

YAREN STANDARD 8A SCRs
General Description

Glass passivated thyristors in a plastic envelope ,Intended for use 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.

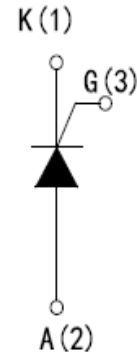
Features

- $I_T(AV)=8A$
- $I_{GT} \leq 10mA$
- $V_{TM} \leq 1.6V$



K A G

To-220 Top View



Schematic Diagram

$$V_{DRM} = 600 V$$

$$I_T(AV) = 8A$$

$$I_{GT} \leq 10mA$$

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
BT151	BT151	T0-220CE	-	-	-

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter/ Condititns	Value	Unit
VDRM/VRRM	Repetitive peak off-state Voltages	600	V
$I_T(AV)$	Average on-state current (half sine wave; $T_{mb} \leq 109^\circ C$)	8	A
$I_T(RMS)$	RMS on-state current (all conduction angles)	12	A
I_{TSM}	Non-repetitive peak on-state current(half sine wave; $T_j = 25^\circ C, t = 10ms$)	100	A
	Non-repetitive peak on-state current(half sine wave; $T_j = 25^\circ C, t = 8.3ms$)	110	A
$I^2 T$	$I^2 T$ for fusing ($t = 10ms$)	50	$A^2 S$
D_{it}/dt	Repetitive rate of rise of on-state current after triggering ($I_{TM} = 20A; I_G = 50mA; D_{ig}/dt = 50mA/us$)	50	A/us
IGM	Peak gate current	2	A
VGM	Peak gate voltage	5	V
PGM	Peak gate power	5	W
$P_G(AV)$	Average gate power (over any 20 ms period)	0.5	W
T_J	Operating junction temperature	-55 To 150	$^\circ C$

Thermal Resistances

Symbol	Parameter	Value	Unit
Rth(j-c)	Junction to case(DC)	1.3	°C/W
Rth(j-a)	Junction-to-Ambient(DC)	60	°C/W

Electrical Characteristics (TA=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
IGT	Gate trigger current	VD=12V IT=0.1V		4	10	mA
VGT	Gate trigger Voltage	VD=12V IT=0.1V		0.6	1.5	V
		VD=VDRM(MAX);IT=0.1A;TJ=125°C	0.25	0.4		V
VT	On-state voltage	VIT=23A		1.4	1.75	V
IL	Latching current	VD=12V IT=0.1V		10	40	mA
IH	Holding current	VD=12V IT=0.1V		7	20	mA
ID/IR	Off-state leakage current	VD=VDRM(MAX);VR=VRRM(MAX);TJ=125°C		0.1	0.5	mA

Dynamic Characteristics

DVD/DT	Critical rate of rise or off-state voltage	VDM=67%VDRM(MAX) ; TJ=125 °C; (Gate open circuit)	50	130		V/us
		RGK=100Ω	200	1000		V/us
TGT	Gate controlled turn-on time	ITM=40A;VD=VDRM(MAX);IG=0.1 A, Dig/dt=5A/us		2		us
TG	Circuit commutated turn-off time	VD=67%VDRM(MAX);TJ=125 °C ITM=20A;VR=25V;Ditm/dt=30A/us dvd/dt=50V/us;Rgk=100 Ω		70	5	us

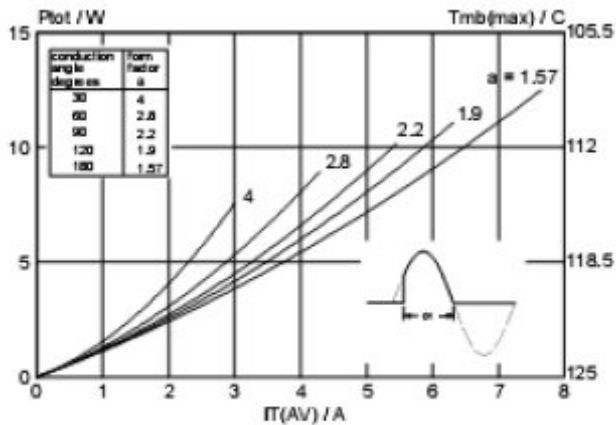
Characteristics Curve:


Fig.1. Maximum on-state dissipation, P_{totr} versus average on-state current, $I_{T(AV)}$ where $a = \text{form factor} = \frac{I_{T(RMS)}}{I_{T(AV)}}$

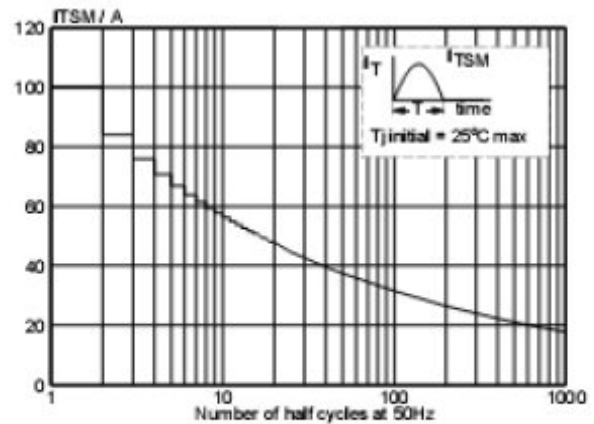


Fig.4. Maximum permissible non-repetitive peak on-state current I_{TSM} versus number of cycles, for sinusoidal currents, $f = 50 \text{ Hz}$.

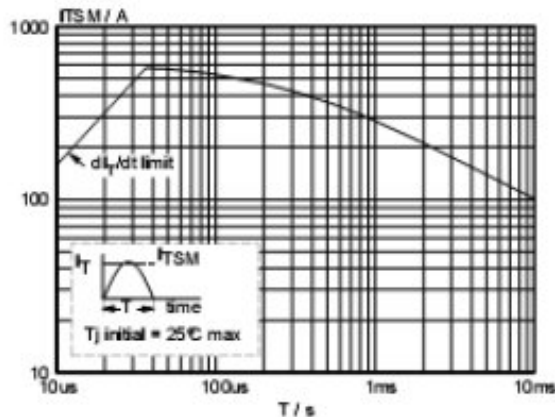


Fig.2. Maximum permissible non-repetitive peak on-state current I_{TSM} versus pulse width t_p , for sinusoidal currents, $t_p \leq 10 \text{ ms}$.

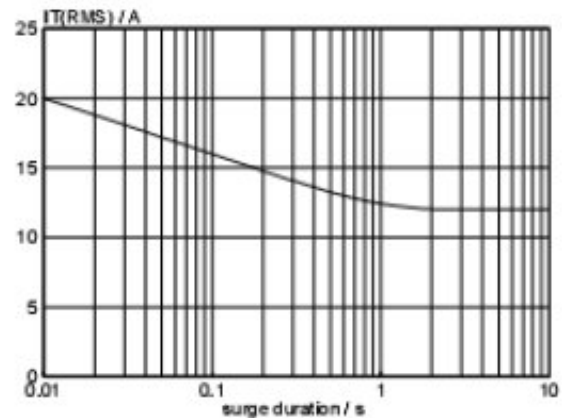


Fig.5. Maximum permissible repetitive rms on-state current $I_{T(RMS)}$ versus surge duration, for sinusoidal currents, $f = 50 \text{ Hz}$; $T_{mb} \leq 109^\circ \text{C}$.

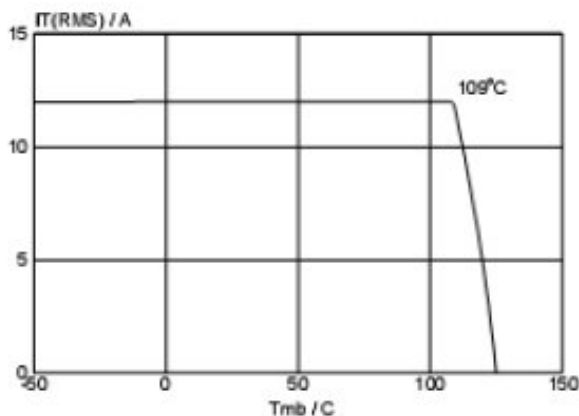


Fig.3. Maximum permissible rms current $I_{T(RMS)}$ versus mounting base temperature T_{mb} .

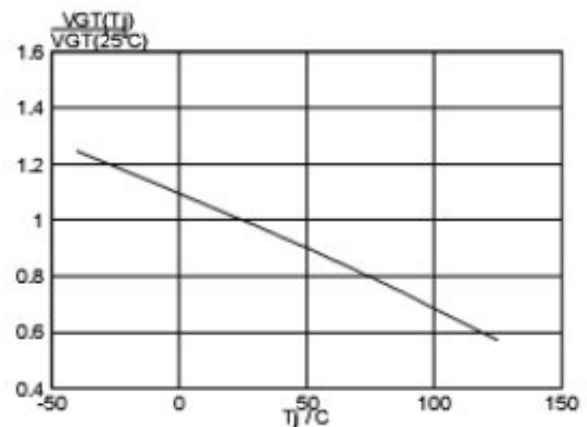


Fig.6. Normalised gate trigger voltage $\frac{V_{GT}(T_j)}{V_{GT}(25^\circ \text{C})}$, versus junction temperature T_j .