



# MMBTA92

## PNP SILICON TRANSISTOR

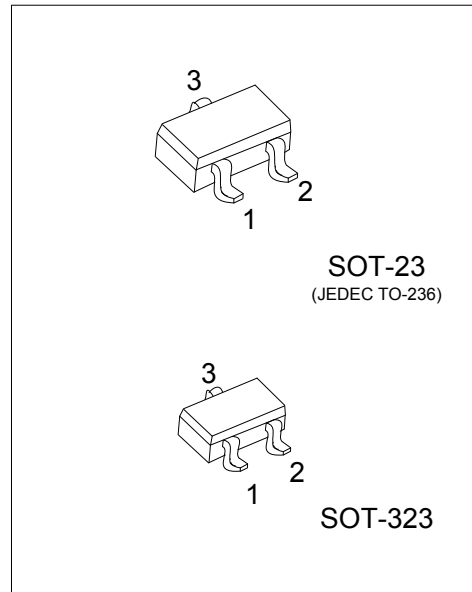
### HIGH VOLTAGE PNP TRANSISTOR

#### DESCRIPTION

The UTC **MMBTA92** are high voltage PNP transistors, designed for telephone signal switching and for high voltage amplifier.

#### FEATURES

- \* High Collector-Emitter voltage:  $V_{CE0} = -300V$
- \* Collector Dissipation:  $P_{C(MAX)} = 350mW$



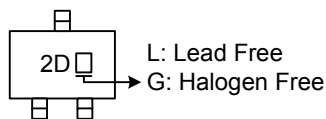
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MMBTA92L-AE3-R	MMBTA92G-AE3-R	SOT-23	B	E	C	Tape Reel
MMBTA92L-AL3-R	MMBTA92G-AL3-R	SOT-323	B	E	C	Tape Reel

Note: Pin Assignment: B: Base E: Emitter C: Collector

<p>MMBTA92G-AE3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) AE3: SOT-23, AL3: SOT-323</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



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

PARAMETER			SYMBOL	RATINGS	UNIT
Collector-Base Voltage			$V_{CBO}$	-300	V
Collector-Emitter Voltage			$V_{CEO}$	-300	V
Emitter-Base Voltage			$V_{EBO}$	-5	V
Collector Current			$I_C$	-500	mA
Collector Dissipation (Note 2)	$T_A=25^\circ\text{C}$	SOT-23	$P_C$	350	mW
		SOT-323		300	mW
	$T_C=25^\circ\text{C}$	SOT-23		0.6	W
		SOT-323		0.5	W
	Derate Above $T_A > 25^\circ\text{C}$	SOT-23		2.8	mW/ $^\circ\text{C}$
		SOT-323		2.4	mW/ $^\circ\text{C}$
Junction Temperature			$T_J$	+150	$^\circ\text{C}$
Storage Temperature			$T_{STG}$	-40 ~ +150	$^\circ\text{C}$

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

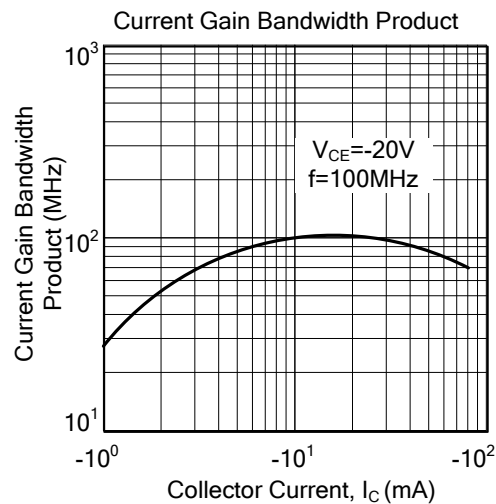
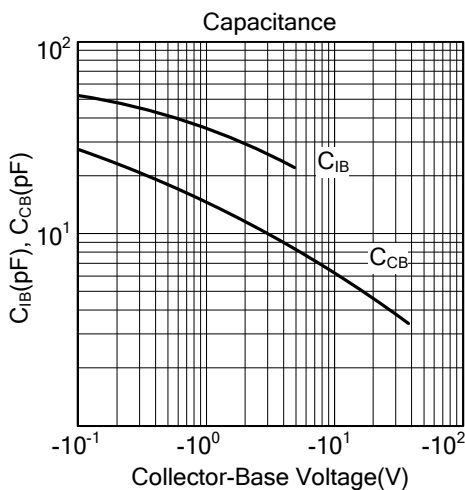
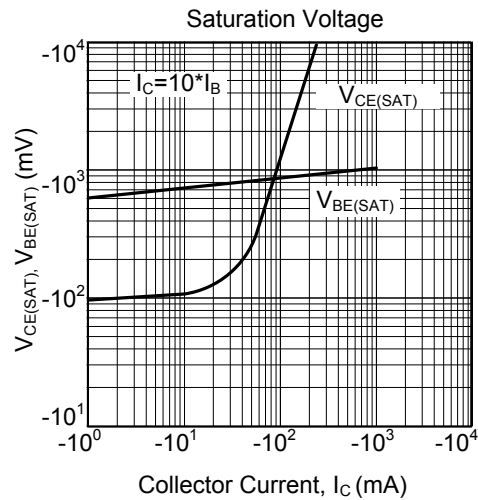
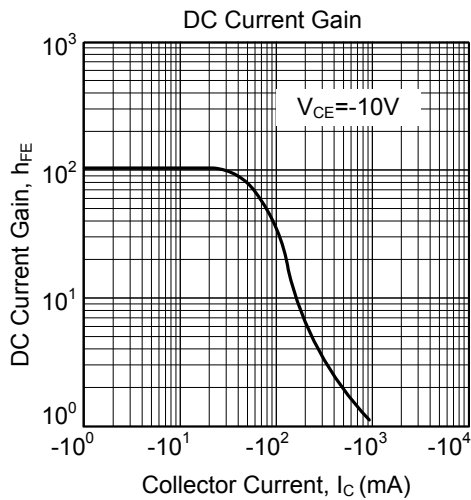
2. Device mounted on FR-4 substrate  $P_C$  board, 2oz copper, with 1inch square copper plate.

■ 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	$BV_{EBO}$	$I_E=-100\mu\text{A}$ , $I_C=0$	-5			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=-200\text{V}$ , $I_E=0$			-0.25	$\mu\text{A}$
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=-3\text{V}$ , $I_C=0$			-0.10	$\mu\text{A}$
DC Current Gain (Note)	$h_{FE}$	$V_{CE}=-10\text{V}$ , $I_C=-1\text{mA}$	60			
		$V_{CE}=-10\text{V}$ , $I_C=-10\text{mA}$	80			
		$V_{CE}=-10\text{V}$ , $I_C=-30\text{mA}$	80			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)1}$	$I_C=-20\text{mA}$ , $I_B=-2\text{mA}$			-0.5	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)1}$	$I_C=-20\text{mA}$ , $I_B=-2\text{mA}$			-0.90	V
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	$C_{cb}$	$V_{CB}=-20\text{V}$ , $I_E=0$ , $f=1\text{MHz}$			6	pF

Note: Pulse test: Pulse Width $\leq 300\mu\text{s}$ , Duty Cycles $\leq 2\%$ ,  $V_{CE(SAT)1}\leq 200\text{mV}$  (Class SIN).

### ■ TYPICAL CHARACTERISTICS



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