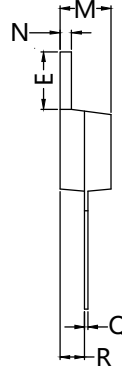
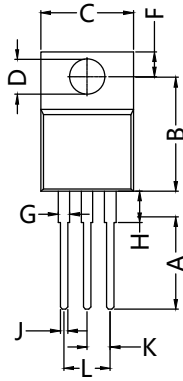
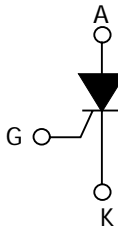
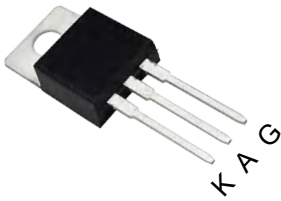


# STYN1225

## Discrete Thyristors(SCRs)

### Dimensions TO-220AB



| Dim. | Millimeter |       |
|------|------------|-------|
|      | Min.       | Max.  |
| A    | 12.70      | 13.97 |
| B    | 14.73      | 16.00 |
| C    | 9.91       | 10.66 |
| ØD   | 3.54       | 4.08  |
| E    | 5.85       | 6.85  |
| F    | 2.54       | 3.18  |
| G    | 1.15       | 1.65  |
| H    | 2.79       | 5.84  |
| J    | 0.64       | 1.01  |
| K    | 2.45BSC    |       |
| L    | 5.05BSC    |       |
| M    | 4.32       | 4.82  |
| N    | 1.14       | 1.39  |
| Q    | 0.35       | 0.56  |
| R    | 2.29       | 2.79  |

### ABSOLUTE RATINGS (limiting values)

| Symbol             | Parameter   |                        | Value               | Unit                           |            |
|--------------------|---|------------------------|---------------------|--------------------------------|------------|
| $I_{T(RMS)}$       | RMS on-state current (180° conduction angle)  |                        | $T_c = 100^\circ C$ | 25                             | A          |
| $I_{T(AV)}$        | Average on-state current (180° conduction angle)  |                        | $T_c = 100^\circ C$ | 16                             | A          |
| $I_{TSM}$          | Non repetitive surge peak on-state current  | $t_p = 8.3 \text{ ms}$ | $T_j = 25^\circ C$  | 360                            | A          |
|                    |   | $t_p = 10 \text{ ms}$  |                     | 330                            |            |
| $I^2t$             | $I^2t$ Value for fusing   | $t_p = 10 \text{ ms}$  | $T_j = 25^\circ C$  | 550                            | $A^2s$     |
| $di/dt$            | Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$ , $t_r \leq 100 \text{ ns}$ | $F = 60 \text{ Hz}$    | $T_j = 125^\circ C$ | 50                             | $A/\mu s$  |
| $I_{GM}$           | Peak gate current   | $t_p = 20 \mu s$       | $T_j = 125^\circ C$ | 4                              | A          |
| $P_{G(AV)}$        | Average gate power dissipation  |                        | $T_j = 125^\circ C$ | 1                              | W          |
| $T_{stg}$<br>$T_j$ | Storage junction temperature range<br>Operating junction temperature range                    |                        |                     | - 40 to + 150<br>- 40 to + 125 | $^\circ C$ |
| $V_{RGM}$          | Maximum peak reverse gate voltage   |                        |                     | 5                              | V          |

**Sirectifier®**

# STYN1225

## Discrete Thyristors(SCRs)

### ELECTRICAL CHARACTERISTICS (T<sub>j</sub> = 25°C, unless otherwise specified)

#### ■ STANDARD

| Symbol                               | Test Conditions   |                        | Value | Unit |      |
|--------------------------------------|---|------------------------|-------|------|------|
| I <sub>GT</sub>                      | V <sub>D</sub> = 12 V    R <sub>L</sub> = 33 W            | MIN.                   | 4     | mA   |      |
|                                      |   | MAX.                   | 40    |      |      |
| V <sub>GT</sub>                      |   | MAX.                   | 1.3   | V    |      |
| V <sub>GD</sub>                      | V <sub>D</sub> = V <sub>DRM</sub> R <sub>L</sub> = 3.3 kW | T <sub>j</sub> = 125°C | MIN.  | 0.2  | V    |
| I <sub>H</sub>                       | I <sub>T</sub> = 500mA    Gate open                       |                        | MAX.  | 50   | mA   |
| I <sub>L</sub>                       | I <sub>G</sub> = 1.2 I <sub>GT</sub>                      |                        | MAX.  | 90   | mA   |
| dV/dt                                | V <sub>D</sub> = 67 % V <sub>DRM</sub> Gate open          | T <sub>j</sub> = 125°C | MIN.  | 1000 | V/μs |
| V <sub>TM</sub>                      | I <sub>TM</sub> = 16A    t <sub>p</sub> = 380 μs          | T <sub>j</sub> = 25°C  | MAX.  | 1.20 | V    |
| V <sub>to</sub>                      | Threshold voltage   | T <sub>j</sub> = 125°C | MAX.  | 0.77 | V    |
| R <sub>d</sub>                       | Dynamic resistance  | T <sub>j</sub> = 125°C | MAX.  | 14   | mΩ   |
| I <sub>DRM</sub><br>I <sub>RRM</sub> | V <sub>DRM</sub> = V <sub>RRM</sub>                       | T <sub>j</sub> = 25°C  | MAX.  | 5    | μA   |
|                                      |   | T <sub>j</sub> = 125°C |       | 4    | mA   |

### THERMAL RESISTANCES

| Symbol               | Parameter                |                         | Value    | Unit |
|----------------------|--------------------------|-------------------------|----------|------|
| R <sub>th(j-c)</sub> | Junction to case (DC)    |                         | 1.0      | °C/W |
| R <sub>th(j-a)</sub> | Junction to ambient (DC) |                         | TO-220AB | °C/W |
|                      |                          | S = 1.0 cm <sup>2</sup> | TO-263   |      |

S= copper surface under tab

### PRODUCT SELECTOR

| Part Number | Voltage (xxx) | Sensitivity | Package  |
|-------------|---------------|-------------|----------|
| STYNxx25    | 200~1600      | 15 mA       | TO-220AB |

### OTHER INFORMATION

| Part Number | Marking  | Weight | Base Quantity | Packing mode |
|-------------|----------|--------|---------------|--------------|
| STYN xx25   | STYN x25 | 2.3 g  | 250           | Bulk         |

Note: xx= voltage/100



# STYN1225

## Discrete Thyristors(SCRs)

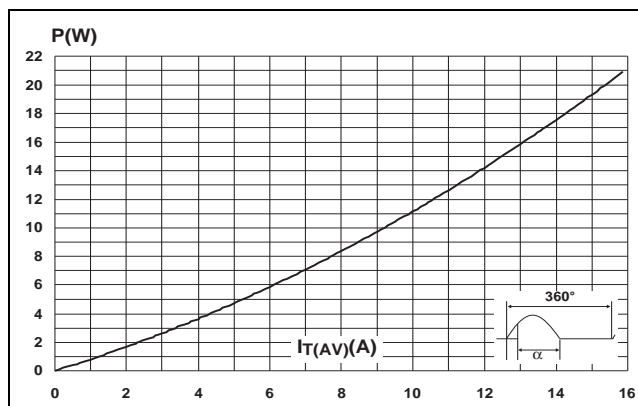


Figure 1. Maximum average power dissipation versus average on-state current

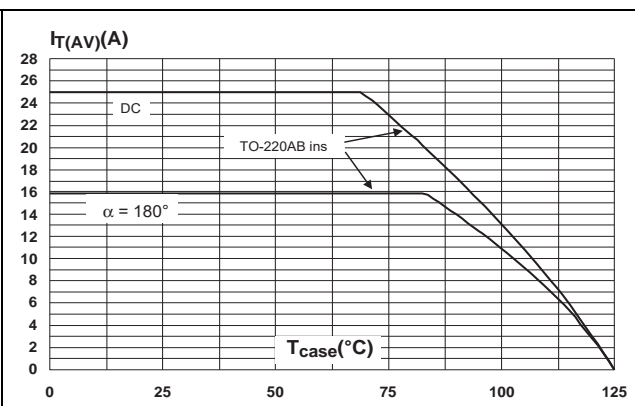


Figure 2. Average and DC on-state current versus case temperature

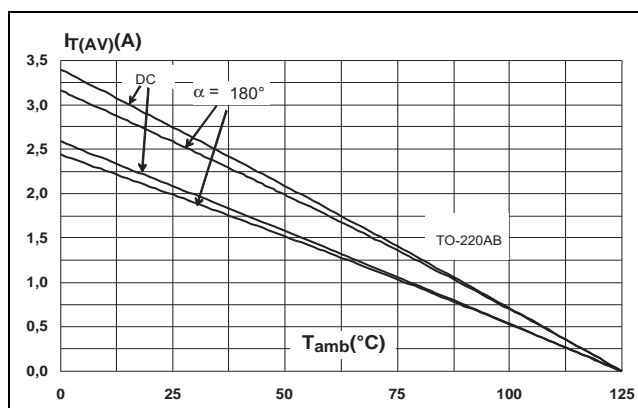


Figure 3. Average and DC on-state current versus ambient temperature

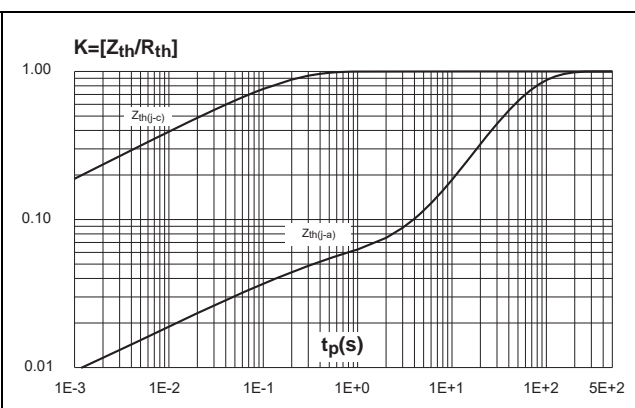


Figure 4. Relative variation of thermal impedance versus pulse duration

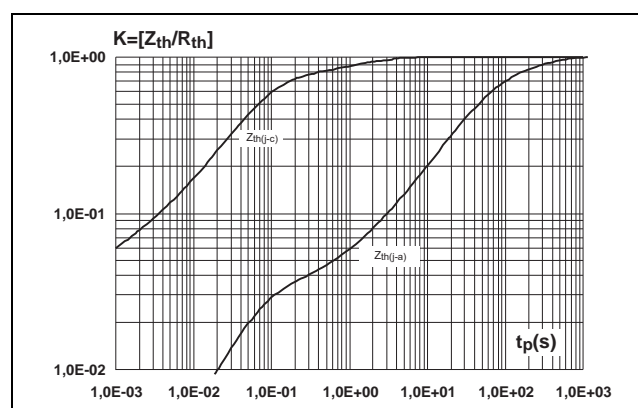


Figure 5. Relative variation of thermal impedance versus pulse duration

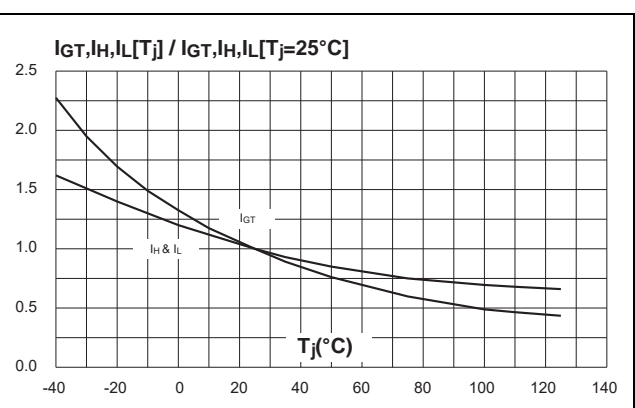


Figure 6. Relative variation of gate trigger, holding, and latching currents versus junction temperature

# STYN1225

## Discrete Thyristors(SCRs)

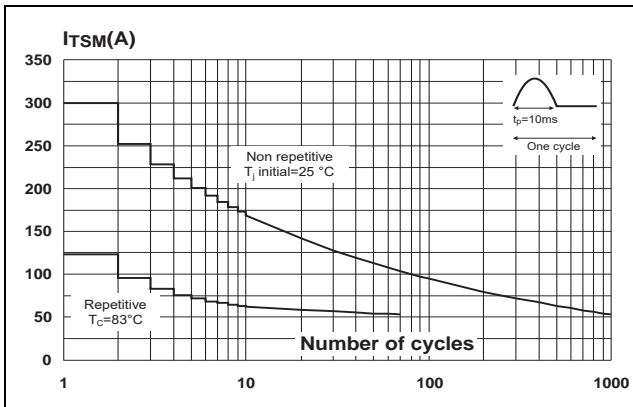


Figure 7. Surge peak on-state current versus number of cycles

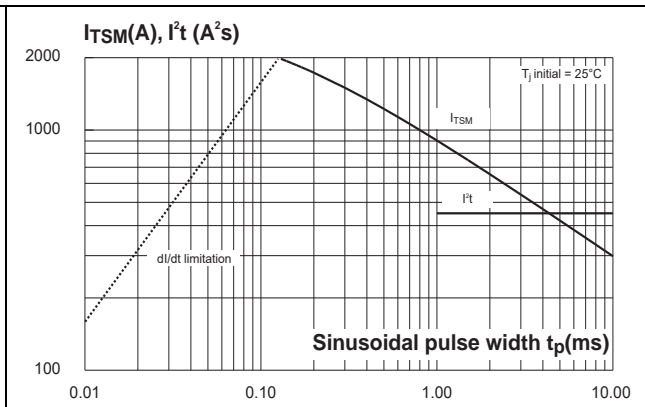


Figure 8. Non-repetitive surge peak on-state current, and corresponding values of  $I^2t$

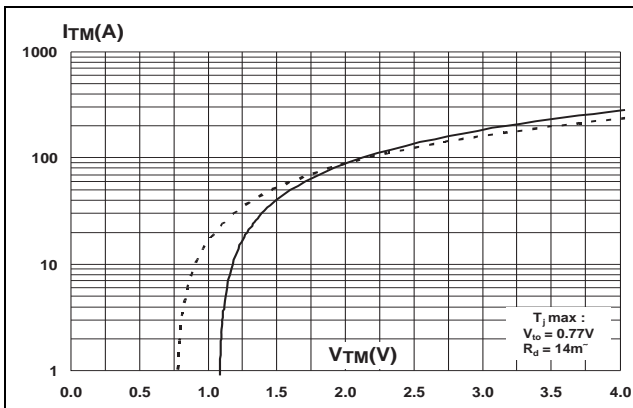


Figure 9. On-state characteristics (maximum values)

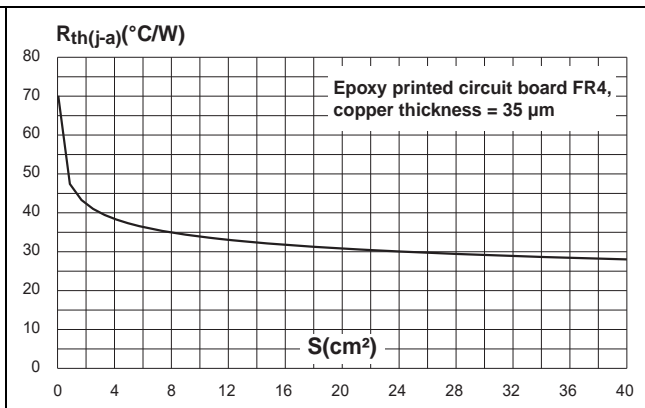
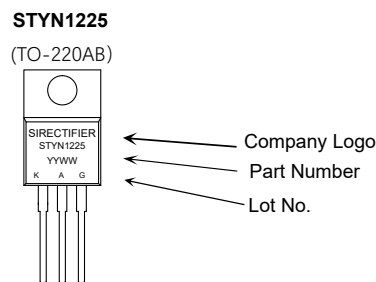


Figure 10. Thermal resistance junction to ambient versus copper surface under tab

### Marking



### Ordering Information

| Part Number | Package  | Shipping  | Marking Code |
|-------------|----------|---|--------------|
| STYN1225    | TO-220AB | 50pcs / Tube<br>or<br>800pcs / Tape & Reel<br>or<br>1000pcs / Tape & Reel | STYN1225     |

