

RoHS Compliant Product  
A suffix of "-C" specifies halogen and lead free

## FEATURES

The MMBTH10-C is designed for use in VHF & UHF oscillators and VHF mixer in tuner of a TV receiver.

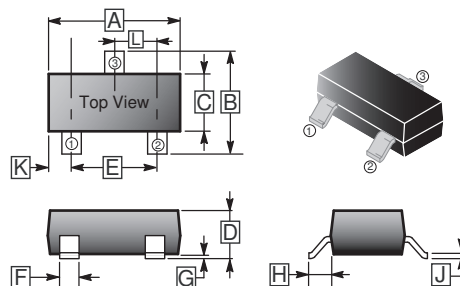
## SOT-23

## MARKING

3EM

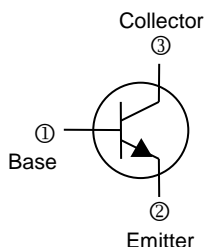
## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch



## ORDER INFORMATION

Part Number	Type
MMBTH10-C	Lead (Pb)-free and Halogen-free



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.65	3.10	G	0	0.18
B	2.10	3.00	H	0.55	REF.
C	1.10	1.80	J	0.08	0.26
D	0	1.40	K	0.60	REF.
E	1.70	2.30	L	0.95	TYP.
F	0.28	0.55			

## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

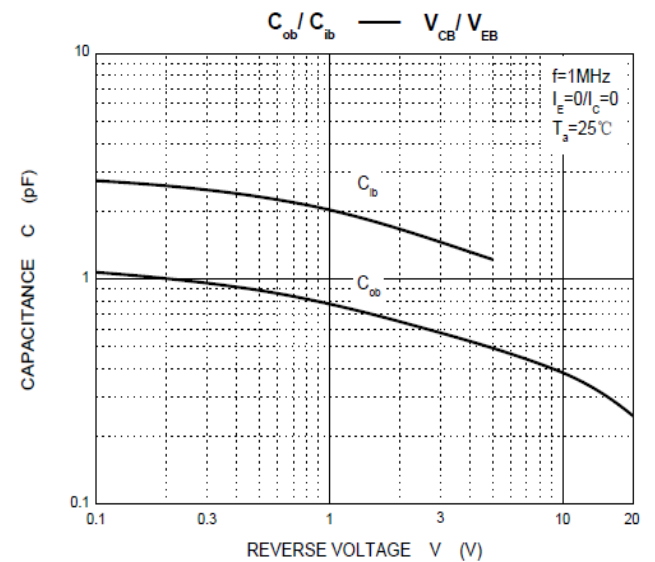
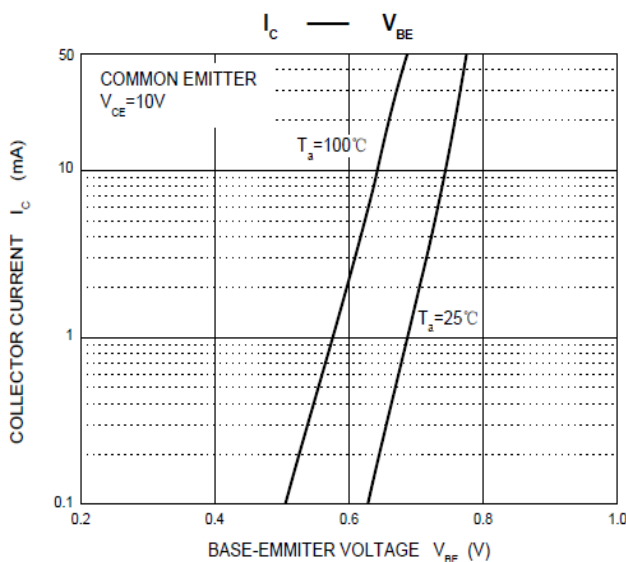
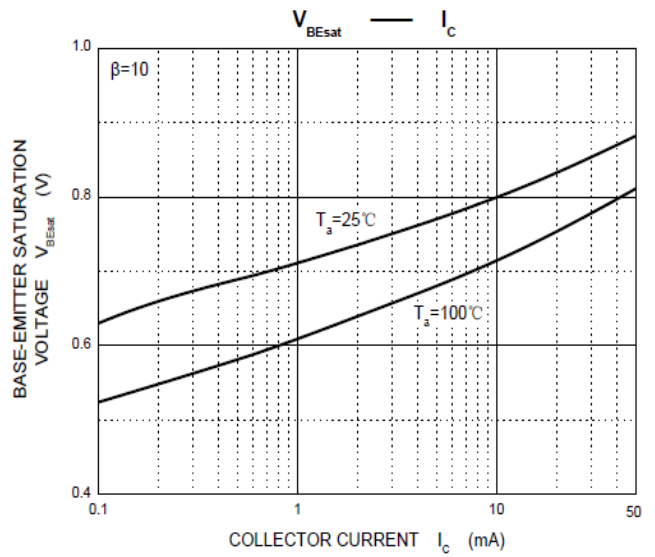
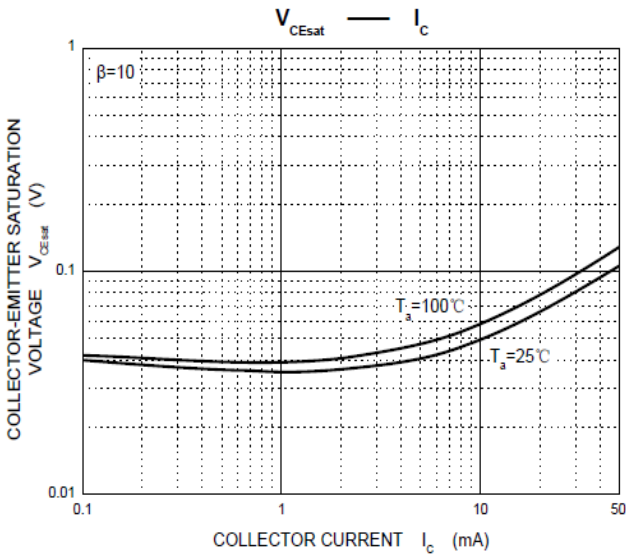
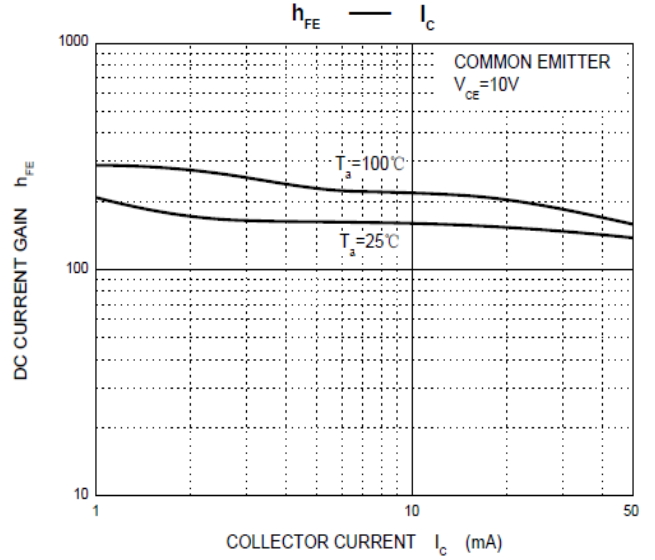
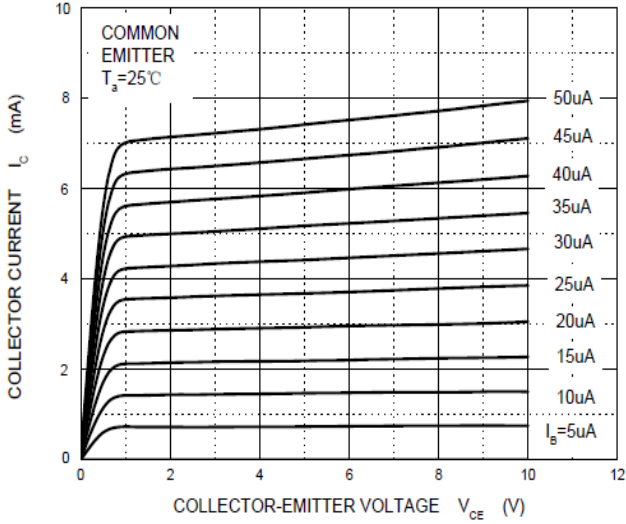
Parameter	Symbol	Ratings	Unit
Collector-Base Voltage	V <sub>CB0</sub>	30	V
Collector-Emitter Voltage	V <sub>CEO</sub>	25	V
Emitter-Base Voltage	V <sub>EBO</sub>	3	V
Collector Current	I <sub>C</sub>	50	mA
Collector Power Dissipation <sup>1</sup>	P <sub>C</sub>	225	mW
Junction, Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55~150	°C
Thermal Data			
Thermal Resistance from Junction-Ambient <sup>1</sup>	R <sub>θJA</sub>	556	°C/W

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

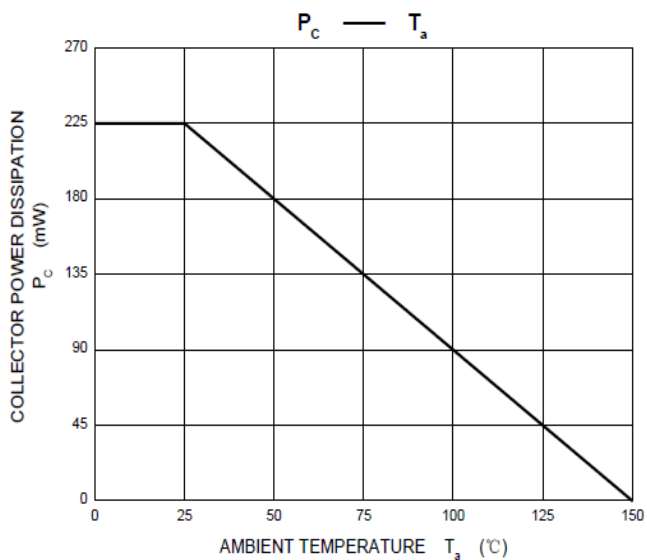
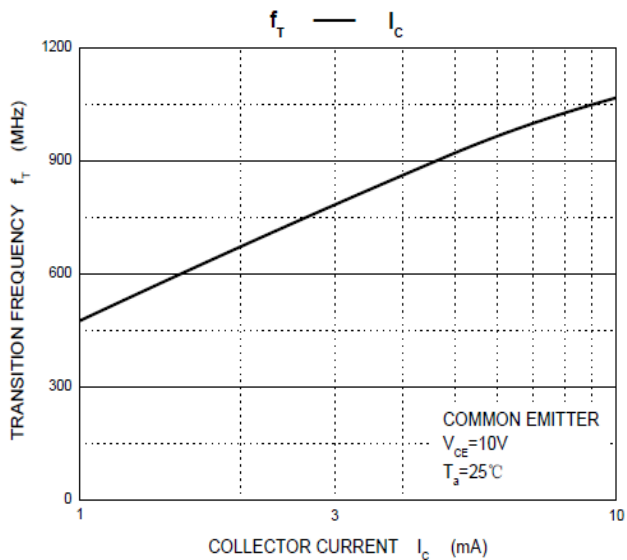
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	30	-	-	V	I <sub>C</sub> =100μA, I <sub>E</sub> =0
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	25	-	-		I <sub>C</sub> =1mA, I <sub>B</sub> =0
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	3	-	-		I <sub>E</sub> =10μA, I <sub>C</sub> =0
Collector Cut-off Current	I <sub>CBO</sub>	-	-	0.1	μA	V <sub>CB</sub> =25V, I <sub>E</sub> =0
Emitter Cut-off Current	I <sub>EBO</sub>	-	-	0.1		V <sub>EB</sub> =2V, I <sub>C</sub> =0
DC Current Gain	h <sub>FE</sub>	100	-	200		V <sub>CE</sub> =10V, I <sub>C</sub> =4mA
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	-	-	0.5	V	I <sub>C</sub> =4mA, I <sub>B</sub> =0.4mA
Base-Emitter Voltage	V <sub>BE(on)</sub>	-	-	0.95	V	I <sub>C</sub> =4mA, V <sub>CE</sub> =10V
Collector Output Capacitance	C <sub>ob</sub>	-	-	0.7	pF	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz
Transition Frequency	f <sub>T</sub>	650	-	-	MHz	V <sub>CE</sub> =10V, I <sub>C</sub> =4mA, f=100MHz

**TYPICAL CHARACTERISTICS**

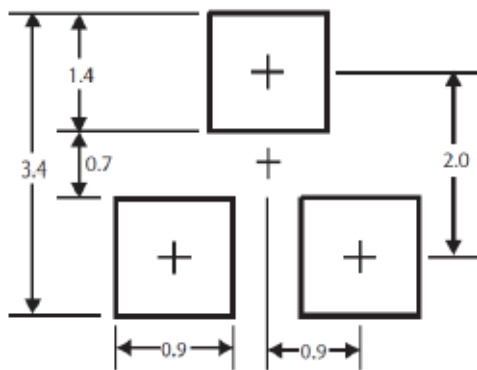
**Static Characteristic**



**TYPICAL CHARACTERISTICS**



**Mounting Pad Layout**



\*Dimensions in millimeters