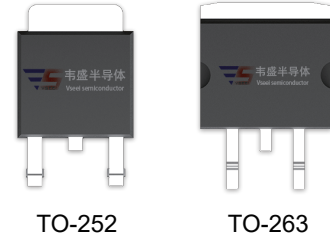


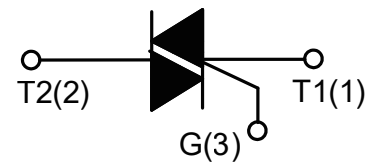
DESCRIPTION:

The BT137S-600F SCR series with the parallel resistor between Gate and Cathode are especially recommended for use on straight hair, igniter, anion generator, etc.



MAIN FEATURES

| Symbol | Value | Unit |
|-------------------|---------|------|
| $I_{T(RMS)}$ | 8 | A |
| V_{DRM}/V_{RRM} | 600/800 | V |



ABSOLUTE MAXIMUM RATINGS

| Parameter | | Symbol | Value | Unit |
|---|---|--------------|---------|------------------------|
| Storage junction temperature range | | T_{stg} | -40-150 | °C |
| Operating junction temperature range | | T_j | -40-125 | °C |
| Repetitive peak off-state voltage($T_j=25^{\circ}\text{C}$) | | V_{DRM} | 600/800 | V |
| Repetitive peak reverse voltage($T_j=25^{\circ}\text{C}$) | | V_{RRM} | 600/800 | V |
| RMS on-state current | TO-252 ($T_C=103^{\circ}\text{C}$) | $I_{T(RMS)}$ | 8 | A |
| | TO-263 ($T_C=85^{\circ}\text{C}$) | | | |
| Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$) | | I_{TSM} | 65 | A |
| I^2t value for fusing ($t_p=10\text{ms}$) | | I^2t | 21 | A^2s |
| Peak gate current | | I_{GM} | 2 | A |
| Critical rate of rise of on-state current($I_G=2 \times I_{GT}$) | I - II - III | di/dt | 50 | $\text{A}/\mu\text{s}$ |
| | IV | | 10 | |
| Average gate power dissipation | | $P_{G(AV)}$ | 0.5 | W |
| Peak gate power | | P_{GM} | 5 | W |

ELECTRICAL CHARACTERISTICS ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

| Symbol | Test Condition | Quadrant | | Value | | | | Unit |
|----------|--|-------------|-----|-------|----|----|-----|------------------|
| | | | | D | E | F | G | |
| I_{GT} | $V_D=12\text{V}$ $R_L=30\Omega$ | I - II -III | MAX | 5 | 10 | 25 | 50 | mA |
| | | IV | | 10 | 25 | 70 | 100 | |
| V_{GT} | | ALL | MAX | 1.3 | | | | V |
| V_{GD} | $V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$ | ALL | MIN | 0.2 | | | | V |
| I_L | $I_G=1.2I_{GT}$ | I -III | MAX | 10 | 20 | 50 | 70 | mA |
| | | II -IV | | 20 | 30 | 70 | 100 | |
| I_H | $I_T=100\text{mA}$ | | MAX | 10 | 15 | 40 | 60 | mA |
| dV/dt | $V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$ | | MIN | 20 | 50 | 50 | 200 | V/ μs |

STATIC CHARACTERISTICS

| Symbol | Parameter | | Value(MAX) | Unit |
|-----------|--|---------------------------|------------|---------------|
| V_{TM} | $I_{TM}=10\text{A}$ $t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$ | 1.6 | V |
| I_{DRM} | $V_D=V_{DRM}$ $V_R=V_{RRM}$ | $T_j=25^{\circ}\text{C}$ | 5 | μA |
| I_{RRM} | | $T_j=125^{\circ}\text{C}$ | 1 | mA |

THERMAL RESISTANCES

| Symbol | Parameter | | Value | Unit |
|---------------|----------------------|------------|-------|-----------------------------|
| $R_{th(j-c)}$ | junction to case(AC) | TO-252 2.1 | | $^{\circ}\text{C}/\text{W}$ |
| | | TO-263 | 3.1 | |
| $R_{th(j-a)}$ | junction to ambient | TO-252 70 | | $^{\circ}\text{C}/\text{W}$ |
| | | TO-263 | 45 | |

FIG.1: Maximum power dissipation versus RMS on-state current

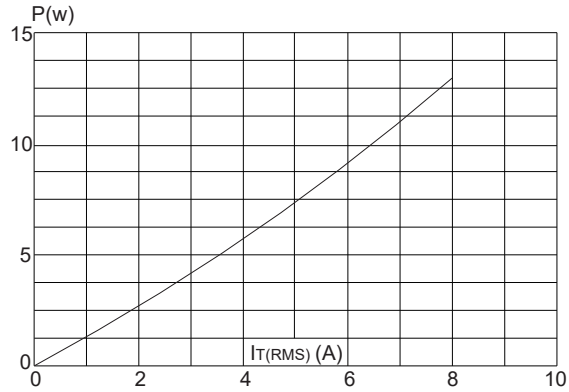


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4,copper thickness:35 μm)(full cycle)

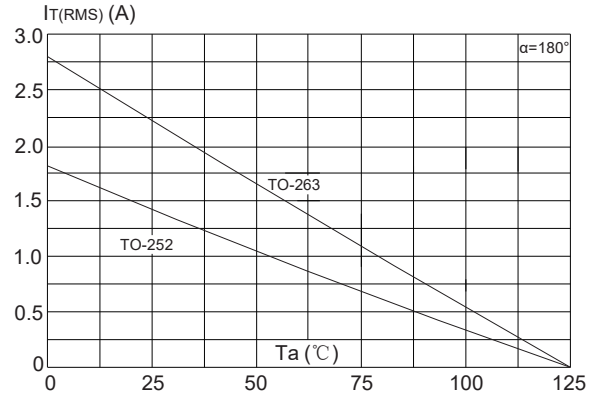


FIG.3: Surge peak on-state current versus number of cycles

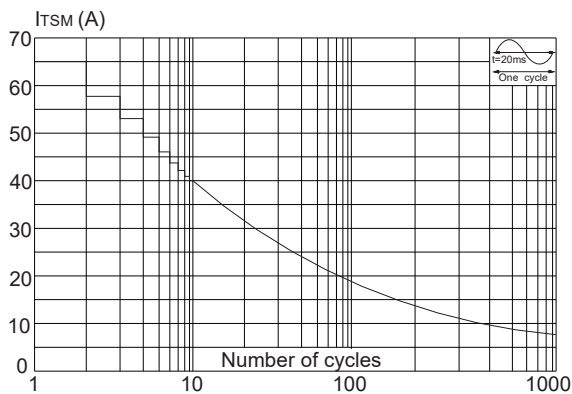


FIG.4: On-state characteristics (maximum values)

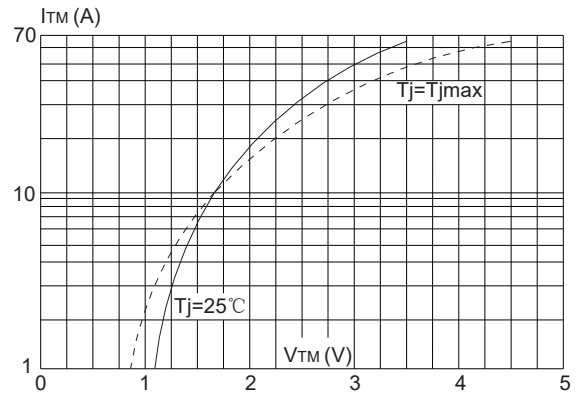


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$, and corresponding value of I^2t (I - II -III: $dI/dt < 50\text{A}/\mu\text{s}$; IV: $dI/dt < 10\text{A}/\mu\text{s}$)

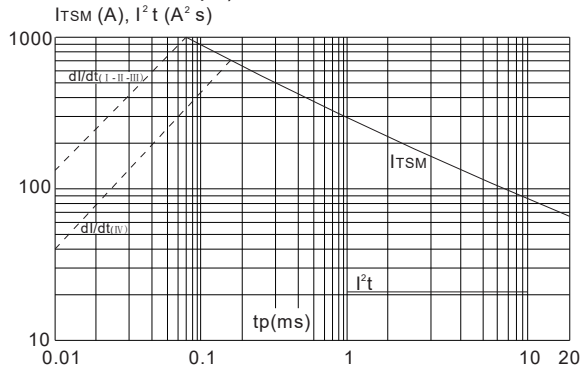


FIG.7: Relative variations of holding current versus junction temperature

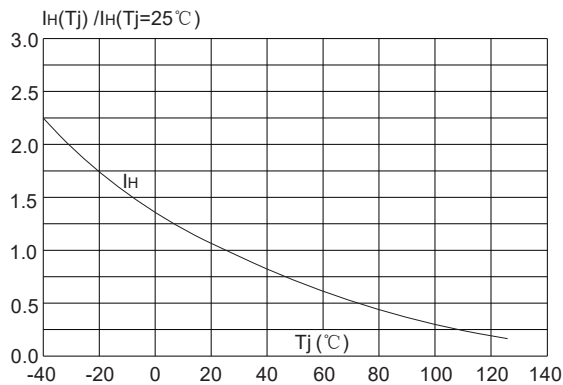


FIG.6: Relative variations of gate trigger current versus junction temperature

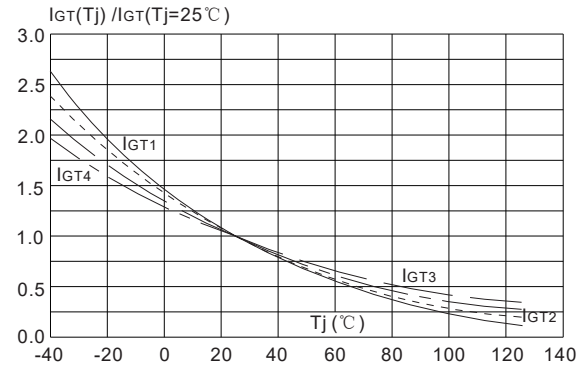
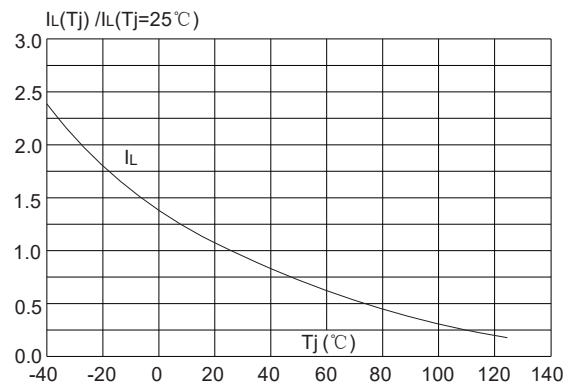


FIG.8: Relative variations of latching current versus junction temperature



SOLDERING PARAMETERS

| Reflow Condition | | Pb-Free assembly (see figure at right) |
|---|--------------------------------------|---|
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150°C |
| | -Temperature Max ($T_{s(max)}$) | +200°C |
| | -Time (Min to Max) (t_s) | 60-180 secs. |
| Average ramp up rate (Liquidus Temp (T_L) to peak) | | 3°C/sec. Max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3°C/sec. Max |
| Reflow | -Temperature(T_L) (Liquidus) | +217°C |
| | -Temperature(t_L) | 60-150 secs. |
| Peak Temp (T_P) | | +260(+0/-5)°C |
| Time within 5°C of actual Peak Temp (t_P) | | 20-40secs. |
| Ramp-down Rate | | 6°C/sec. Max |
| Time 25°C to Peak Temp (T_P) | | 8 min. Max |
| Do not exceed | | +260°C |

