# UTC MMBTA42 NPN EPITAXIAL SILICON TRANSISTOR

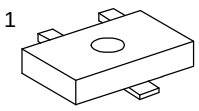
## HIGH VOLTAGE TRANSISTOR

### DESCRIPTION

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

### FEATURES

*Collector-Emitter voltage:
$V_{CEO}$=300V(UTC MMBTA42)
*High current gain
*Collector Dissipation:
Pc(max)=625mW




SOT-23

1:EMITTER 2:BASE 3:COLLECTOR

### ABSOLUTE MAXIMUM RATINGS ( Operating temperature range applies unless otherwise specified )

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Collector-Base Voltage<br>UTC MMBTA42 | $V_{CBO}$ | 300 | V |
| Collector-Emitter Voltage<br>UTC MMBTA42 | $V_{CEO}$ | 300 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 6 | V |
| Collector Dissipation | Pc | 625 | mW |
| Collector Current | Ic | 500 | mA |
| Junction Temperature | $T_j$ | 150 | °C |
| Storage Temperature | $T_{STG}$ | -55 ~ +150 | °C |

### ELECTRICAL CHARACTERISTICS(Tj=25°C,unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage<br>UTC MMBTA42 | $BV_{CBO}$ | $I_C$=100μA,$I_E$=0 | 300 | | | V |
| Collector-Emitter Breakdown Voltage<br>UTC MMBTA42 | $BV_{CEO}$ | $I_C$=1mA,$I_B$=0 | 300 | | | V |
| Emitter-Base Breakdown Voltage | $BV_{EBO}$ | $I_E$=100μA,Ic=0 | 6 | | | V |
| Collector Cut-Off Current<br>UTC MMBTA42 | $I_{CBO}$ | $V_{CB}$=200V,$I_E$=0 | | | 100 | nA |
| Emitter Cut-Off Current<br>UTC MMBTA42 | $I_{EBO}$ | $V_{BE}$=6V,Ic=0 | | | 100 | nA |
| DC Current Gain(note) | $h_{FE}$ | $V_{CE}$=10V,Ic=1mA<br>$V_{CE}$=10V,Ic=10mA<br>$V_{CE}$=10V,Ic=30mA | 80<br>80<br>80 | | 300 | |

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| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-Emitter Saturation Voltage | $V_{CE}$(sat) | Ic=20mA,$I_B$=2mA | | | 0.2 | V |
| Base-Emitter Saturation Voltage | $V_{BE}$(sat) | Ic=20mA,$I_B$=2mA | | | 0.90 | V |
| Current Gain Bandwidth Product | $f_T$ | $V_{CE}$=20V,Ic=10mA, f=100MHz | 50 | | | MHz |
| Collector Base Capacitance UTCMMBTA42 | Ccb | $V_{CB}$=20V,IE=0 f=1MHz | | | 3 | pF |

## TYPICAL PERFORMANCE CHARACTERISTICS

Fig.1 DC Current Gain

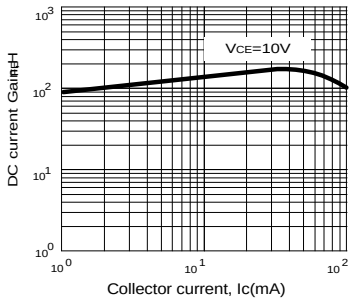



Fig.2 Saturation Voltage

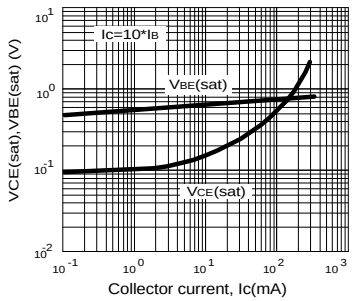



Fig.3 Capacitance

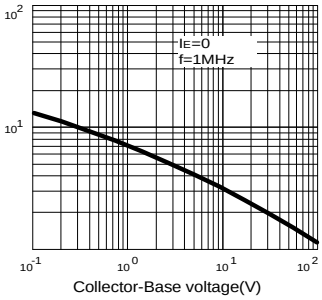
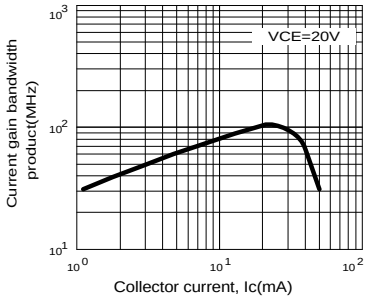



Fig.4 Current Gain Bandwidth product




## MARKING CODE