



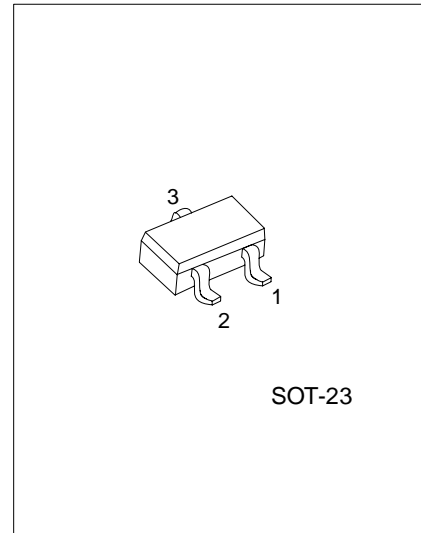
# MMBTH10

## NPN SILICON TRANSISTOR

### RF TRANSISTOR

#### DESCRIPTION

The UTC **MMBTH10** is designed for using as VHF and UHF oscillators and VHF Mixer in a tuner of a TV receiver.



SOT-23

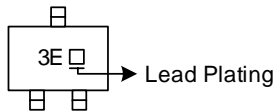
\*Pb-free plating product number: MMBTH10L

#### ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
MMBTH10-x-AE3-R	MMBTH10L-x-AE3-R	SOT-23	E	B	C	Tape Reel

<p>MMBTH10L-x-AE3-R</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Rank</li> <li>(4) Lead Plating</li> </ul>	<ul style="list-style-type: none"> <li>(1) T: Tube</li> <li>(2) AE3: SOT-23</li> <li>(3) x: refer to Classification of <math>h_{FE}</math></li> <li>(4) L: Lead Free Plating, Blank: Pb/Sn</li> </ul>
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#### MARKING



# MMBTH10

## NPN SILICON TRANSISTOR

### ■ ABSOLUTE MAXIMUM RATING (Ta=25 )

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-base voltage	V <sub>CBO</sub>	30	V
Collector-emitter voltage	V <sub>CEO</sub>	25	V
Emitter-base voltage	V <sub>EBO</sub>	3	V
Total Power Dissipation	P <sub>C</sub>	225	mW
Collector current	I <sub>C</sub>	50	mA
Junction Temperature	T <sub>J</sub>	150	
Storage Temperature	T <sub>STG</sub>	-55 ~ +150	

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.

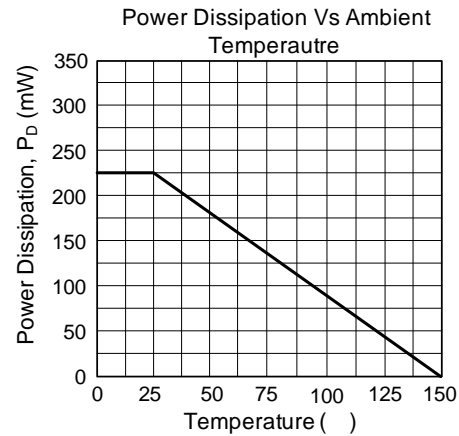
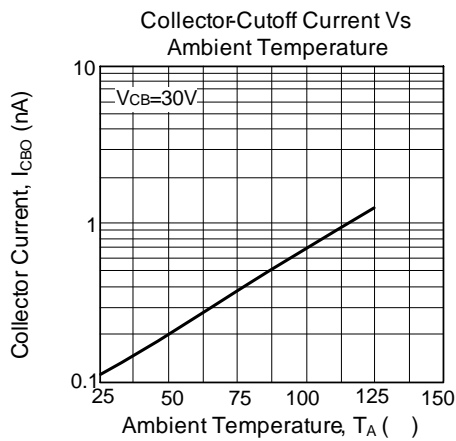
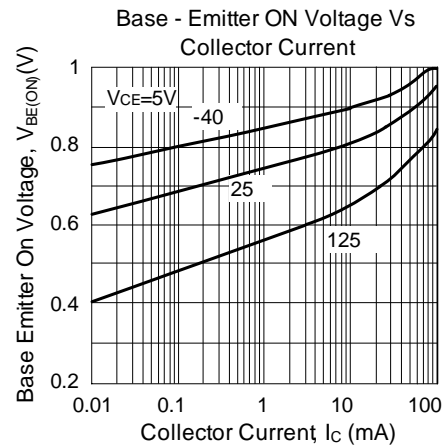
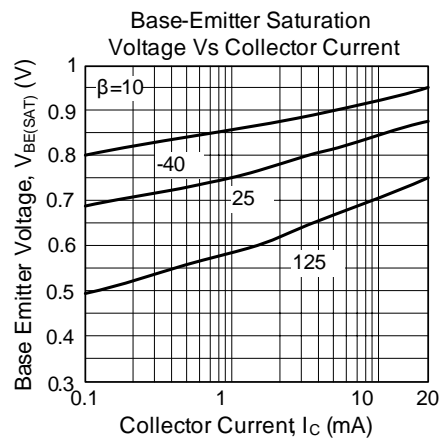
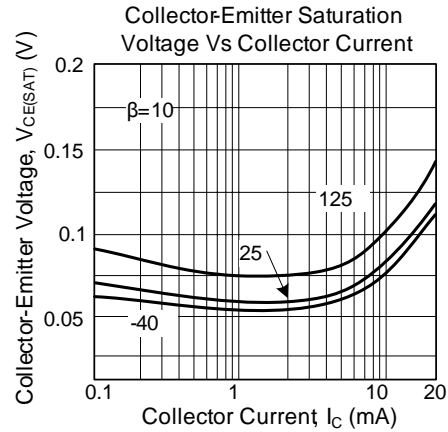
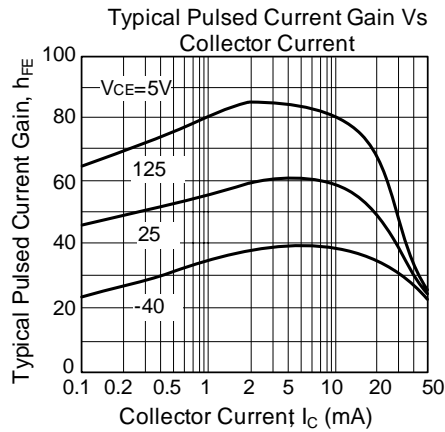
### ■ ELECTRICAL CHARACTERISTICS (Ta=25 , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	I <sub>C</sub> =100μA	30			V
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	I <sub>C</sub> =1mA	25			V
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	I <sub>E</sub> =10μA	3			V
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	I <sub>C</sub> =4mA, I <sub>B</sub> =400μA			500	mV
Base-Emitter on Voltage	V <sub>BE(ON)</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =4mA			950	mV
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> =25V			100	nA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> =2V			100	nA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =4mA	60			
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, f=1MHZ			0.7	pF
Current Gain Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =4mA, f=100MHz	650			MHz

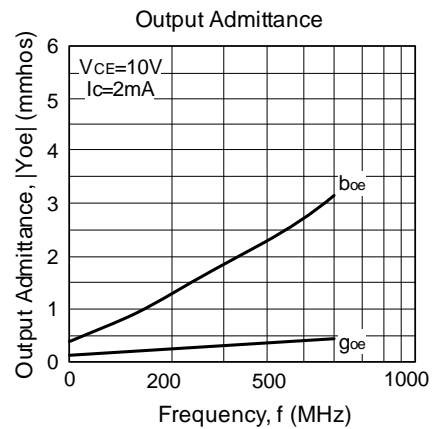
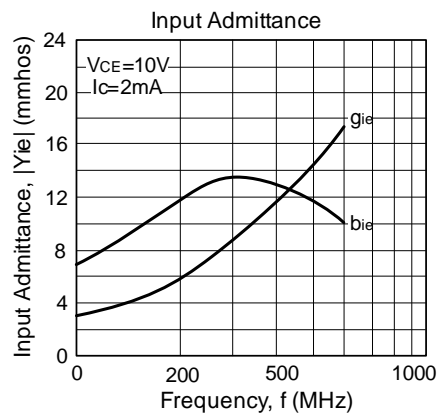
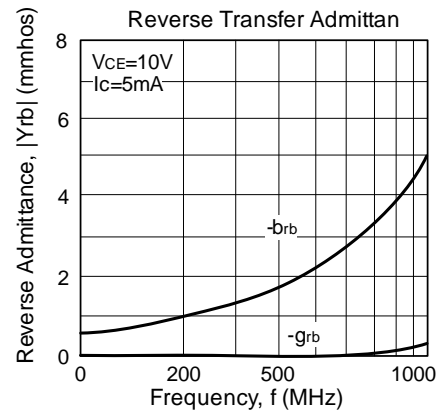
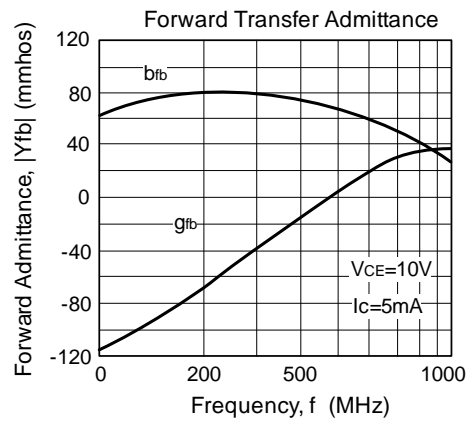
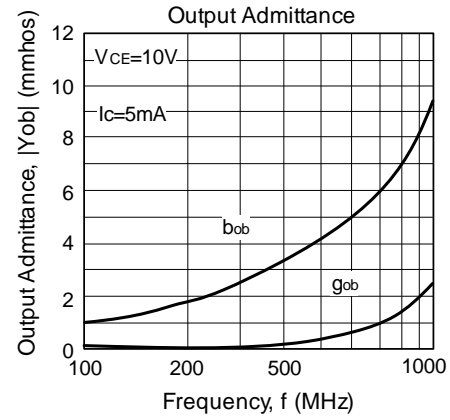
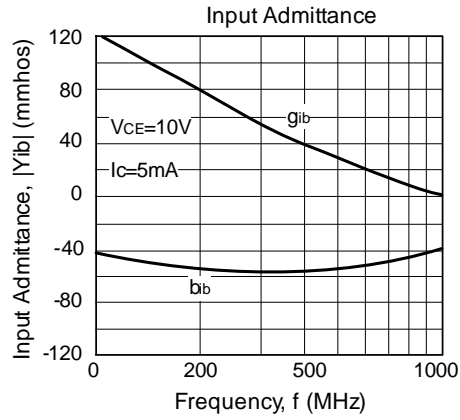
### ■ CLASSIFICATION OF h<sub>FE</sub>

RANK	A	B	C
RANGE	60-100	90-130	120-200

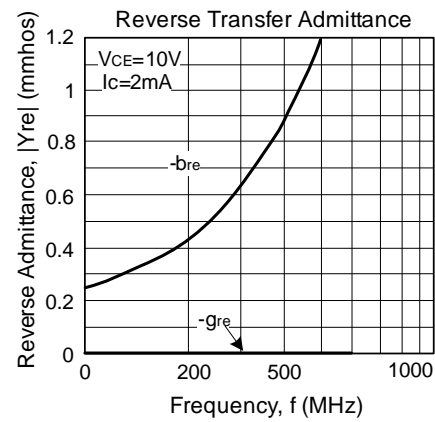
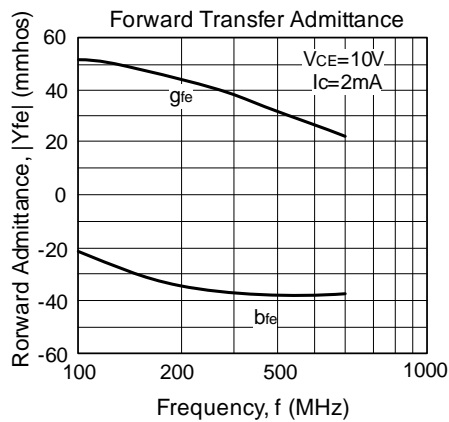
## TYPICAL CHARACTERISTICS



### TYPICAL CHARACTERISTICS(Cont.)



■ TYPICAL CHARACTERISTICS(Cont.)



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