# MMBT5401T

Rev.E Mar.-2016

DATA SHEET

## "Yش / Descriptions

SOT-89 PNP Silicon PNP transistor in a SOT-89 Plastic Package.

## ◕ È / Features

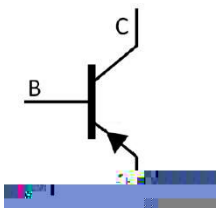
, MMBT5551T

High voltage, complementary Pair with MMBT5551T.

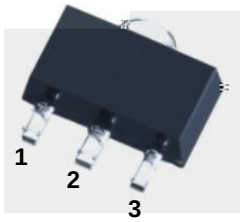
## ٧ ﻉ / Applications

General purpose high voltage amplifier.

## ᑎ ف ٌ ٔ ≠ ع / Equivalent Circuit




## ã ﺍ ﻭ ٌ / Pinning




PIN1 Base PIN 2 Collector PIN 3 Emitter

## ﻁ. ʜ ﺟ / Marking

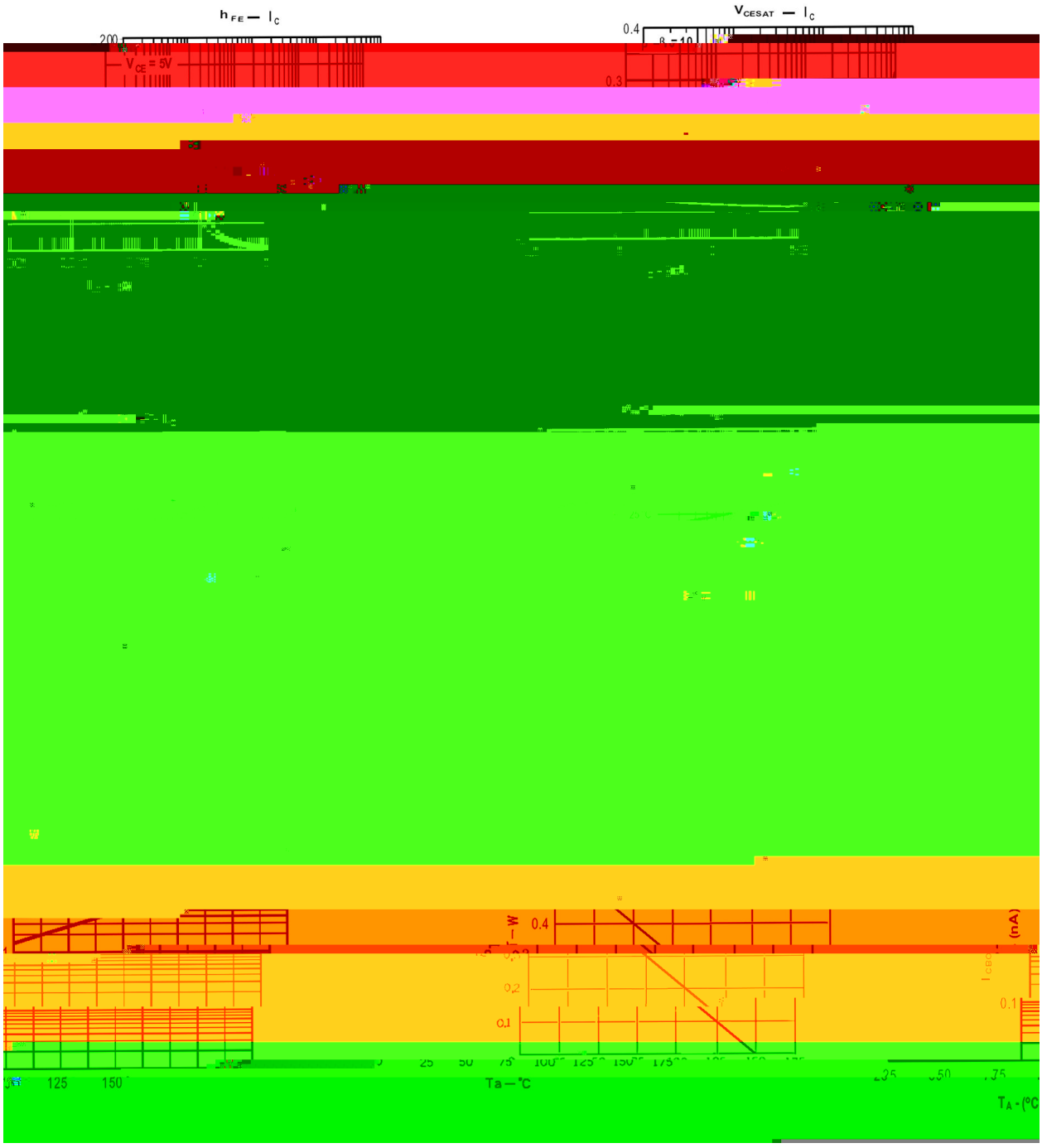
| $h_{FE}$ Classifications Symbol | A | B | C |
|---|---|---|---|
| $h_{FE}$ Range | 50 150 | 100 300 | 200 400 |
| Marking | H2LA ⁑ | H2LB ⁑ | H2LC ⁑ |

## ώ ̈ Ξ ̃Ạ

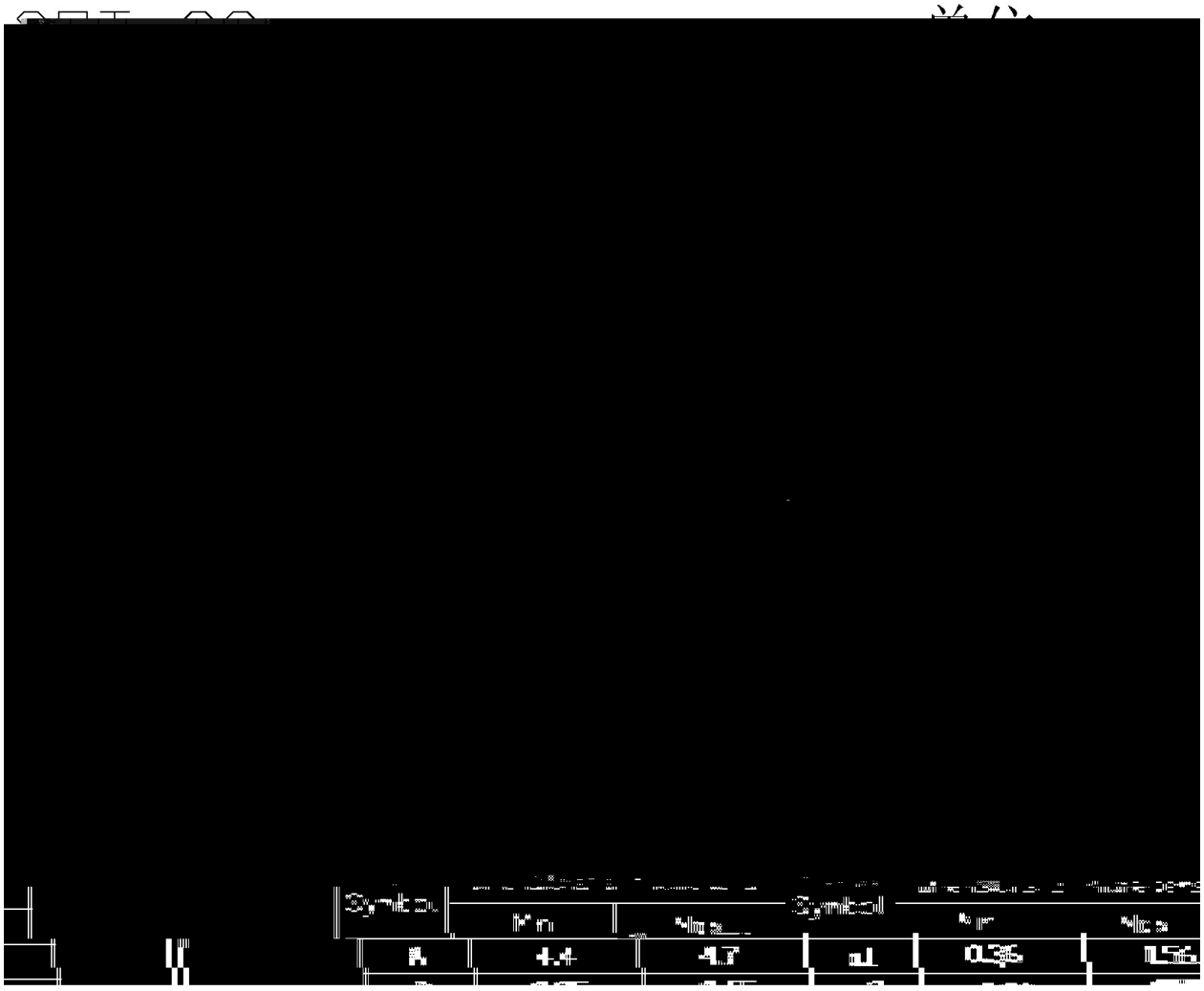
| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector to Base Voltage | $V_{CBO}$ | -180 | V |
| Collector to Emitter Voltage | $V_{CEO}$ | -160 | V |
| Emitter to Base Voltage | $V_{EBO}$ | -6.0 | V |
| Collector Current - Continuous | $I_C$ | -600 | mA |
| Collector Base - Continuous | $I_B$ | -300 | mA |
| Collector Power Dissipation | $P_C$ | 500 | mW |
| Junction Temperature | $T_j$ | 150 | |
| Storage Temperature Range | $T_{stg}$ | -55 150 | |

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector Cut-Off Current | $I_{CBO}$ | $V_{CB}$=-180V $I_E$=0 | | | -0.1 | A |
| Emitter Base Cut-Off Current | $I_{EBO}$ | $V_{EB}$=-6.0V $I_C$=0 | | | -0.1 | A |
| DC Current Gain | $h_{FE(1)}$ | $V_{CE}$=-5.0V $I_C$=-10mA | 50 | 200 | 400 | |
| | $h_{FE(2)}$ | $V_{CE}$=-5.0V $I_C$=-50mA | 20 | 70 | | |
| | $h_{FE(3)}$ | $V_{CE}$=-5.0V $I_C$=-1.0mA | 40 | 180 | | |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)\ (1)}$ | $I_C$=-10mA $I_B$=-1.0mA | | -0.12 | -0.4 | V |
| | $V_{CE(sat)\ (2)}$ | $I_C$=-50mA $I_B$=-5.0mA | | -0.5 | -0.8 | V |
| Emitter to Base Saturation Voltage | $V_{BE(sat)\ (1)}$ | $I_C$=-10mA $I_B$=-1.0mA | | -0.75 | -1.0 | V |
| | $V_{BE(sat)\ (2)}$ | $I_C$=-50mA $I_B$=-5.0mA | | -0.8 | -1.0 | V |
| Emitter to Base Voltage | $V_{BE}$ | $V_{CE}$=-5.0V $I_C$=-10mA | | -0.7 | -0.75 | V |
| Transition Frequency | $f_T$ | $V_{CE}$=-10V $I_E$=10mA | 50 | 80 | | MHz |
| Collector Output Capacitance | $C_{ob}$ | $V_{CB}$=-10V $I_E$=0 f=10MHz | | 2.5 | 5.0 | pF |
| Turn-on Time | $t_{on}$ | $I_C$=-100Ma $-I_{B1}$=$I_{B2}$=-10mA | | 0.1 | | s |
| Turn-off Time | $t_{off}$ | | | 0.2 | | s |
| Storage Time | $t_{stg}$ | | | 0.1 | | s |

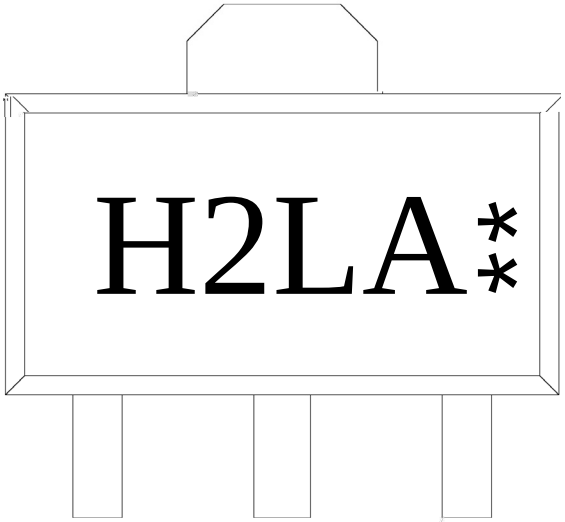
## ≠ ∃ Ã´E ∀ ƒ / Electrical Characteristic Curve



## ᵘ Ė Ồ Ļ ʃ / Package Dimensions



## Ł. Ł Ω / Marking Instructions




H

2L

A: $h_{FE}$

**

Note:

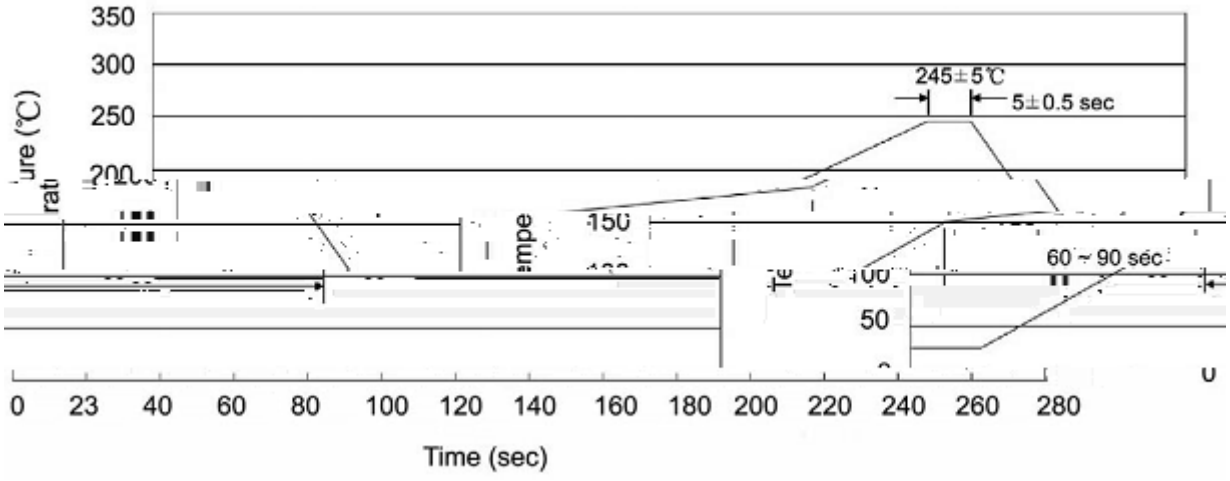
H: Company Code.

2L: Product Type.

A: $h_{FE}$ Classifications Symbol

**: Lot No. Code, code change with Lot No.

## ₩h ʃ ╕ẘ´E ⱶ ƒ (ώ ʊs) / Wh p shudwxuh Suriloh iru LU Uhio r z Vroghulq j+Se0luhh,




Note:

| | | | | | |
|---|---|---|---|---|---|
| 1 | 25 | 150 | 60 | 90sec; | 1.Preheating:25~150 , Time:60~90sec. |
| 2 | 245±5 | | | 5±0.5sec; | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 | | 2 | 10 | /sec. | 3. Cooling Speed: 2~10 /sec. |

## ⅃ ü q ¯ `Y Ţ / Resistance to Soldering Heat Test Conditions

| | | | |
|---|---|---|---|
| 260±5 | 10±1 sec. | Temp.:260±5 | Time:10±1 sec |

## ɒ Ŀ ≮— / Packaging SPEC.

/ REEL

| Package Type | Units | | | | | Dimension | | (unit mm³) |
|---|---|---|---|---|---|---|---|---|
| | Units/Reel / | Reels/Inner Box / | Units/Inner Box / | Inner Boxes/Outer Box / | Units/Outer Box / | Reel | Inner Box | Outer Box |
| SOT-89 | 1,000 | 7 | 7,000 | 8 | 56,000 | 7 ×12 | 180×120×180 | 385×257×392 |

## ä ₰ Ļ Ω / Notices