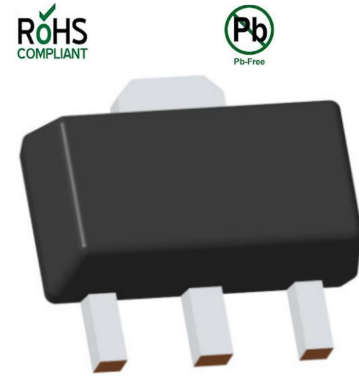
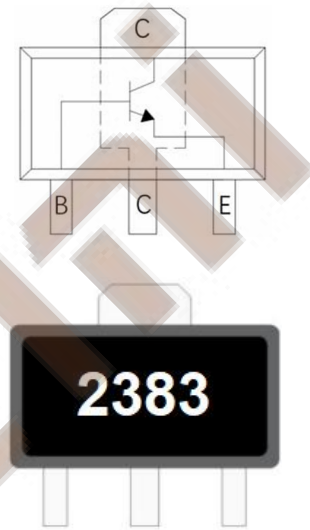


## General Description

| $V_{CEO}$ | $I_C$ | $V_{CE(sat)}$ | $f_T$ | $T_{jMax}$ |
|-----------|-------|---------------|-------|------------|
| 160V      | 1A    | 1.0V          | 20MHz | 150°C      |

## Features

- SOT89 Package
- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 3
- High temperature soldering guaranteed 260°C/10seconds  
at terminals



## Package Marking and Ordering Information

| Product ID | Package | Marking | Qty(PCS) |
|------------|---------|---------|----------|
| 2SC2383    | SOT-89  | 2383    | 1000     |

## Absolute Maximum Ratings (Ta=25°C unless otherwise noted)

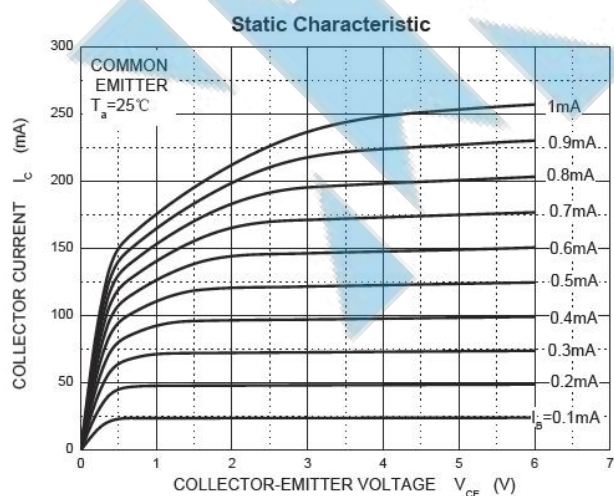
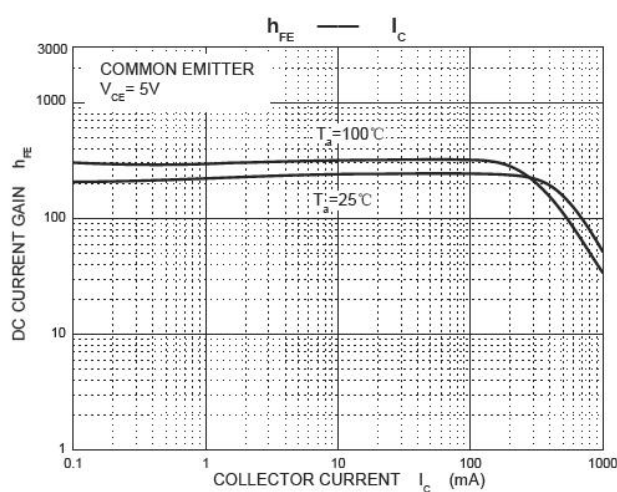
| Parameter                    | Symbols | Rating   | Units |
|------------------------------|---------|----------|-------|
| Collector-Base Voltage       | VCBO    | 160      | V     |
| Collector-Emitter Voltage    | VCEO    | 160      | V     |
| Emitter -Base Voltage        | VEBO    | 6        | V     |
| Collector Current-Continuous | IC      | 1        | A     |
| Collector Power Dissipation  | PC      | 500      | mW    |
| Junction Temperature         | Tj      | 150      | °C    |
| Storage Temperature          | Tstg    | -55-+150 | °C    |

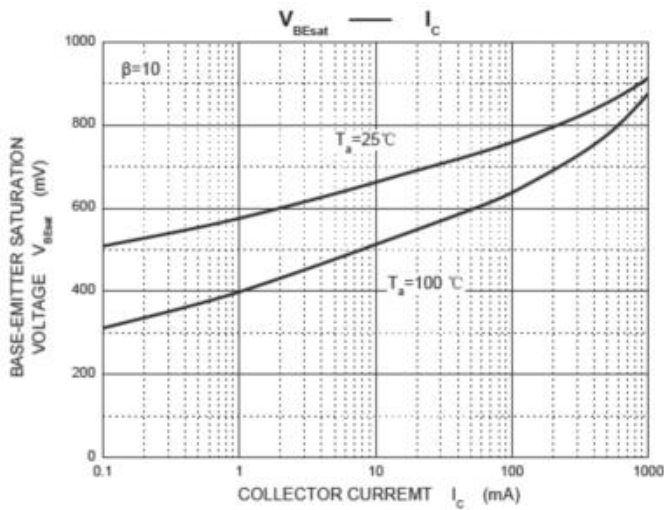
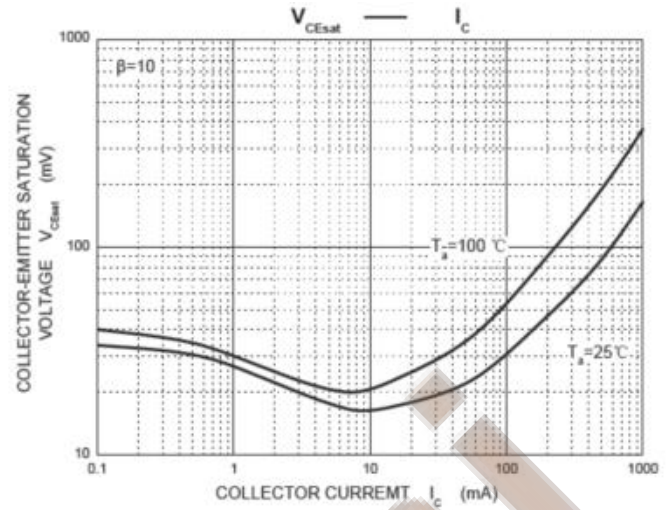
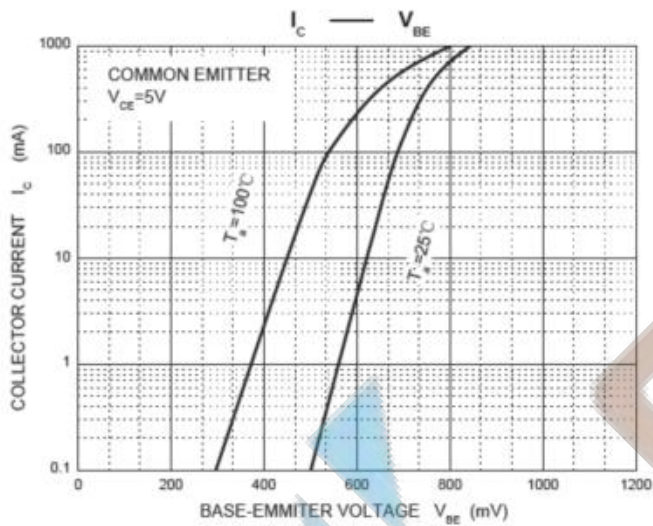
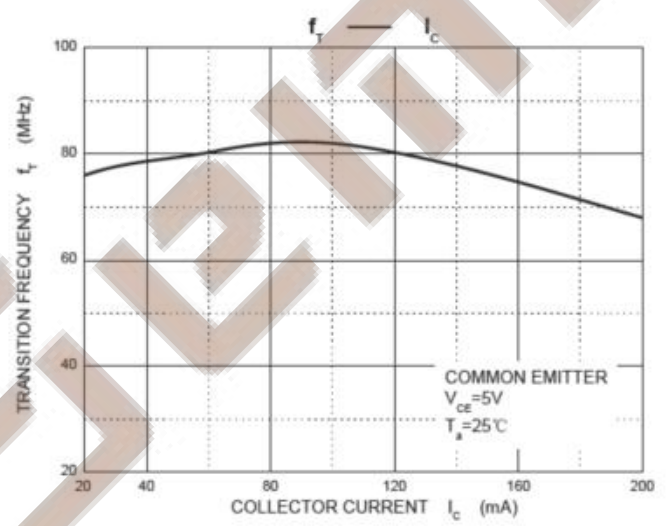
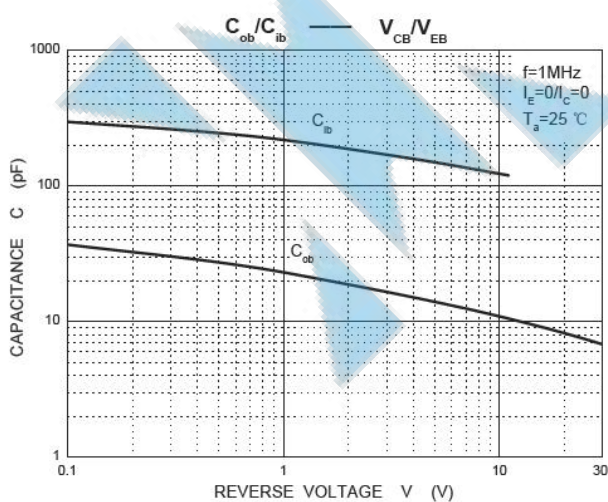
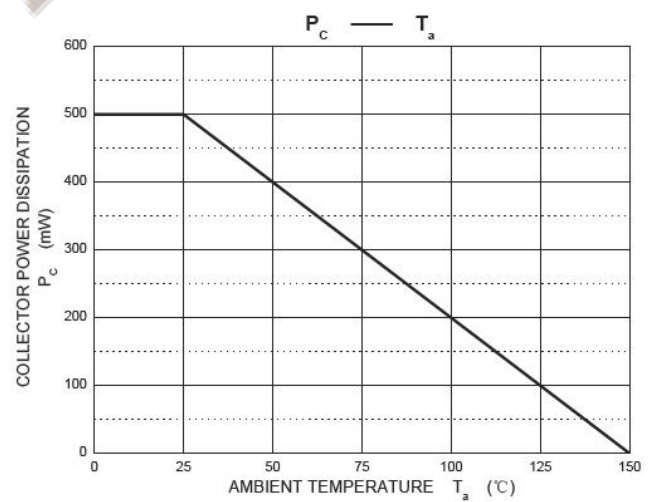
**Electrical Characteristics(TJ=25°C unless otherwise noted)**

| Parameter                            | Symbol   | Conditions                    | Min. | Typ. | Max. | Unit |
|--------------------------------------|----------|-------------------------------|------|------|------|------|
| Collector-base breakdown voltage     | V(BR)CBO | IC=100uA, IE=0                | 160  |      |      | V    |
| Collector-emitter breakdown voltage  | V(BR)CEO | IC=10mA, IB=0                 | 160  |      |      | V    |
| Emitter-base breakdown voltage       | V(BR)EBO | IE=10uA, IC=0                 | 6    |      |      | V    |
| Collector cut-off current            | ICBO     | VCB=150V, IE=0                |      |      | 1    | uA   |
| Emitter cut-off current              | IEBO     | VEB=6V, IC=0                  |      |      | 1    | uA   |
| DC current gain                      | HFE      | VCE=5V, IC=200mA              | 100  |      | 320  |      |
| Collector-emitter saturation voltage | VCE(sat) | IC=500mA, IB=50mA             |      |      | 1.0  | V    |
| Base- emitter saturation             | VBE      | IC=5mA, VCE=5V                | 0.45 |      | 0.75 | V    |
| Transition frequency                 | fT       | VCE=5V, IC=200mA,<br>f=200MHz | 20   |      |      | MHz  |
| Collector output capacitance         | Cob      | VCB=20V, IE=0, f=1MHz         |      | 20   |      | pF   |

**CLASSIFICATION OF hFE(1)**

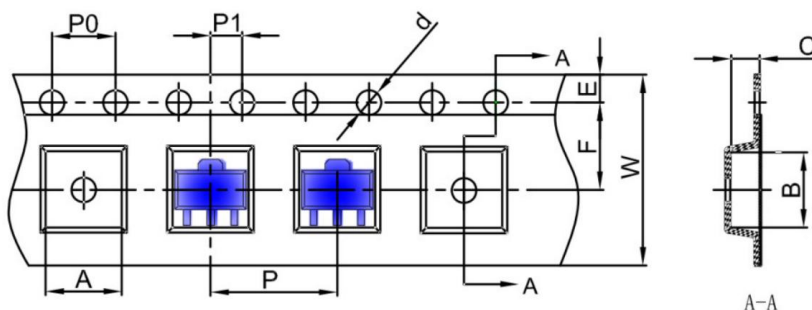
|       |         |         |
|-------|---------|---------|
| RANK  | O       | Y       |
| RANGE | 100-200 | 160-320 |

**Typical characteristics**




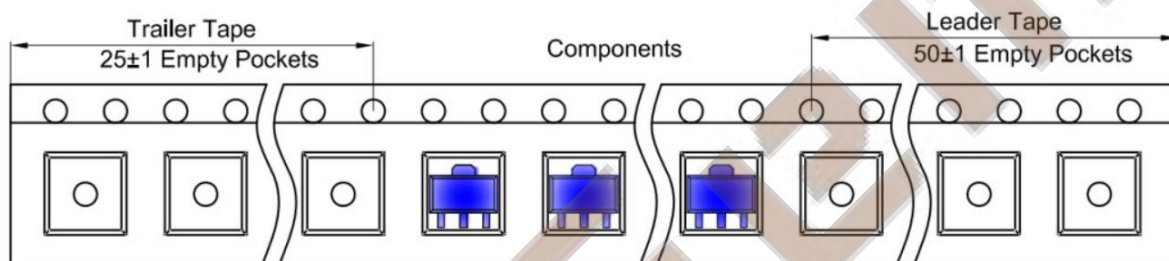
## Package Information

### Carrier Dimension(mm)

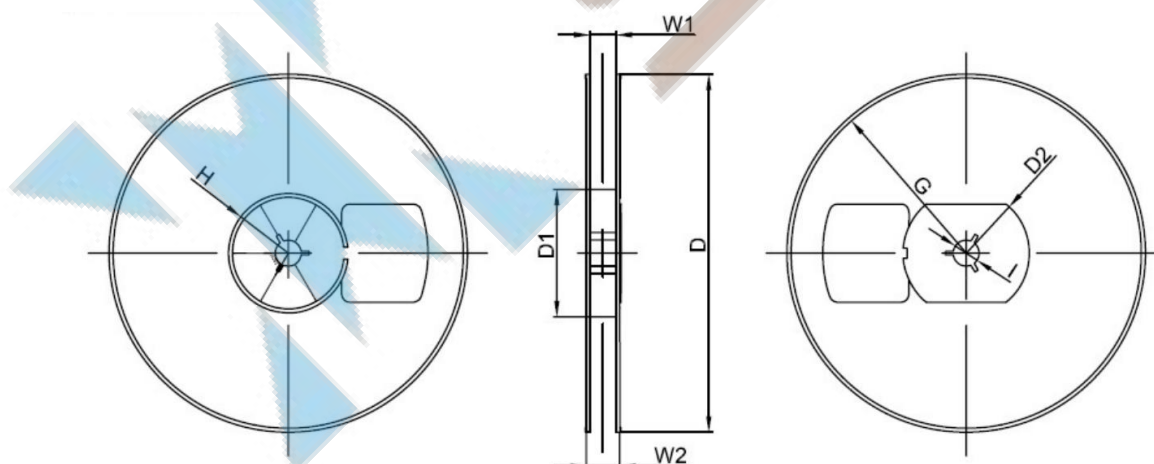


Dimensions are in millimeter

| Pkg Type    | A    | B    | C    | d     | E    | F    | P0   | P    | P1   | W         |
|-------------|------|------|------|-------|------|------|------|------|------|-----------|
| SOT-89-3L   | 4.85 | 4.45 | 1.85 | Ø1.50 | 1.75 | 5.50 | 4.00 | 8.00 | 2.00 | 12.00     |
| (Tolerance) | ±0.1 | ±0.1 | ±0.1 | ±0.1  | ±0.1 | ±0.1 | ±0.1 | ±0.1 | ±0.1 | +0.3/-0.1 |



### Reel Dimension(mm)



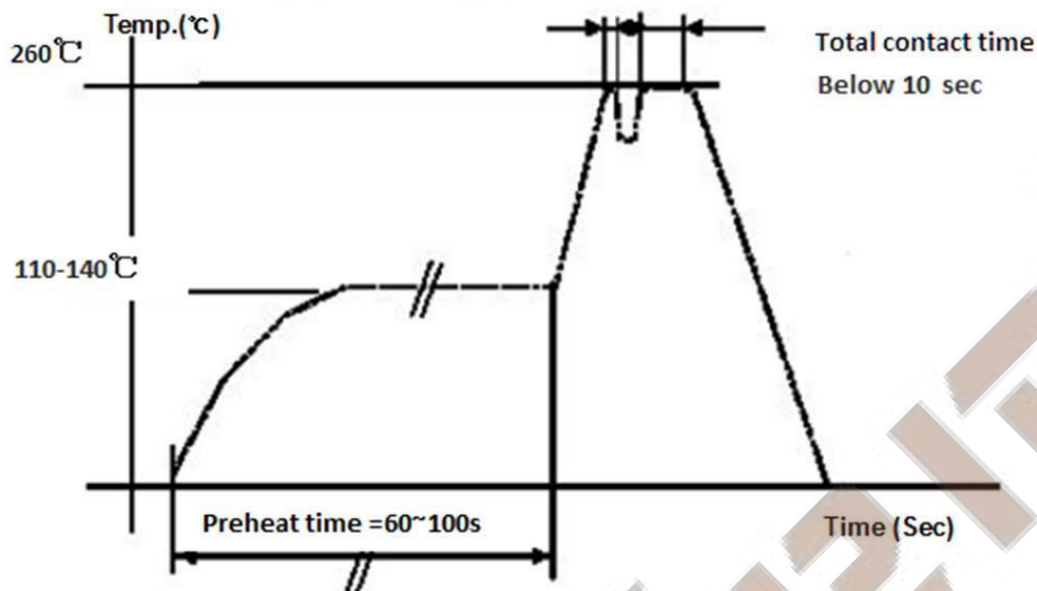
| Reel Option | D       | D1    | D2     | G      | H      | I      | W1    | W2    |
|-------------|---------|-------|--------|--------|--------|--------|-------|-------|
| 7" Dia      | Φ180.00 | 60.00 | R32.00 | R86.50 | R30.00 | Φ13.00 | 13.20 | 16.50 |
| Tolerance   | ±2      | ±1    | ±1     | ±1     | ±1     | ±1     | ±1    | ±1    |

## Package Specifications

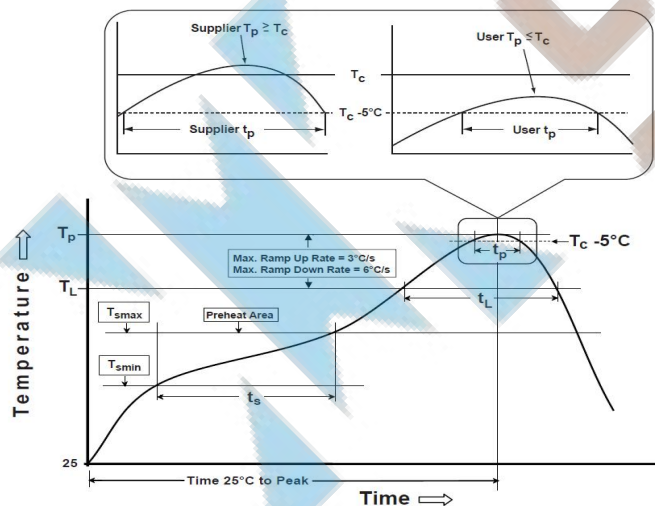
| Package | Reel Size | Reel DIA.<br>(mm) | Q'TY/Reel<br>(Kpcs) | Box Size<br>(mm) | QTY/Box<br>(Kpcs) | Carton Size<br>(mm) | Q'TY/Carton<br>(Kpcs) |
|---------|-----------|-------------------|---------------------|------------------|-------------------|---------------------|-----------------------|
| SOT89   | 7'        | 178               | 1                   | 210*208*203      | 10                | 440*400*230         | 40                    |

## 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

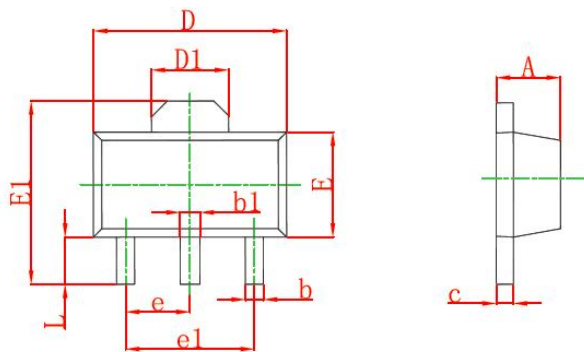


| Preheat/Soak Temperature Min (Tsmin) Temperature Max (Tsmax) Time (ts) from (Tsmin to Tsmax) | 50 °C<br>200 °C<br>60-120 seconds |
|----------------------------------------------------------------------------------------------|-----------------------------------|
| Melting Point of Solder (Sn Ag Cu)                                                           | 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

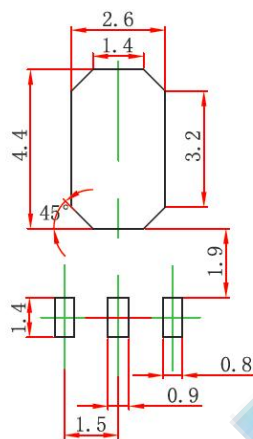
When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

## Package Mechanical Data



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.400                     | 1.600 | 0.055                | 0.063 |
| b      | 0.320                     | 0.520 | 0.013                | 0.020 |
| b1     | 0.400                     | 0.580 | 0.016                | 0.023 |
| c      | 0.350                     | 0.440 | 0.014                | 0.017 |
| D      | 4.400                     | 4.600 | 0.173                | 0.181 |
| D1     | 1.550 REF.                |       | 0.061 REF.           |       |
| E      | 2.300                     | 2.600 | 0.091                | 0.102 |
| E1     | 3.940                     | 4.250 | 0.155                | 0.167 |
| e      | 1.500 TYP.                |       | 0.060 TYP.           |       |
| e1     | 3.000 TYP.                |       | 0.118 TYP.           |       |
| L      | 0.900                     | 1.200 | 0.035                | 0.047 |

## 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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