

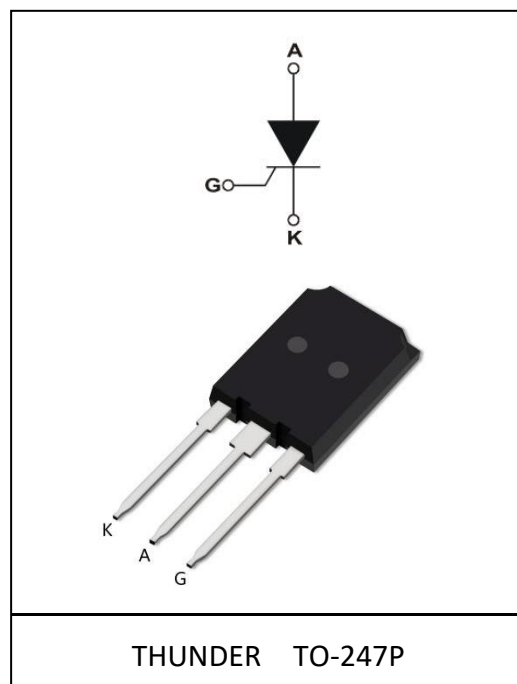
## Silicon Controlled Rectifier

### Description

BCB125-1600P, with high ability to withstand the shock loading of large current, provide high dv/dt rate with strong resistance to electromagnetic interference.

### Main Features

| Product Summary   |         |
|-------------------|---------|
| $V_{DRM}/V_{RRM}$ | 1600 V  |
| $I_{T(RMS)}$      | 125A    |
| $I_{GT}$          | 30~80mA |



### Absolute Maximum Ratings:

| Symbol       | Parameter                                                         | Value   | Units            |
|--------------|-------------------------------------------------------------------|---------|------------------|
| $T_{stg}$    | Storage junction temperature range                                | -40-150 | °C               |
| $T_j$        | Operating Junction Temperature                                    | -40-150 | °C               |
| $V_{DRM}$    | Repetitive peak off-state voltage                                 | 1600    | V                |
| $V_{RRM}$    | Repetitive peak reverse voltage                                   | 1600    | V                |
| $I_{T(AV)}$  | average on-state current                                          | 90      | A                |
| $I_{T(RMS)}$ | RMS on-state current( $T_c=25^{\circ}C$ )                         | 125     | A                |
| $I_{TSM}$    | Non repetitive surge peak on-state voltage( $t_p=10ms$ )          | 1250    | A                |
| $I^2t$       | $I^2t$ value for fusing ( $t_p=10ms$ )                            | 7800    | A <sup>2</sup> S |
| di/dt        | Critical rate of rise of on-state current( $I_G=2 \cdot I_{GT}$ ) | 150     | A/ $\mu$ S       |
| $I_{GM}$     | Peak gate current                                                 | 4       | A                |
| $P_{G(AV)}$  | Average gate power dissipation                                    | 1       | W                |
| $P_{GM}$     | Peak gate power                                                   | 5       |                  |

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

| Symbol   | Test Conditions                                   | Min  | Typ | Max | Unit       |
|----------|---------------------------------------------------|------|-----|-----|------------|
| $I_{GT}$ | $V_D=12V$ $R_L=33\Omega$                          | 30   |     | 80  | mA         |
| $V_{GT}$ |                                                   |      |     | 1.5 | V          |
| $V_{GD}$ | $V_D=V_{DRM}$ $T_j=125^{\circ}C$ $R_L=3.3k\Omega$ | 0.25 |     |     | V          |
| $I_L$    | $I_G=1.2I_{GT}$                                   | 60   |     |     | mA         |
| $I_H$    | $I_T=1A$                                          | 30   |     |     | mA         |
| dv/dt    | $V_D=2/3V_{DRM}$ $T_j=125^{\circ}C$ Gate Open     | 1000 |     |     | V/ $\mu$ s |

## Static Characteristics

| Symbol    | Test Conditions                          | $T_j (^{\circ}\text{C})$ | Min | Typ | Max  | Unit          |
|-----------|------------------------------------------|--------------------------|-----|-----|------|---------------|
| $V_{TM}$  | $I_{TM}=90\text{A}$ $t_p=380\mu\text{s}$ | 25                       |     |     | 1.40 | V             |
| $I_{DRM}$ | $V_D=V_{DRM}$ $V_R=V_{RRM}$              | 25                       |     |     | 50   | $\mu\text{A}$ |
| $I_{RRM}$ |                                          | 125                      |     |     | 10   | mA            |

## Thermal characteristics

| Parameter        | Symbol        | Typ. | Units                       |
|------------------|---------------|------|-----------------------------|
| Junction-to-Case | $R_{th(j-c)}$ | 0.3  | $^{\circ}\text{C}/\text{W}$ |

## Typical Performance Characteristics

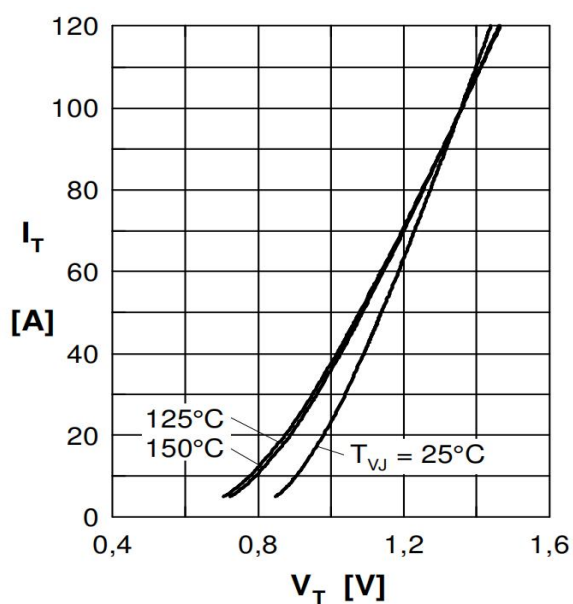


Fig. 1 Forward characteristics

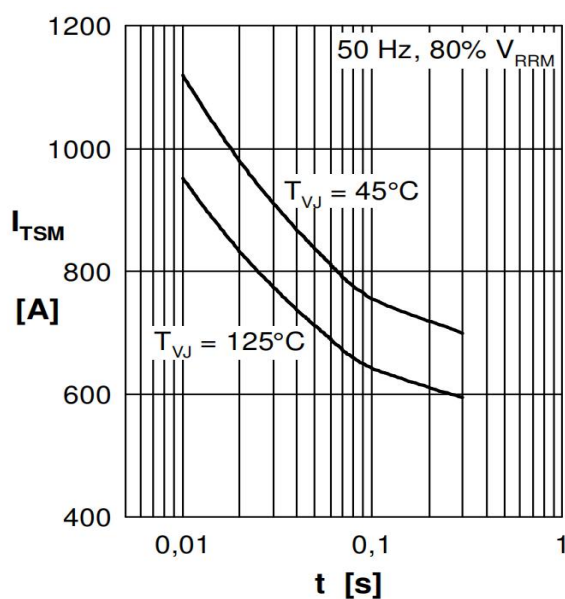


Fig. 2 Surge overload current

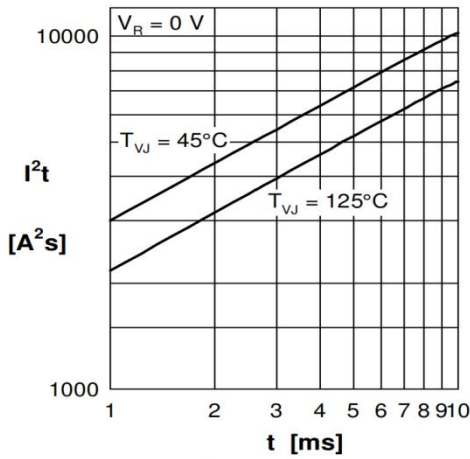


Fig. 3  $I^2t$  versus time (1-10 ms)

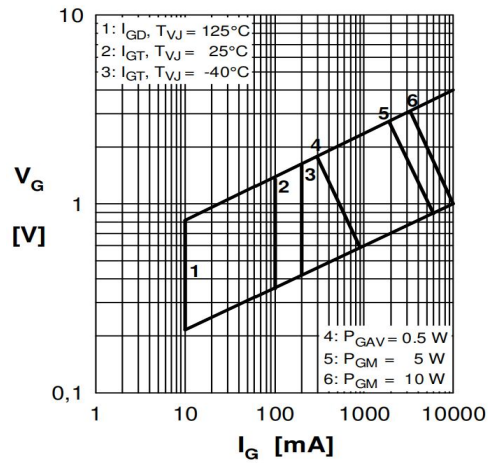


Fig. 4 Gate trigger characteristics

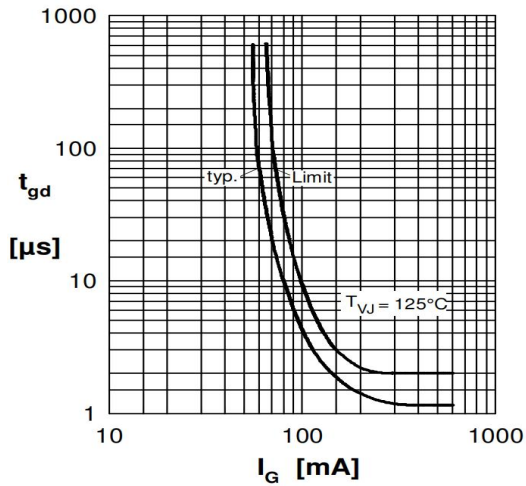


Fig. 5 Gate controlled delay time

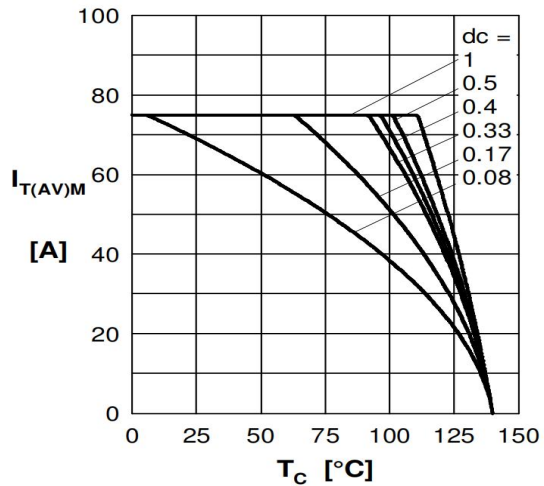


Fig. 6 Max. forward current at case temperature

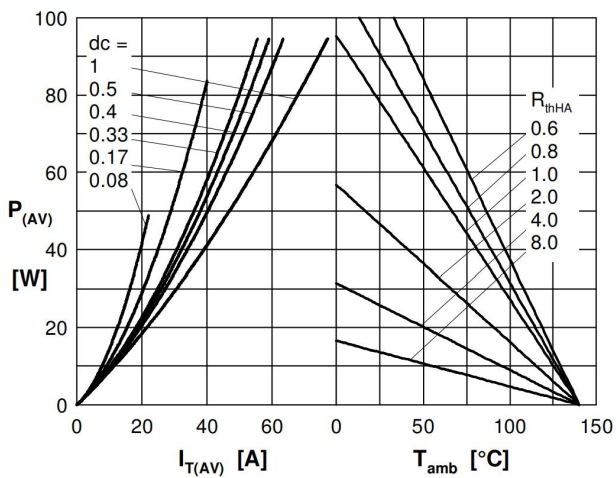


Fig. 7a Power dissipation versus direct output current  
Fig. 7b and ambient temperature

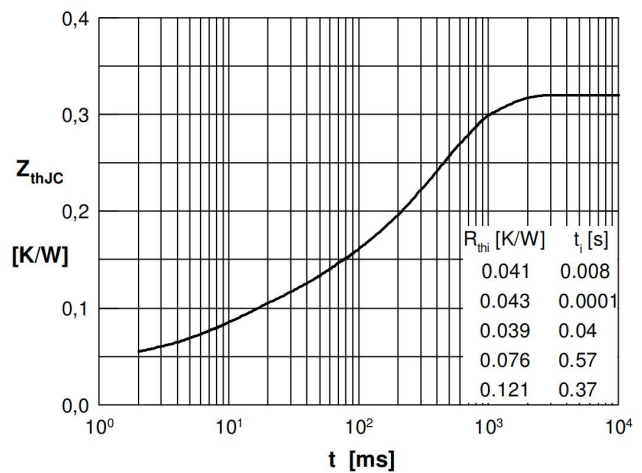
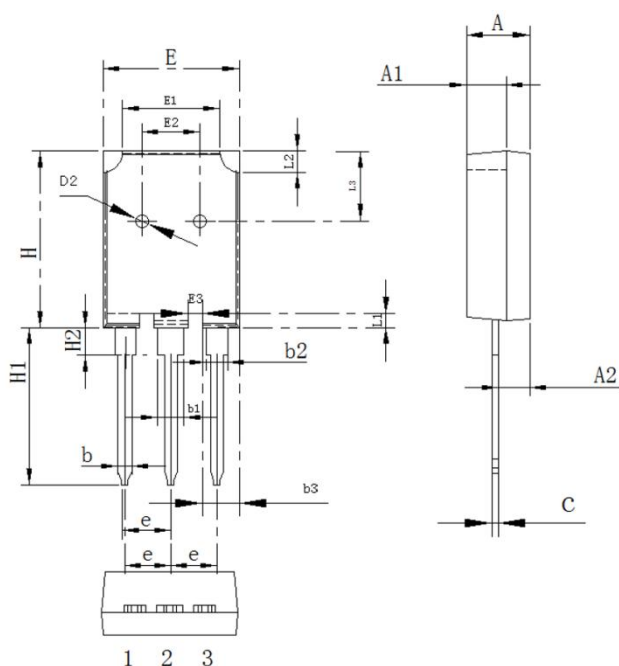


Fig. 8 Transient thermal impedance junction to case

## Package Information

### TO-247P PACKAGE

#### 基本尺寸



| Symbol | 单位 mm |      |      |
|--------|-------|------|------|
|        | Min   | Nom  | Max  |
| A      | 4.80  | 5.00 | 5.20 |
| A1     | 2.80  | 3.0  | 3.20 |
| A2     | 2.20  | 2.4  | 2.60 |
| b      | 1.00  | 1.20 | 1.40 |
| b1     | 2.90  | 3.10 | 3.30 |
| b2     | 1.90  | 2.10 | 2.30 |
| b3     | 3.90  | 4.10 | 4.30 |
| c      | 0.45  | 0.60 | 0.75 |
| e      | 5.25  | 5.45 | 5.65 |
| E      | 15.6  | 15.8 | 16.0 |
| E1     | 10.2  | 10.6 | 11.0 |
| E2     | 6.30  | 6.06 | 6.90 |
| E3     | 1.60  | 1.80 | 2.00 |
| L1     | 0.35  | 0.50 | 0.65 |
| L2     | 1.80  | 2.00 | 2.20 |
| L3     | 9.50  | 10.0 | 10.5 |
| H      | 20.5  | 21.0 | 21.5 |
| H1     | 19.5  | 20.0 | 20.5 |
| H2     | 3.50  | 4.00 | 4.50 |

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