

## / Revised record

|   | ! " #          | \$ ! % & ' | ! ( ) % * +                                                 | , -   | . /   |
|---|----------------|------------|-------------------------------------------------------------|-------|-------|
| F | 2017-4         |            |                                                             |       |       |
| A | 2020-5-20      | 1          | 0 1 2 3 4 5 6 7 8                                           | 9 : ; | < = > |
| B | 2021-12-1<br>5 | 2          | $V_{BE(sat)}(1) ? I_C=150mA @ A B C$<br>0.75 D E F : C 0.75 | G H   | < = > |
|   |                |            |                                                             |       |       |
|   |                |            |                                                             |       |       |
|   |                |            |                                                             |       |       |
|   |                |            |                                                             |       |       |
|   |                |            |                                                             |       |       |
|   |                |            |                                                             |       |       |
|   |                |            |                                                             |       |       |
|   |                |            |                                                             |       |       |

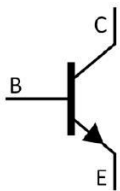
/ M

Silicon NPN transistor in a SOT-23 Plastic Package.

Moisture Sensitivity Level: 1, ESD Rating: Human Body Model; 4 kV, Machine Model; 400 V.HF Product.

C

Medium power amplifier and switch requiring collector currents up to 500 mA.



PIN 1 Base      PIN 2 Emitter      PIN 3 Collector

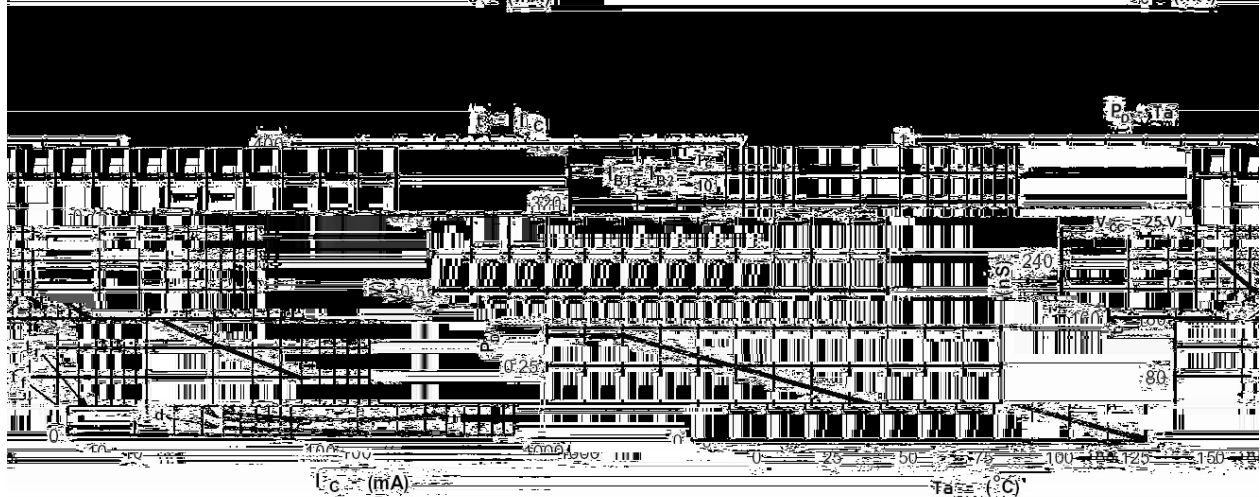
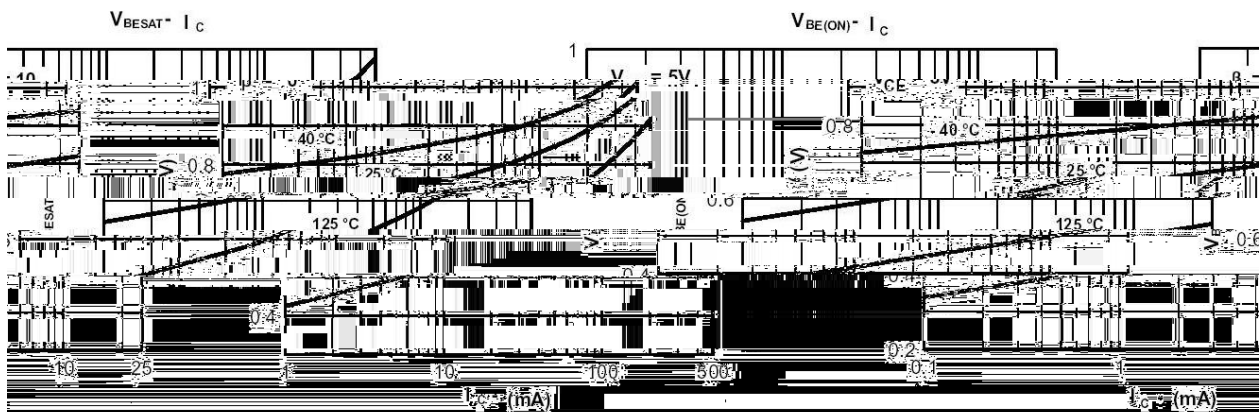
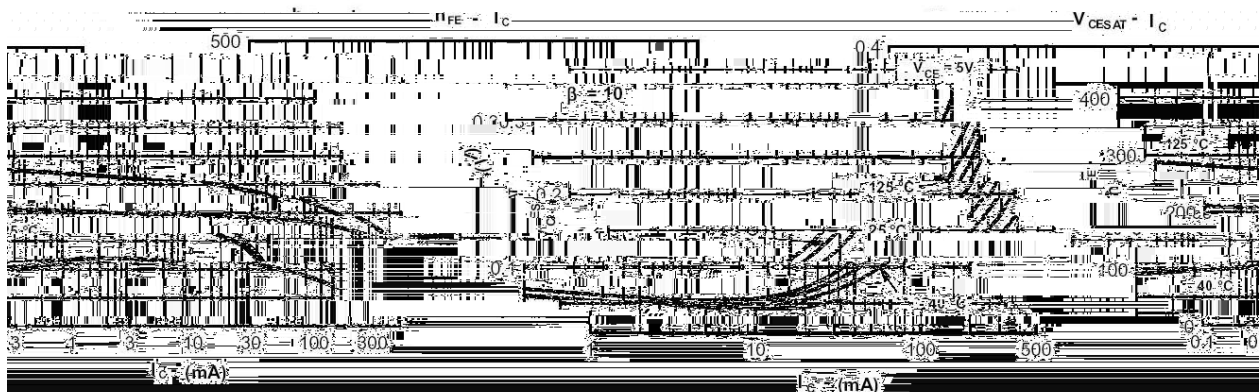
/  $h_{FE}$  Classifications & Marking

|                |         |
|----------------|---------|
| $h_{FE}$ Range | 100~300 |
| Marking        | H2X     |

| Parameter                    | Symbol    | Rating  | Unit |
|------------------------------|-----------|---------|------|
| Collector to Base Voltage    | $V_{CBO}$ | 60      | V    |
| Collector to Emitter Voltage | $V_{CEO}$ | 40      | V    |
| Emitter to Base Voltage      | $V_{EBO}$ | 6.0     | V    |
| Collector Current            | $I_C$     | 600     | mA   |
| Collector Power Dissipation  | $P_C$     | 350     | mW   |
| Junction Temperature         | $T_j$     | 150     | °C   |
| Storage Temperature Range    | $T_{stg}$ | -55~150 | °C   |

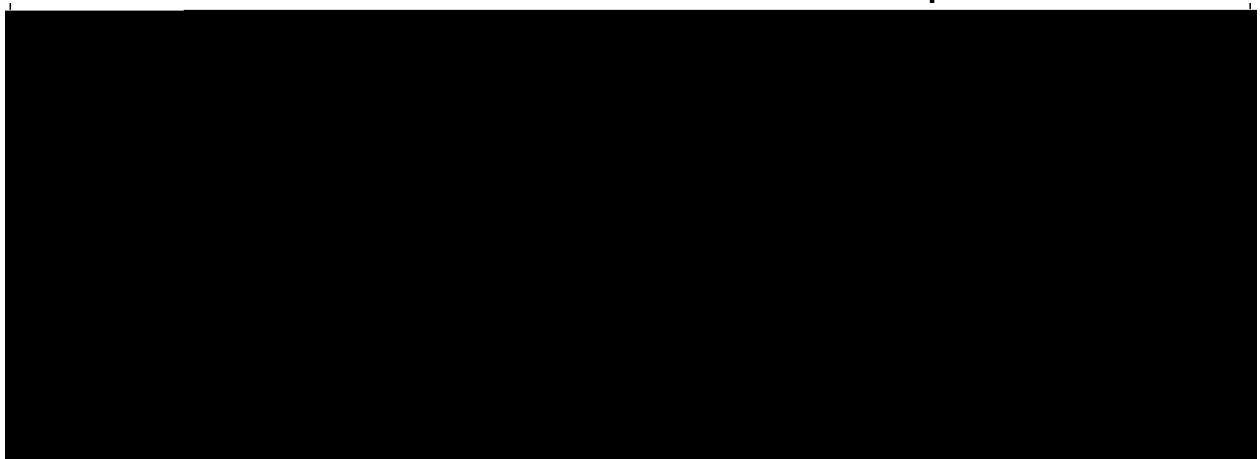
| Parameter                              | Symbol            | Test Conditions                       | Min  | Typ | Max  | Unit |
|----------------------------------------|-------------------|---------------------------------------|------|-----|------|------|
| Collector to Emitter Breakdown Voltage | $V_{CEO}$         | $I_C=1.0mA$ $I_B=0$                   | 40   |     |      | V    |
| Collector to Base Breakdown Voltage    | $V_{CBO}$         | $I_C=0.1mA$ $I_E=0$                   | 60   |     |      | V    |
| Emitter to Base Breakdown Voltage      | $V_{EBO}$         | $I_E=0.1mA$ $I_C=0$                   | 6.0  |     |      | V    |
| Collector Cut-Off Current              | $I_{CBO}$         | $V_{CB}=60V$ $I_E=0$                  |      |     | 50   | nA   |
| Emitter Cut-Off Current                | $I_{EBO}$         | $V_{EB}=6.0V$ $I_C=0$                 |      |     | 50   | nA   |
| DC Current Gain                        | $h_{FE(1)}$       | $V_{CE}=1.0V$ $I_C=150mA$             | 100  |     | 300  |      |
|                                        | $h_{FE(2)}$       | $V_{CE}=2.0V$ $I_C=500mA$             | 40   |     |      |      |
|                                        | $h_{FE(3)}$       | $V_{CE}=1.0V$ $I_C=10mA$              | 80   |     |      |      |
|                                        | $h_{FE(4)}$       | $V_{CE}=1.0V$ $I_C=1.0mA$             | 40   |     |      |      |
|                                        | $h_{FE(5)}$       | $V_{CE}=1.0V$ $I_C=0.1mA$             | 20   |     |      |      |
| Collector-Emitter Saturation Voltage   | $V_{CE(sat) (1)}$ | $I_C=150mA$ $I_B=15mA$                |      |     | 0.4  | V    |
|                                        | $V_{CE(sat) (2)}$ | $I_C=500mA$ $I_B=50mA$                |      |     | 0.75 | V    |
| Base-Emitter Saturation Voltage        | $V_{BE(sat) (1)}$ | $I_C=150mA$ $I_B=15mA$                | 0.75 |     | 0.95 | V    |
|                                        | $V_{BE(sat) (2)}$ | $I_C=500mA$ $I_B=50mA$                |      |     | 1.2  | V    |
| Transition Frequency                   | $f_T$             | $V_{CE}=10V$ $I_C=20mA$<br>$f=100MHz$ | 250  |     |      | MHz  |

/ Electrical Characteristic Curve

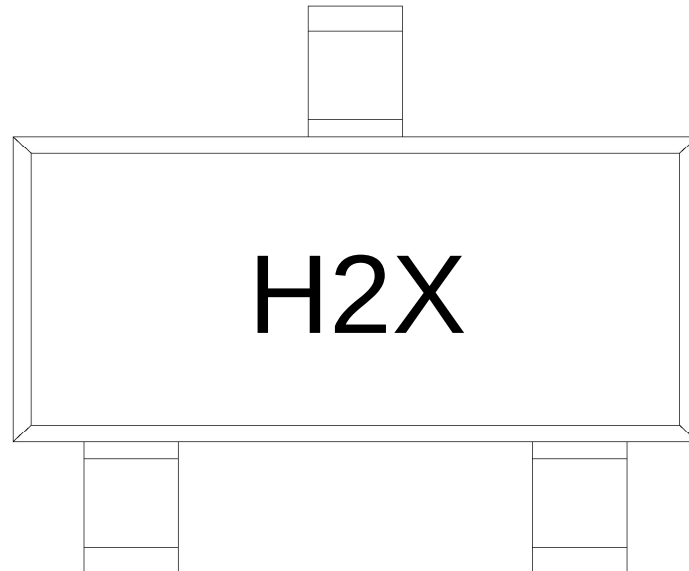


**/ Package Dimensions**

ISOT-22 単位 mm



**/ Marking Instructions**



H

2X

Note:

H            Company Code

2X           Product Type Code

## ( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)

|  |
|--|
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|  |
|  |

Note:

- |   |         |           |                                          |
|---|---------|-----------|------------------------------------------|
| 1 | 150 180 | 60 90sec; | 1.Preheating:150~180°C, Time:60~90sec.   |
| 2 | 245±5   | 5±0.5sec; | 2.Peak Temp.:245±5°C, Duration:5±0.5sec. |
| 3 | 2       | 10°C/sec. | 3. Cooling Speed: 2~10°C/sec.            |

## / Resistance to Soldering Heat Test Conditions

260±5°C      10±1 sec.      Temp.:260±5°C      Time:10±1 sec

## / Packaging SPEC.

/ REEL

| Package Type<br>封装形式 | Units 包装数量         |                         |                        |                              |                        | Dimension 包装尺寸 (unit: mm <sup>3</sup> ) |             |             |
|----------------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|-----------------------------------------|-------------|-------------|
|                      | Units/Reel<br>只/卷盘 | Reels/Inner Box<br>卷盘/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Reel                                    | Inner Box 盒 | Outer Box 箱 |
| SOT-23               | 3,000              | 10                      | 30,000                 | 6                            | 180,000                | 7" ×8                                   | 180×120×180 | 390×385×205 |