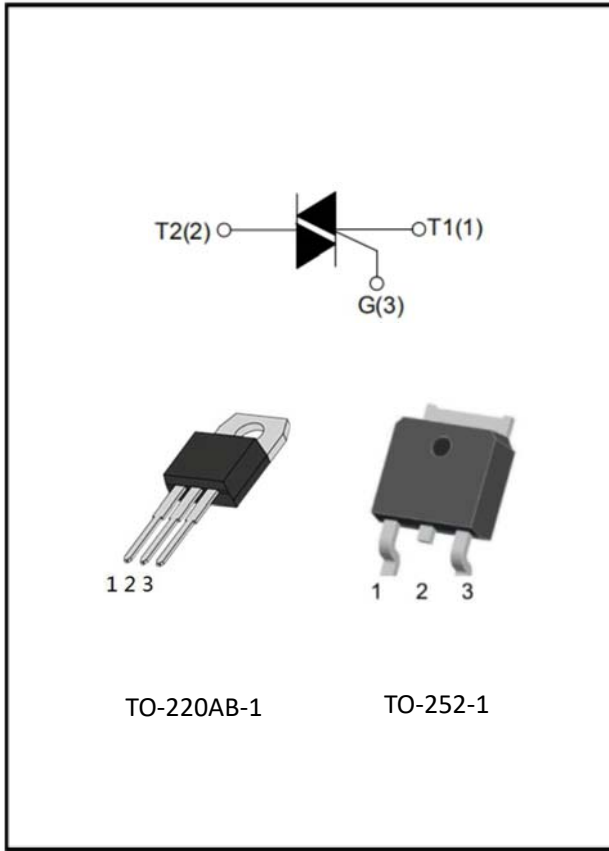


## 4A 4Q Triac



### Features

- On-state RMS current,  $I_{T(RMS)}$  4 A
- Repetitive peak off-state voltage,  $V_{DRM}/V_{RRM}$  600/800 V
- Triggering gate current,  $I_{GT}(Q1)$  10 mA

### Applications

- General purpose switching and phase control
- General purpose switching

### Mechanical Data

- Case Material: "Green" Molding Compound
- Package: TO-220AB-1; TO-252-1

| DEVICE        | PACAKGE    |
|---------------|------------|
| ACYMB0425-06A | TO-220AB-1 |
| ACYMB0425-06D | TO-252-1   |
| ACYMB0425-08A | TO-220AB-1 |
| ACYMB0425-08D | TO-252-1   |

### Main Characteristics

| SYMBOL            | LIMITS  | UNIT |
|-------------------|---------|------|
| $I_{T(RMS)}$      | 4       | A    |
| $V_{DRM}/V_{RRM}$ | 600/800 | V    |
| $I_{GT}$          | 10      | mA   |

### Maximum Ratings

| PARAMETER                                                           | SYMBOL       | LIMITS       | UNIT             |
|---------------------------------------------------------------------|--------------|--------------|------------------|
| Storage junction temperature range                                  | $T_{stg}$    | -40~150      | °C               |
| Operating junction temperature range                                | $T_j$        | -40~125      | °C               |
| Repetitive surge peak Off-state voltage ( $T_j=25^{\circ}C$ )       | $V_{DRM}$    | 600/800      | V                |
| Repetitive peak reverse voltage ( $T_j=25^{\circ}C$ )               | $V_{RRM}$    | 600/800      | V                |
| RMS on-state current                                                | $I_{T(RMS)}$ | 4            | A                |
| Non-repetitive surge peak on-state current (full cycle, $F=50Hz$ )  | $I_{TSM}$    | 25           | A                |
| $I^2t$ value for fusing ( $t_p=10ms$ )                              | $I^2t$       | 6.1          | A <sup>2</sup> s |
| Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ ) | di/dt        | I - II - III | 50               |
|                                                                     |              | IV           | 10               |
| Peak gate current                                                   | $I_{GM}$     | 2            | A                |
| Average gate power dissipation                                      | $P_{G(AV)}$  | 0.5          | W                |
| Peak gate power                                                     | $P_{GM}$     | 5            | W                |



## ACYMB0425 Series

### ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER                         | SYMBOL          | UNIT | TEST CONDITIONS                                                          | QUADRANT          | MIN | TYP | MAX |
|-----------------------------------|-----------------|------|--------------------------------------------------------------------------|-------------------|-----|-----|-----|
| Gate trigger current              | I <sub>GT</sub> | mA   | V <sub>D</sub> =12V, R <sub>L</sub> =33Ω                                 | I - II - III      |     |     | 10  |
|                                   |                 |      |                                                                          | IV                |     |     | 25  |
| Gate trigger voltage              | V <sub>GT</sub> | V    | V <sub>D</sub> =12V, R <sub>L</sub> =33Ω                                 | I - II - III - IV |     |     | 1.3 |
| Non-triggering gate voltage       | V <sub>GD</sub> | V    | V <sub>D</sub> =V <sub>DRM</sub>                                         | I - II - III - IV | 0.2 |     |     |
| Holding current                   | I <sub>H</sub>  | mA   | I <sub>T</sub> =100mA                                                    | I - II - III - IV |     |     |     |
| Latching current                  | I <sub>L</sub>  | mA   | I <sub>G</sub> =1.2 I <sub>GT</sub>                                      | I - III - IV      |     |     | 20  |
|                                   |                 |      |                                                                          | II                |     |     | 35  |
| Rate of rise of off-state voltage | dV/dt           | V/μs | V <sub>D</sub> =0.66×V <sub>DRM</sub><br>T <sub>j</sub> =125°C Gate open | I - II - III - IV | 50  |     |     |

### ■Static Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER              | SYMBOL           | UNIT | TEST CONDITIONS                                            | MAX |
|------------------------|------------------|------|------------------------------------------------------------|-----|
| Peak on-state voltage  | V <sub>TM</sub>  | V    | I <sub>TM</sub> =5.5A t <sub>p</sub> =380μs                | 1.6 |
| Peak off-state current | I <sub>DRM</sub> | μA   | V <sub>DRM</sub> =V <sub>RRM</sub> , T <sub>j</sub> =25°C  | 5   |
| Peak reverse current   | I <sub>RRM</sub> | mA   | V <sub>DRM</sub> =V <sub>RRM</sub> , T <sub>j</sub> =125°C | 0.5 |

### ■Thermal Resistance (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER                       |                  | SYMBOL            | UNIT | Package    | Value |
|---------------------------------|------------------|-------------------|------|------------|-------|
| Thermal Resistance<br>(Typical) | Junction to case | R <sub>θJ-C</sub> | °C/W | TO-220AB-1 | 2.6   |
|                                 |                  |                   | °C/W | TO-252-1   | 2.8   |

### ■Ordering Information (Example)

| PREFERRED P/N | PACKING CODE | UNIT WEIGHT(mg) | MINMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) |
|---------------|--------------|-----------------|---------------------|-------------------------|----------------------------|
| ACYMB0425-06A | F2           | 1980            | 50                  | 1000                    | 5000                       |
| ACYMB0425-08A | F2           | 1980            | 50                  | 1000                    | 5000                       |
| ACYMB0425-06D | F2           | 324.543         | 2500                | 5000                    | 25000                      |
| ACYMB0425-08D | F2           | 324.543         | 2500                | 5000                    | 25000                      |

## ■ Characteristics (Typical)

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

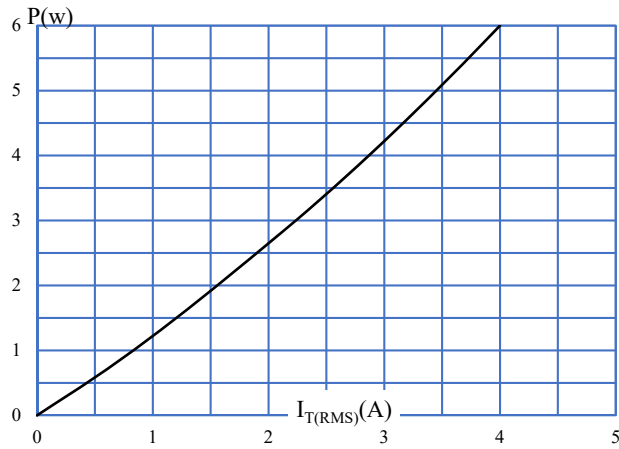


FIG.2: RMS on-state current versus case temperature

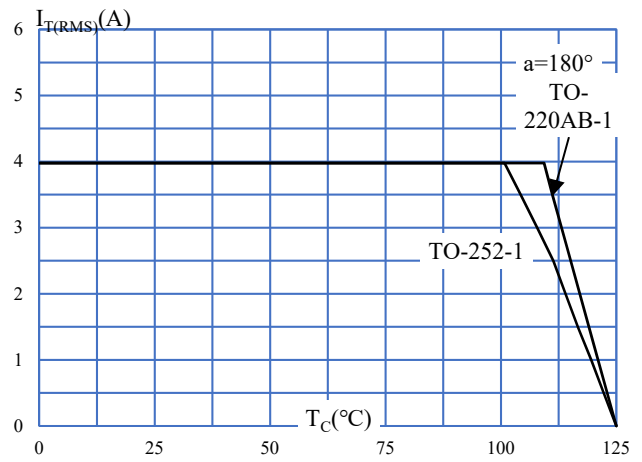


FIG.3: Surge peak on-state current versus number of cycles

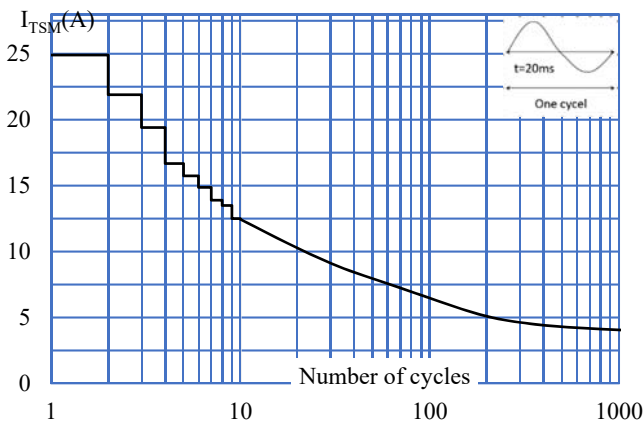


FIG.4: On-state haracteristics(maximum values)

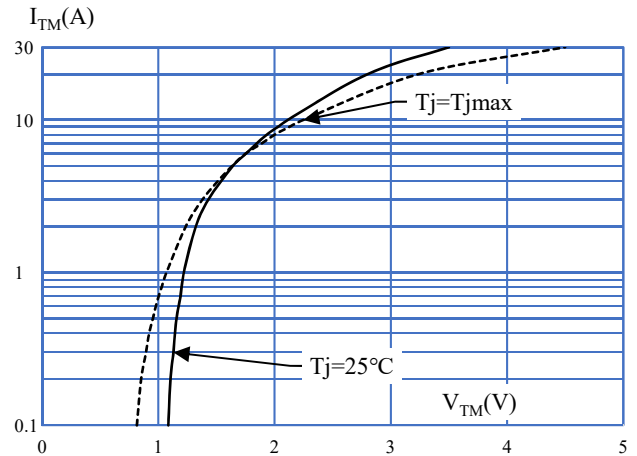


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I_{T2t}$  ( $I_{II-III}: dI/dt < 50\text{A}/\mu\text{s}; I_{IV}: dI/dt < 10\text{A}/\mu\text{s}$ )

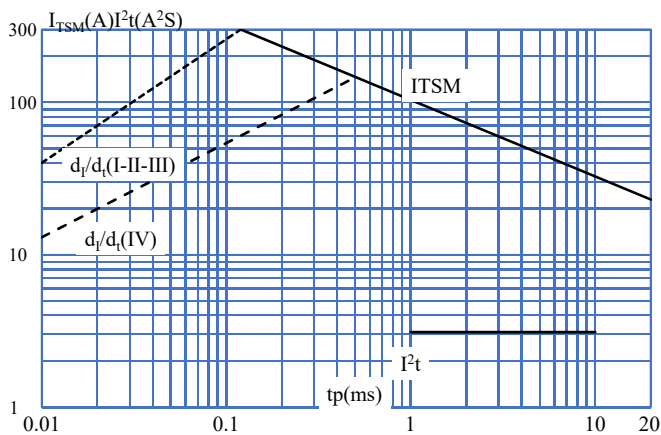
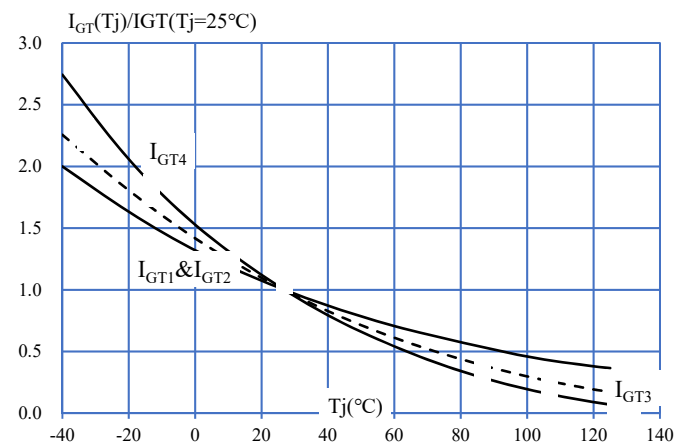


FIG.6: Relative variations of gate trigger current versus junction temperature





# ACYMB0425 Series

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

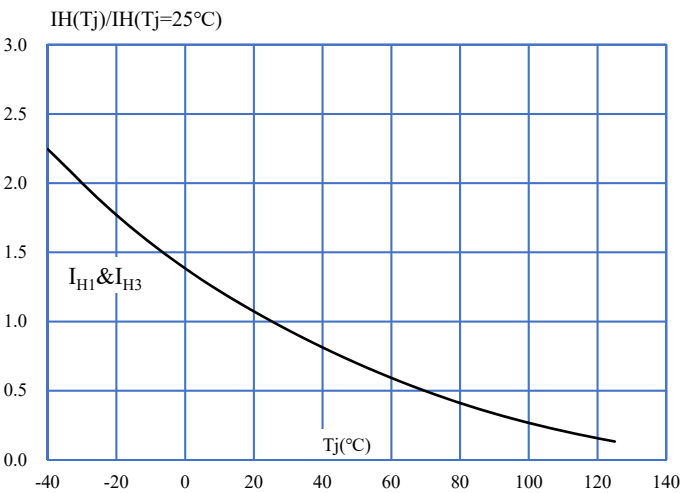
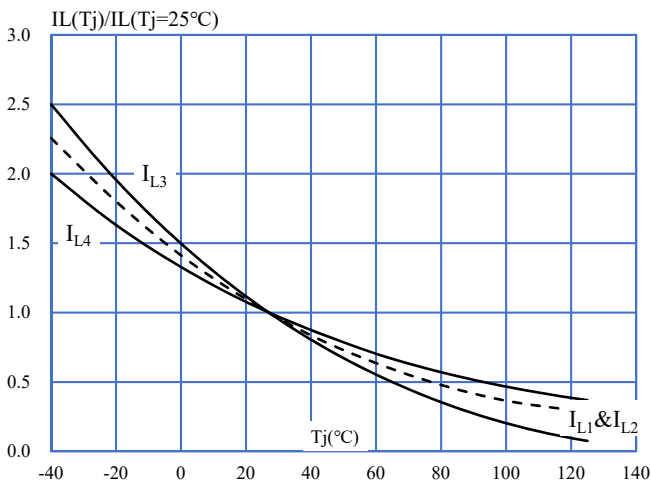
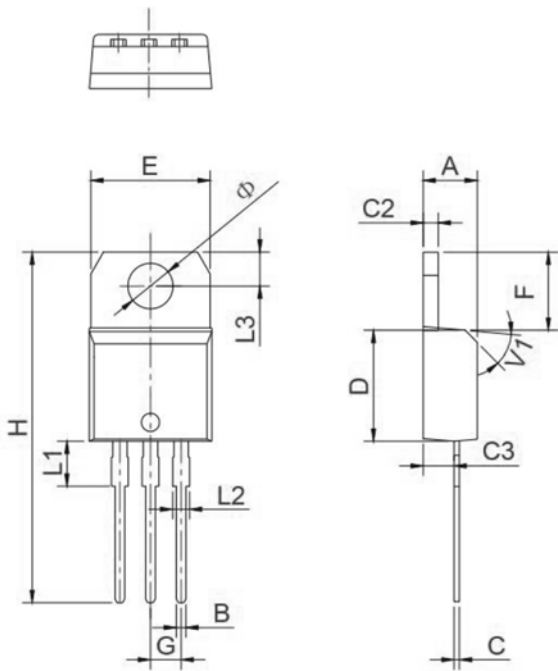


FIG.8: Relative variations of latching current versus junction temperature



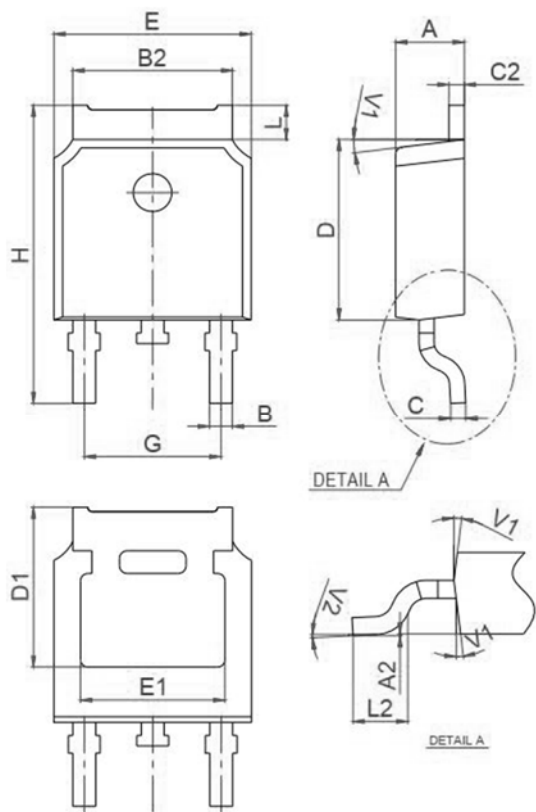
## ■ Outline Dimensions



| Symbol | Min.(mm) | Typ.(mm) | Max.(mm) |
|--------|----------|----------|----------|
| A      | 4.4      | 4.47     | 4.6      |
| B      | 0.61     |          | 0.88     |
| C      | 0.46     | 0.50     | 0.70     |
| C2     | 1.21     | 1.27     | 1.32     |
| C3     | 2.4      |          | 2.72     |
| D      | 8.6      |          | 9.7      |
| E      | 9.8      |          | 10.4     |
| F      | 6.4      |          | 6.8      |
| G      |          | 2.54     |          |
| H      | 28       |          | 29.8     |
| L1     |          | 3.75     |          |
| L2     | 1.14     |          | 1.7      |
| L3     | 2.65     |          | 2.95     |
| V1     |          | 45°      |          |
| $\Phi$ | 3.7      | 3.75     | 3.8      |

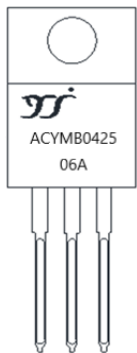


# ACYMB0425 Series

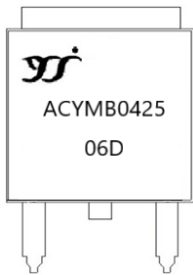


| Symbol | Min.(mm) | Typ.(mm) | Max.(mm) |
|--------|----------|----------|----------|
| A      | 2.2      |          | 2.4      |
| A2     | 0        |          | 0.1      |
| B      | 0.66     |          | 0.86     |
| B2     | 5.1      |          | 5.46     |
| C      | 0.46     |          | 0.58     |
| C2     | 0.44     |          | 0.58     |
| D      | 5.9      |          | 6.3      |
| D1     |          | 5.30     |          |
| E      | 6.4      |          | 6.8      |
| E1     | 4.63     |          |          |
| G      | 4.372    |          | 4.772    |
| H      | 9.8      |          | 10.4     |
| L      | 0.98     |          | 1.21     |
| L2     | 1.35     |          | 1.65     |
| V1     |          | 7°       |          |
| V2     | 0°       |          | 6°       |

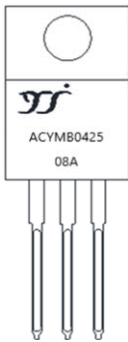
## ■ Marking information



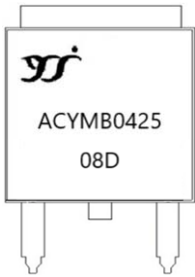
(TO-220AB-1 Package)



(TO-252-1 Package)



(TO-220AB-1 Package)



(TO-252-1 Package)



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