



# MMBTA42

## NPN EPITAXIAL SILICON TRANSISTOR

### HIGH VOLTAGE TRANSISTOR

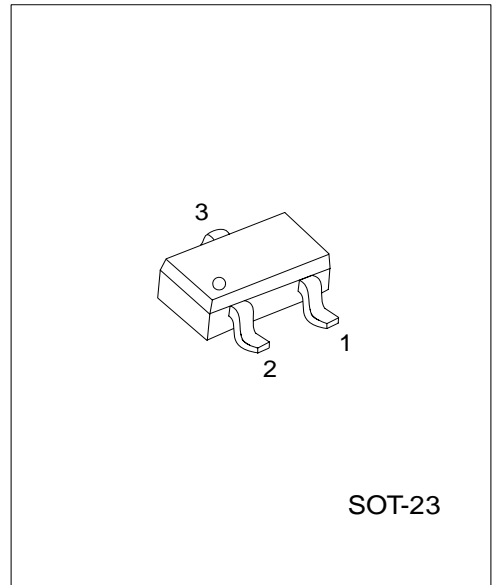
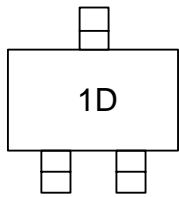
#### DESCRIPTION

The UTC **MMBTA42** are high voltage transistors, designed for telephone switch and high voltage switch.

#### FEATURES

- \*Collector-Emitter voltage:  $V_{CEO}=300V$
- \*High current gain
- \*Power Dissipation:  $P_{D(max)}=350mW$

#### MARKING



SOT-23

\* Pb-free plating product number: MMBTA42L

#### PIN CONFIGURATION

| PIN NO. | PIN NAME  |
|---------|-----------|
| 1       | Emitter   |
| 2       | Base      |
| 3       | Collector |

#### ORDERING INFORMATION

| Order Number  |                | Package | Packing   |
|---------------|----------------|---------|-----------|
| Normal        | Lead free      |         |           |
| MMBTA42-AE3-R | MMBTA42L-AE3-R | SOT-23  | Tape Reel |

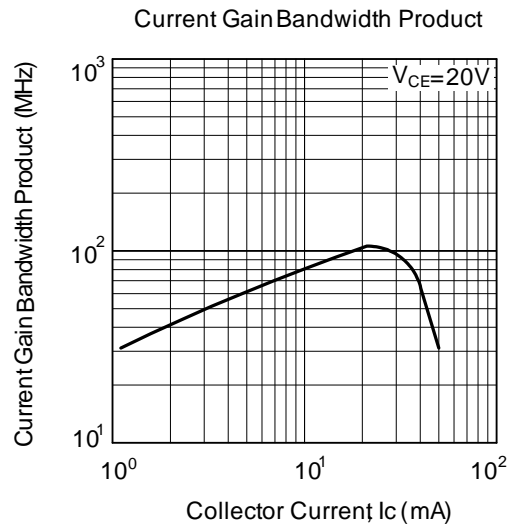
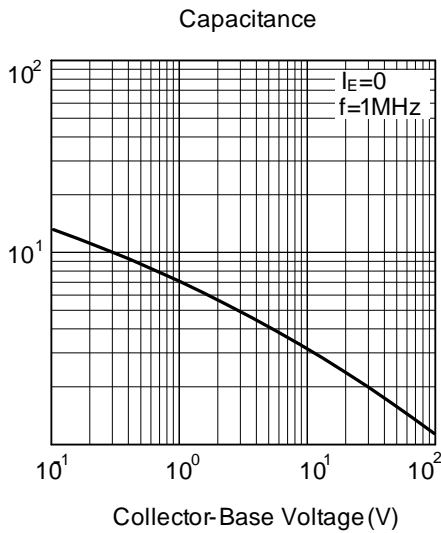
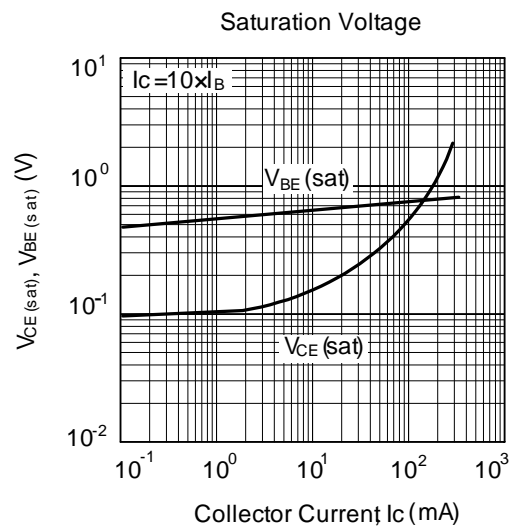
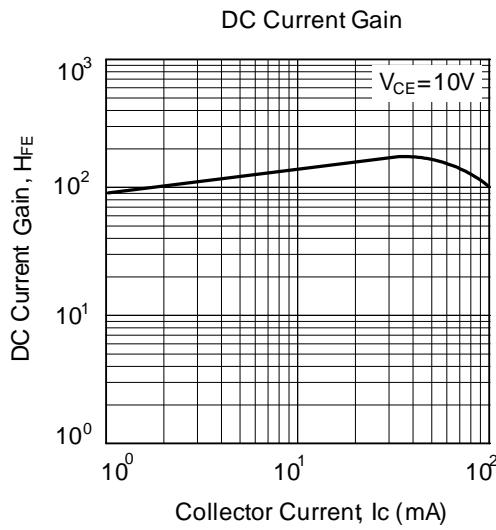
■ ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ )

| PARAMETER                 | SYMBOL    | RATINGS    | UNIT             |
|---------------------------|-----------|------------|------------------|
| Collector-Base Voltage    | $V_{CBO}$ | 300        | V                |
| Collector-Emitter Voltage | $V_{CEO}$ | 300        | V                |
| Emitter-Base Voltage      | $V_{EBO}$ | 6          | V                |
| Collector Current         | $I_c$     | 500        | mA               |
| Power Dissipation         | $P_D$     | 350        | mW               |
| Junction Temperature      | $T_J$     | +150       | $^\circ\text{C}$ |
| Storage Temperature       | $T_{STG}$ | -40 ~ +150 | $^\circ\text{C}$ |

■ ELECTRICAL CHARACTERISTICS ( $T_J=25^\circ\text{C}$ , unless otherwise specified)

| PARAMETER                            | SYMBOL        | TEST CONDITIONS   | MIN | TYP | MAX  | UNIT |
|--------------------------------------|---------------|---|-----|-----|------|------|
| Collector-Base Breakdown Voltage     | $BV_{CBO}$    | $I_c=100\mu\text{A}$ , $I_E=0$                              | 300 |     |      | V    |
| Collector-Emitter Breakdown Voltage  | $BV_{CEO}$    | $I_c=1\text{mA}$ , $I_B=0$                                  | 300 |     |      | V    |
| Emitter-Base Breakdown Voltage       | $BV_{EBO}$    | $I_E=100\mu\text{A}$ , $I_c=0$                              | 6   |     |      | V    |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_c=20\text{mA}$ , $I_B=2\text{mA}$                        |     |     | 0.2  | V    |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_c=20\text{mA}$ , $I_B=2\text{mA}$                        |     |     | 0.90 | V    |
| Collector Cut-Off Current            | $I_{CBO}$     | $V_{CB}=200\text{V}$ , $I_E=0$                              |     |     | 100  | nA   |
| Emitter Cut-Off Current              | $I_{EBO}$     | $V_{BE}=6\text{V}$ , $I_c=0$                                |     |     | 100  | nA   |
| DC Current Gain(note)                | $h_{FE}$      | $V_{CE}=10\text{V}$ , $I_c=1\text{mA}$                      | 80  |     | 300  |      |
|                                      |               | $V_{CE}=10\text{V}$ , $I_c=10\text{mA}$                     | 80  |     |      |      |
|                                      |               | $V_{CE}=10\text{V}$ , $I_c=30\text{mA}$                     | 80  |     |      |      |
| Current Gain Bandwidth Product       | $f_T$         | $V_{CE}=20\text{V}$ , $I_c=10\text{mA}$ , $f=100\text{MHz}$ | 50  |     |      | MHz  |
| Collector Base Capacitance           | $C_{cb}$      | $V_{CB}=20\text{V}$ , $I_E=0$ , $f=1\text{MHz}$             |     |     | 3    | pF   |

## ■ TYPICAL CHARACTERISTICS



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