

## SOT-23-3L Plastic-Encapsulate Thyristors



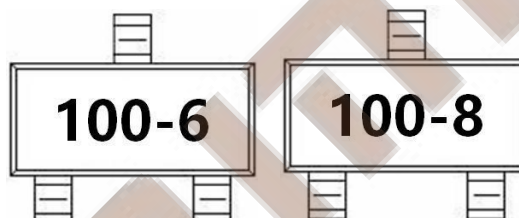
### Features

- Blocking voltage to 400V/600V (MCR100-6/MCR100-8)
- RMS on-state current to 0.8A
- General purpose switching



### Applications

- General purpose switching
- Phase control applications
- Solid state relays



### Package Marking and Ordering Information

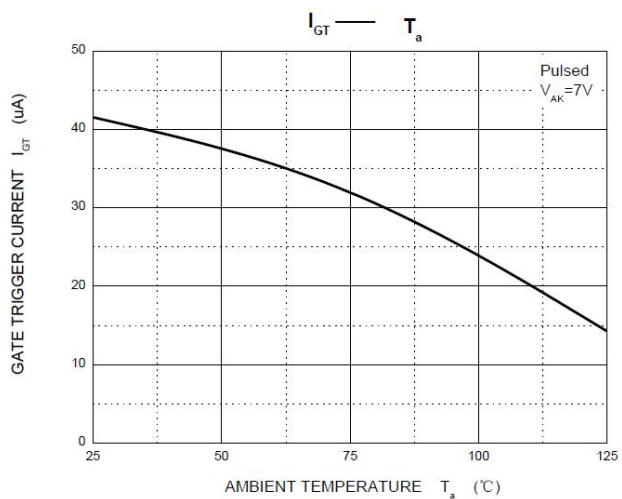
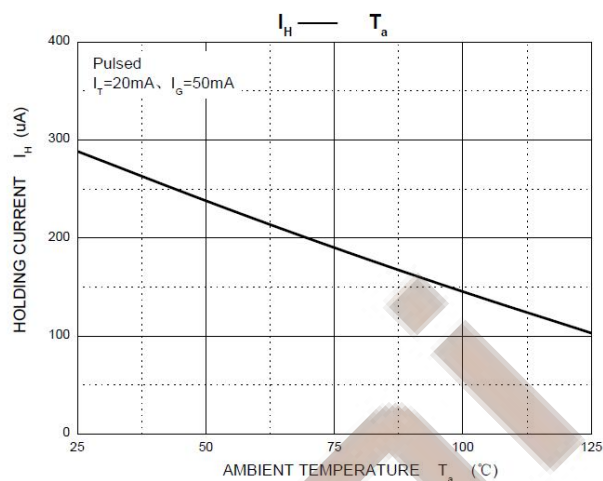
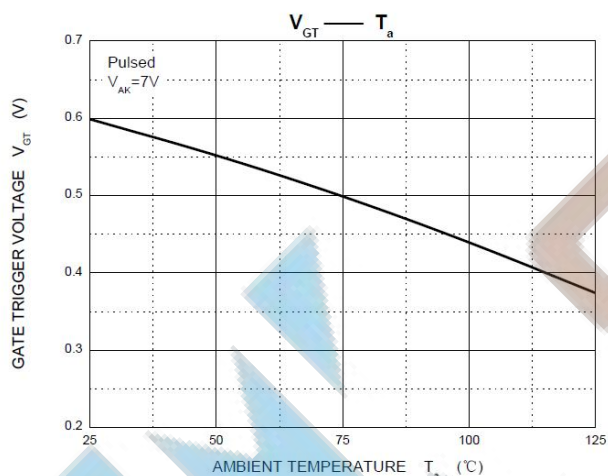
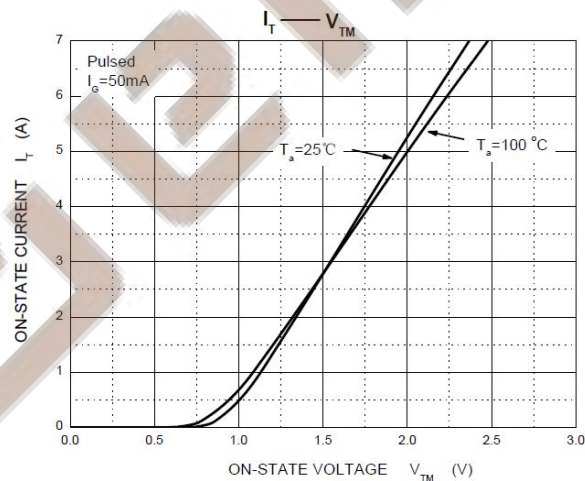
| Product ID | Package   | Marking | Qty(PCS) |
|------------|-----------|---------|----------|
| MCR100-6   | SOT-23-3L | 100-6   | 3000     |
| MCR100-8   | SOT-23-3L | 100-8   | 3000     |

### Electrical Characteristics(Ta=25°C unless otherwise noted)

| Parameter                                            | Symbol                            | Test conditions              | Min        | Max | Unit |
|------------------------------------------------------|-----------------------------------|------------------------------|------------|-----|------|
| On state voltage*                                    | VTM                               | ITM=1A                       |            | 1.7 | V    |
| Gate trigger voltage                                 | VGT                               | VAK=7V                       |            | 0.8 | V    |
| Peak Repetitive forward and Reverse blocking voltage | MCR100-6<br>MCR100-8<br>VDRM/VRRM | IDRM/IRRM=10KA               | 400<br>600 |     | V    |
| Peak forward or reverse blocking current             | IDRM<br>IRRM                      | VAK=Rated<br>VDRM or VRRM    |            | 10  | uA   |
| Holding current                                      | IH                                | IHL=20mA,<br>VAK=7V          |            | 5   | mA   |
| Gate trigger current                                 | IGT                               | A2<br>A1<br>A<br>B<br>VAK=7V | 5          | 15  | uA   |
|                                                      |                                   |                              | 15         | 30  |      |
|                                                      |                                   |                              | 30         | 80  |      |
|                                                      |                                   |                              | 80         | 200 |      |

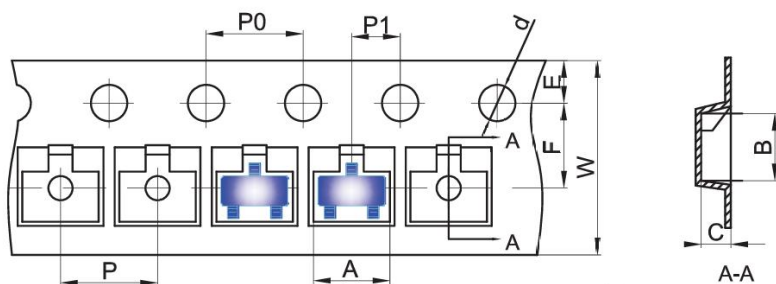
\*Forward current applied for 1 ms maximum duration, duty cycle 1%.

# Typical characteristics



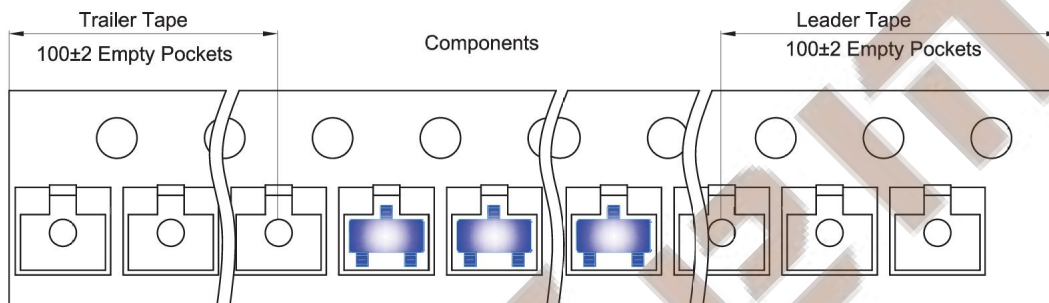
## Package Information

### Carrier Dimension(mm)

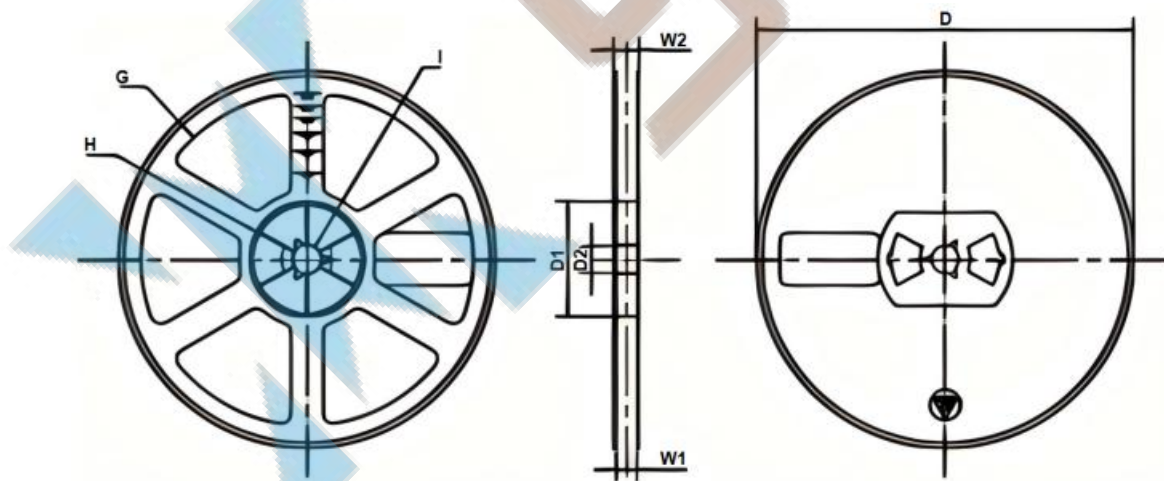


Dimensions are in millimeter

| Pkg Type  | A    | B    | C    | d     | E    | F    | P0   | P    | P1   | W    |
|-----------|------|------|------|-------|------|------|------|------|------|------|
| SOT-23-3L | 3.18 | 3.28 | 1.32 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |



### Reel Dimension(mm)



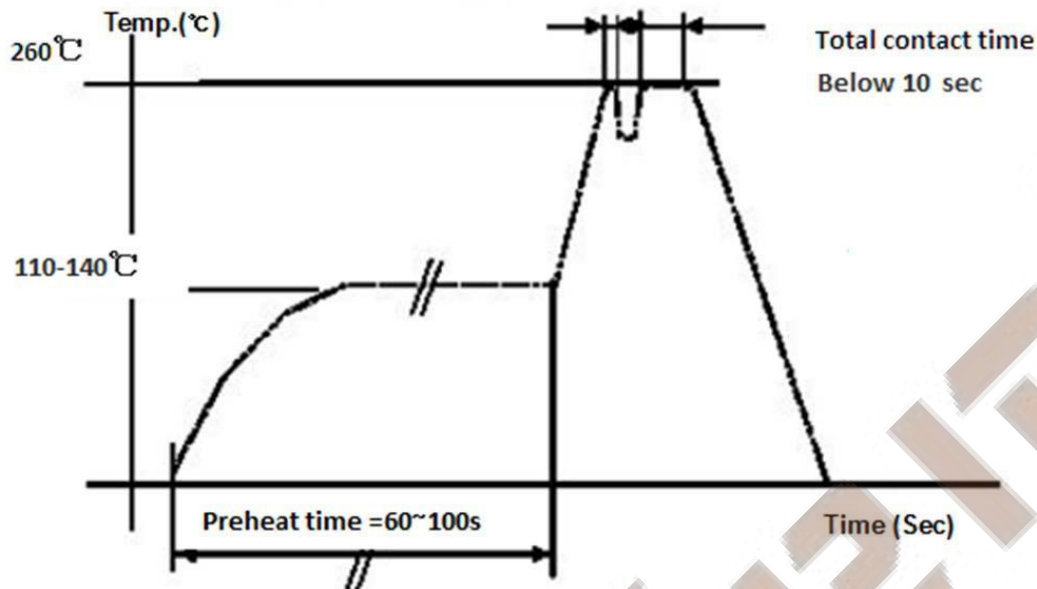
| Reel Option | D       | D1    | D2    | G      | H      | I     | W1   | W2    |
|-------------|---------|-------|-------|--------|--------|-------|------|-------|
| 7"Dia       | Φ178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 12.30 |
| Tolerance   | ±2      | ±1    | ±1    | ±1     | ±1     | ±1    | ±1   | ±1    |

## Package Specifications

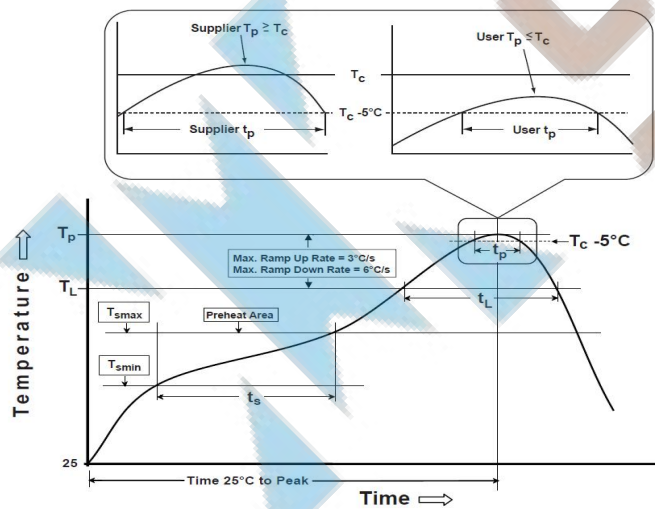
| Package   | Reel Size | Reel DIA.<br>(mm) | Q'TY/Reel<br>(Kpcs) | Box Size<br>(mm) | QTY/Box<br>(Kpcs) | Carton Size<br>(mm) | Q'TY/Carton<br>(Kpcs) |
|-----------|-----------|-------------------|---------------------|------------------|-------------------|---------------------|-----------------------|
| SOT-23-3L | 7'        | 178               | 3                   | 210*208*203      | 45                | 440*400*230         | 180                   |

## Recommended Soldering Profile for Rectifier Diodes (Pb Free)

### a) Wave Soldering Profile



### b) Reflow Soldering Profile (Pb Free Application), refer to IPC/JEDEC J-STD-020

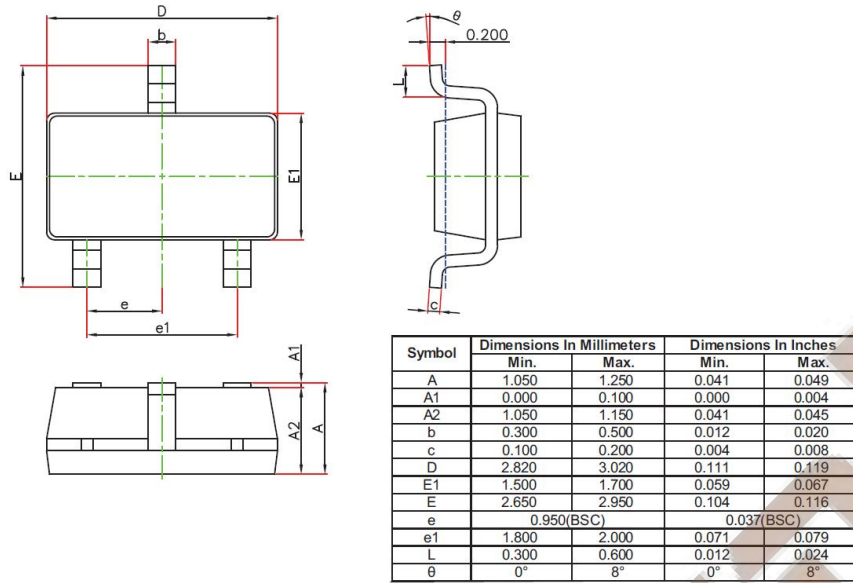


| Preheat/Soak Temperature Min (Tsmin) Temperature Max (Tsmax) Time (ts) from (Tsmin to Tsmax) | 50 °C<br>200 °C<br>60-120 seconds |
|----------------------------------------------------------------------------------------------|-----------------------------------|
| Melting Point of Solder (Sn Ag Cu)                                                           | 217°C                             |
| Ramp-up Rate to 217°C(Melting Point of Solder)                                               | 3°C/sec                           |
| Time at Temp.>217°C (Melting Point of Solder)                                                | 60~150 Sec                        |
| Peak Temperature                                                                             | 255±5°C                           |
| Time within 5°Cbelow Peak Temp.                                                              | 20~40 Sec                         |
| Cooling Rate                                                                                 | 6°C/sec (max)                     |
| Time from 25°C to Peak Temp.                                                                 | 8min (max)                        |

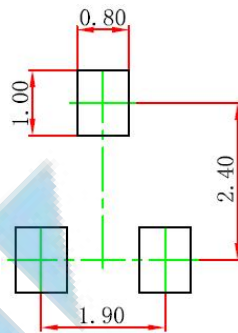
### c) Manual Soldering

When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

## Package Mechanical Data



## Suggested Pad Layout



Note:  
1. Controlling dimension: in millimeters.  
2. General tolerance:  $\pm 0.05\text{mm}$ .  
3. The pad layout is for reference purposes only.

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