

**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.

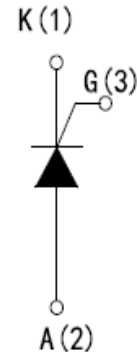
**Features**

- $I_T(AV)=13A$
- $I_{GT} \leq 15mA$
- $V_{TM} \leq 1.6V$



K A G

To-220 Top View



Schematic Diagram

$$V_{DRM} = 600 V$$

$$I_T(AV) = 13A$$

$$I_{GT} \leq 15mA$$

**Package Marking and Ordering Information**

| Device Marking | Device | Device Package | Reel Size | Tape width | Quantity |
|----------------|--------|----------------|-----------|------------|----------|
| BT152          | BT152  | 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; $T_{mb} \leq 109^\circ C$ )  | 13         | A          |
| $I_T(RMS)$  | RMS on-state current (all conduction angles)   | 20         | A          |
| $I_{TSM}$   | Non-repetitive peak on-state current(half sine wave; $T_j=25^\circ C$ $t=10ms$ )                                 | 200        | A          |
|             | Non-repetitive peak on-state current(half sine wave; $T_j=25^\circ C$ $t=8.3ms$ )                                | 220        | A          |
| $I^2T$      | $I^2T$ for fusing ( $t=10ms$ )   | 200        | $A^2S$     |
| $D_{it}/dt$ | Repetitive rate of rise of on-state current after triggering ( $I_{TM}=20A$ ; $I_G=50mA$ ; $D_{ig}/dt=50mA/us$ ) | 200        | A/us       |
| IGM         | Peak gate current  | 5          | A          |
| VGM         | Peak gate voltage  | 5          | V          |
| PGM         | Peak gate power  | 20         | 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)    | 1.1   | °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   | 15   | 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                     |      | 25  | 80   | mA   |
| IH     | Holding current           | VD=12V IT=0.1V                     |      | 15  | 60   | mA   |
| ID/IR  | Off-state leakage current | VD=VDRM(MAX);VR=VRRM(MAX);TJ=125°C |      | 0.2 | 1.0  | mA   |

**Dynamic Characteristics**

|        |  |   |     |      |  |      |
|--------|--|---|-----|------|--|------|
| DVD/DT | Critical rate of rise or off-state voltage | VDM=67%VDRM(MAX) ; TJ=125 °C; (Gate open circuit)                                     | 200 | 300  |  | 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<br>ITM=20A;VR=25V;Ditm/dt=30A/us<br>dvd/dt=50V/us;Rgk=100 Ω |     | 70   |  | us   |

**Characteristics Curve:**
