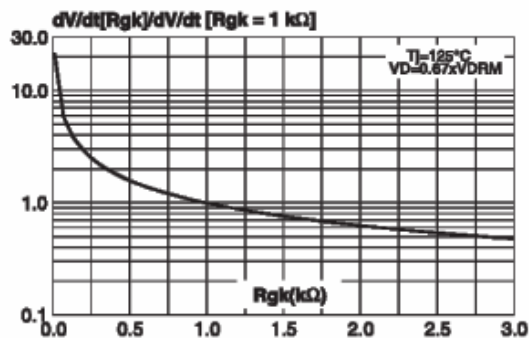


Fig. 7: Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).

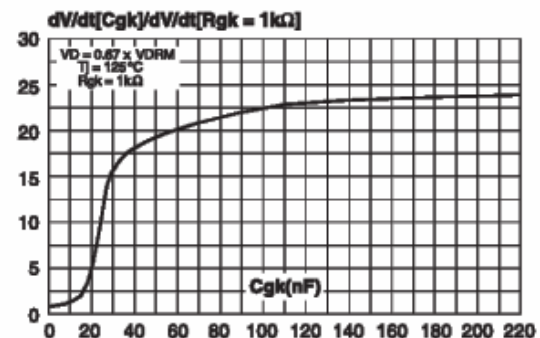


Fig. 8: Surge peak on-state current versus number of cycles.

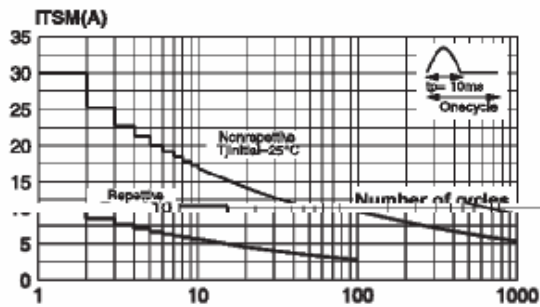


Fig. 9: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ ms}$, and corresponding value of I_t .

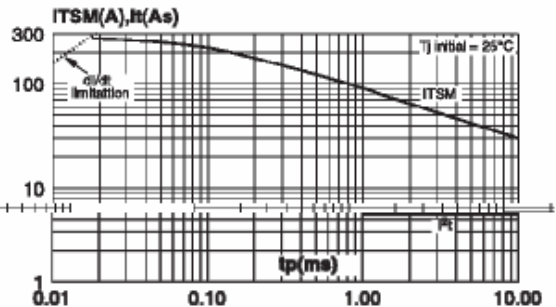
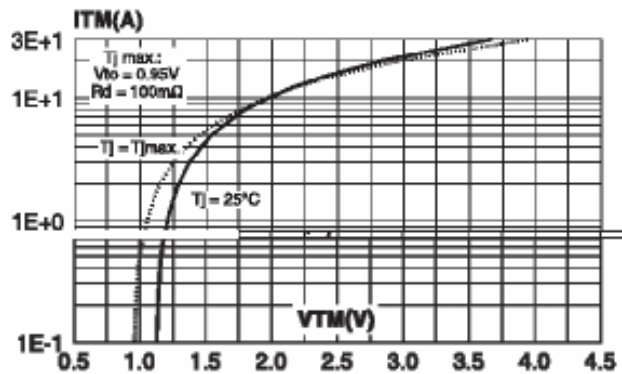


Fig. 10: On-state characteristics (maximum values).



Mechanical Dimensions

