



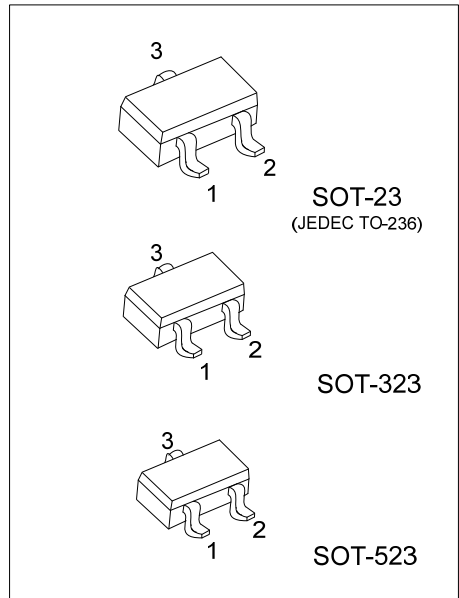
MMBT3906

PNP SILICON TRANSISTOR

GENERAL PURPOSE APPLICATION

■ FEATURES

- * Collector-Emitter Voltage: $V_{CE0}=40V$
- * Complementary to UTC MMBT3904



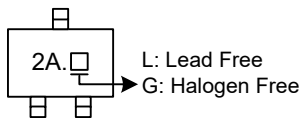
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MMBT3906L-AE3-R	MMBT3906G-AE3-R	SOT-23	B	E	C	Tape Reel
MMBT3906L-AL3-R	MMBT3906G-AL3-R	SOT-323	B	E	C	Tape Reel
MMBT3906L-AN3-R	MMBT3906G-AN3-R	SOT-523	B	E	C	Tape Reel

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

<p>MMBT3906G-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING



■ ABSOLUTE MAXIMUM RATING ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector Base Voltage		V_{CBO}	-40	V
Collector Emitter Voltage		V_{CEO}	-40	V
Emitter Base Voltage		V_{EBO}	-5	V
Collector Current		I_C	-200	mA
Base Current		I_B	-50	mA
Collector Dissipation	SOT-23	P_C	0.35	W
	SOT-323		0.3	W
	SOT-523		0.27	W
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note: 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.

■ THERMAL CHARACTERISTICS

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-23	θ_{JA}	360	$^\circ\text{C/W}$
	SOT-323		420	$^\circ\text{C/W}$
	SOT-523		450	$^\circ\text{C/W}$

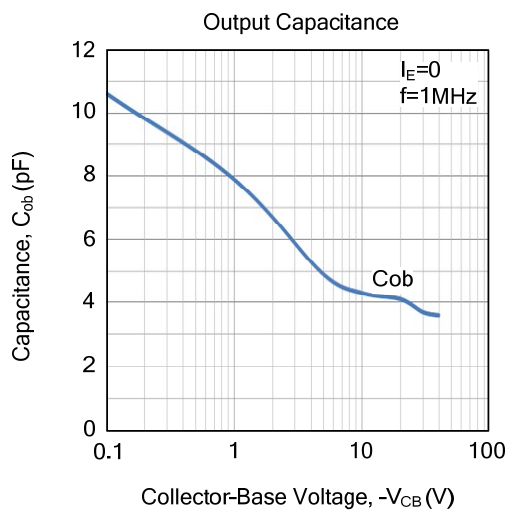
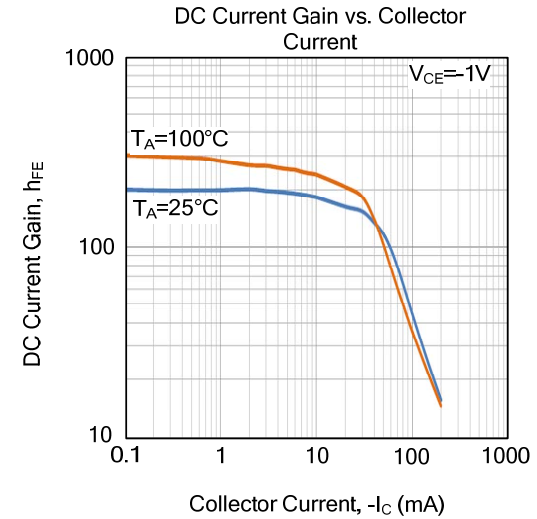
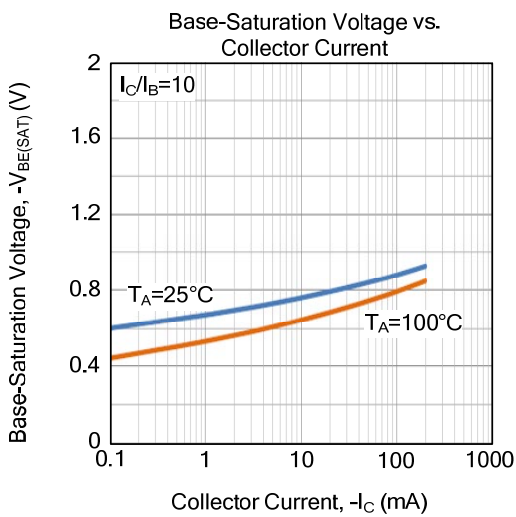
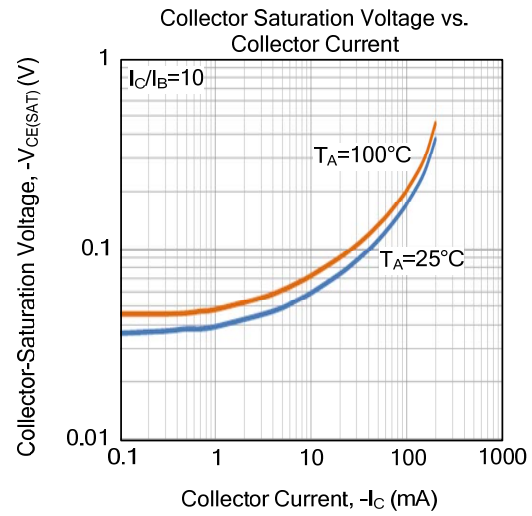
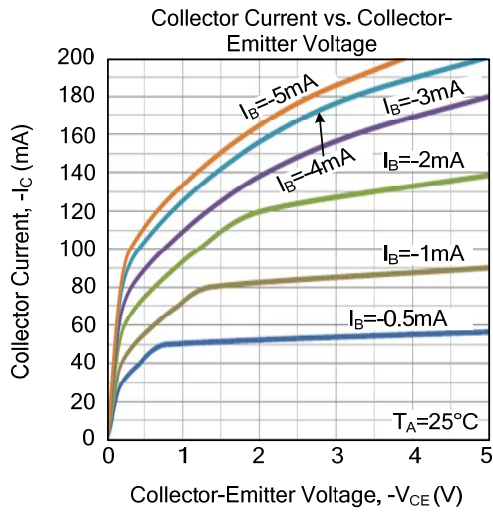
Note: The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-off Current	I_{CEX}	$V_{CE}=-30\text{V}, V_{EB}=-3\text{V}$			-50	nA
Base Cut-off Current	I_{BL}	$V_{CE}=-30\text{V}, V_{EB}=-3\text{V}$			-50	nA
Collector-Base Breakdown Voltage	V_{CBO}	$I_C=-10\mu\text{A}, I_E=0$	-40			V
Collector-Emitter Breakdown Voltage (Note)	V_{CEO}	$I_C=-1\text{mA}, I_B=0$	-40			V
Emitter-Base Breakdown Voltage	V_{EBO}	$I_E=-10\mu\text{A}, I_C=0$	-5			V
DC Current Gain (Note)	h_{FE1}	$V_{CE}=-1\text{V}, I_C=-0.1\text{mA}$	60			
	h_{FE2}	$V_{CE}=-1\text{V}, I_C=-1\text{mA}$	80			
	h_{FE3}	$V_{CE}=-1\text{V}, I_C=-10\text{mA}$	100		300	
	h_{FE4}	$V_{CE}=-1\text{V}, I_C=-50\text{mA}$	60			
	h_{FE5}	$V_{CE}=-1\text{V}, I_C=-100\text{mA}$	30			
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)1}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$			-0.25	V
	$V_{CE(SAT)2}$	$I_C=-50\text{mA}, I_B=-5\text{mA}$			-0.4	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)1}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$	-0.65		-0.85	V
	$V_{BE(SAT)2}$	$I_C=-50\text{mA}, I_B=-5\text{mA}$			-0.95	V
Transition Voltage	f_T	$V_{CE}=-20\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$	250			MHz
Output Capacitance	C_{ob}	$V_{CB}=-5\text{V}, I_E=0, f=1\text{MHz}$			4.5	pF
Turn on Time	t_{ON}	$V_{CC}=-3\text{V}, V_{BE}=-0.5\text{V}, I_C=-10\text{mA}, I_{B1}=-1\text{mA}$			70	ns
Turn off Time	t_{OFF}	$I_{B1}=1\text{mA}, I_{B2}=-1\text{mA}$			300	ns

Note: Pulse test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

TYPICAL CHARACTERISTICS



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