



**EN:** This Datasheet is presented by the manufacturer.

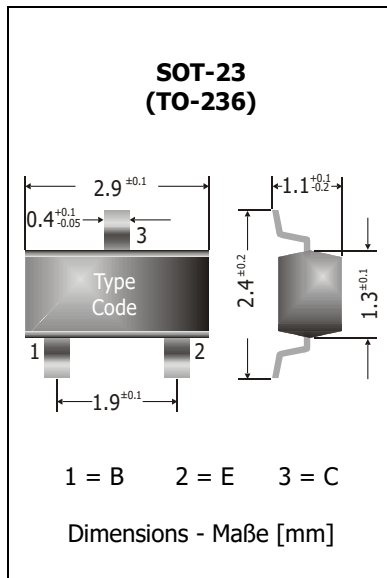
Please visit our website for pricing and availability at [www.hestore.hu](http://www.hestore.hu).

**MMBT5401**  
**SMD General Purpose PNP Transistors**  
**SMD Universal-PNP-Transistoren**

$I_C = -600 \text{ mA}$   
 $h_{FE} = 60 \dots 240$   
 $T_{jmax} = 150^\circ\text{C}$

$V_{CE0} = -150 \text{ V}$   
 $P_{tot} = 250 \text{ mW}$

Version 2018-08-21

**Typical Applications**

Signal processing,  
 Switching, Amplification  
 Commercial grade  
 Suffix -Q: AEC-Q101 compliant <sup>1)</sup>  
 Suffix -AQ: in AEC-Q101 qualification <sup>1)</sup>

**Features**

High collector-emitter voltage  
 Compliant to RoHS, REACH,  
 Conflict Minerals <sup>1)</sup>

**Mechanical Data <sup>1)</sup>**

Taped and reeled                      3000 / 7"  
 Weight approx.                          0.01 g  
 Case material                            UL 94V-0  
 Solder & assembly conditions      260°C/10s  
                                                          MSL = 1

**Typische Anwendungen**

Signalverarbeitung,  
 Schalten, Verstärken  
 Standardausführung  
 Suffix -Q: AEC-Q101 konform <sup>1)</sup>  
 Suffix -AQ: in AEC-Q101 Qualifikation <sup>1)</sup>

**Besonderheiten**

Hohe Kollektor-Emitter-Spannung  
 Konform zu RoHS, REACH,  
 Konfliktmineralien <sup>1)</sup>

**Mechanische Daten <sup>1)</sup>**

Gegurtet auf Rolle  
 Gewicht ca.  
 Gehäusematerial  
 Löt- und Einbaubedingungen

| Type Code         | Recommended complementary NPN transistors<br>Empfohlene komplementäre NPN-Transistoren |
|-------------------|----------------------------------------------------------------------------------------|
| MMBT5401/-Q = 2Lx | MMBT5551/-Q                                                                            |

**Maximum ratings <sup>2)</sup>****Grenzwerte <sup>2)</sup>**

|                                                        |        |             |                      |
|--------------------------------------------------------|--------|-------------|----------------------|
| Collector-Emitter-voltage - Kollektor-Emitter-Spannung | B open | - $V_{CE0}$ | 150 V                |
| Collector-Base-voltage - Kollektor-Basis-Spannung      | E open | - $V_{CBO}$ | 160 V                |
| Emitter-Base-voltage - Emitter-Basis-Spannung          | C open | - $V_{EBO}$ | 5 V                  |
| Power dissipation – Verlustleistung                    |        | $P_{tot}$   | 250 mW <sup>3)</sup> |
| Collector current – Kollektorstrom                     | DC     | - $I_C$     | 600 mA               |
| Junction temperature – Sperrschichttemperatur          |        | $T_j$       | -65...+150°C         |
| Storage temperature – Lagerungstemperatur              |        | $T_s$       | -55...+150°C         |

**Characteristics****Kennwerte**

|                                                                 | $T_j = 25^\circ\text{C}$ | Min.     | Typ. | Max. |
|-----------------------------------------------------------------|--------------------------|----------|------|------|
| DC current gain – Kollektor-Basis-Stromverhältnis <sup>4)</sup> |                          |          |      |      |
| - $V_{CE} = 1 \text{ V}$                                        | - $I_C = 1 \text{ mA}$   | $h_{FE}$ | –    | –    |
|                                                                 | - $I_C = 10 \text{ mA}$  |          |      |      |
|                                                                 | - $I_C = 50 \text{ mA}$  |          |      |      |
|                                                                 |                          |          |      | 240  |
|                                                                 |                          |          |      | –    |

1 Please note the [detailed information on our website](#) or at the beginning of the data book  
 Bitte beachten Sie die [detaillierten Hinweise auf unserer Internetseite](#) bzw. am Anfang des Datenbuches

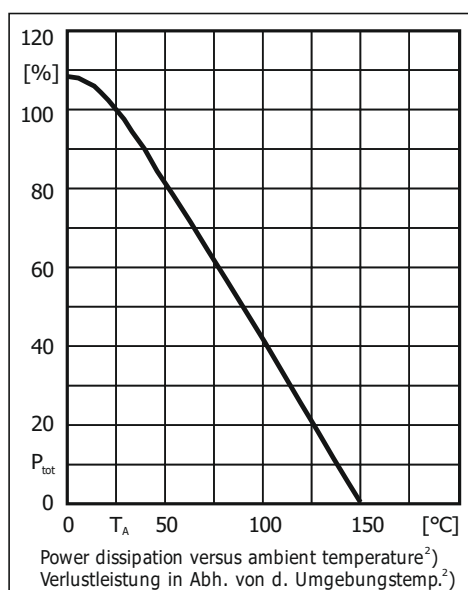
2  $T_A = 25^\circ\text{C}$  unless otherwise specified –  $T_A = 25^\circ\text{C}$  wenn nicht anders angegeben

3 Mounted on P.C. board with 3 mm<sup>2</sup> copper pad at each terminal  
 Montage auf Leiterplatte mit 3 mm<sup>2</sup> Kupferbelag (Lötpad) an jedem Anschluss

4 Tested with pulses  $t_p = 300 \mu\text{s}$ , duty cycle  $\leq 2\%$  – Gemessen mit Impulsen  $t_p = 300 \mu\text{s}$ , Schaltverhältnis  $\leq 2\%$

**Characteristics**
**Kennwerte**

| $T_j = 25^\circ\text{C}$                                                                                                                                                              |  | Min.          | Typ.                    | Max.                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------|-------------------------|---------------------------|
| Collector-Emitter saturation voltage – Kollektor-Emitter-Sättigungsspg. <sup>1)</sup><br>- $I_C = 10\text{ mA}$ - $I_B = 1\text{ mA}$<br>- $I_C = 50\text{ mA}$ - $I_B = 5\text{ mA}$ |  | - $V_{CEsat}$ | –                       | 0.2 V<br>0.5 V            |
| Base-Emitter saturation voltage – Basis-Emitter-Sättigungsspannung <sup>1)</sup><br>- $I_C = 10\text{ mA}$ - $I_B = 1\text{ mA}$<br>- $I_C = 50\text{ mA}$ - $I_B = 5\text{ mA}$      |  | - $V_{BEsat}$ | –                       | 1.0 V<br>1.0 V            |
| Collector-Base cutoff current – Kollektor-Basis-Reststrom<br>- $V_{CB} = 120\text{ V}$ E open<br>E open, $T_j = 100^\circ\text{C}$                                                    |  | - $I_{CBO}$   | –                       | 50 nA<br>50 $\mu\text{A}$ |
| Emitter-Base-cutoff current – Emitter-Basis-Reststrom<br>- $V_{EB} = 4\text{ V}$ C open                                                                                               |  | - $I_{EBO}$   | –                       | 50 nA                     |
| Gain-Bandwidth Product – Transitfrequenz<br>- $I_C = 10\text{ mA}$ , - $V_{CE} = 10\text{ V}$ , $f = 100\text{ MHz}$                                                                  |  | $f_T$         | 100 MHz                 | –<br>300 MHz              |
| Collector-Base Capacitance – Kollektor-Basis-Kapazität<br>- $V_{CB} = 10\text{ V}$ , $I_E = i_e = 0$ , $f = 1\text{ MHz}$                                                             |  | $C_{CBO}$     | –                       | –<br>6 pF                 |
| Thermal resistance junction to ambient<br>Wärmewiderstand Sperrschicht – umgebung                                                                                                     |  | $R_{thA}$     | < 420 K/W <sup>2)</sup> |                           |



**Disclaimer:** See data book page 2 or [website](#)  
**Haftungsausschluss:** Siehe Datenbuch Seite 2 oder [Internet](#)

1 Tested with pulses  $t_p = 300\text{ }\mu\text{s}$ , duty cycle  $\leq 2\%$  – Gemessen mit Impulsen  $t_p = 300\text{ }\mu\text{s}$ , Schaltverhältnis  $\leq 2\%$   
2 Mounted on P.C. board with 3 mm<sup>2</sup> copper pad at each terminal  
Montage auf Leiterplatte mit 3 mm<sup>2</sup> Kupferbelag (Lötpad) an jedem Anschluss