

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

## DESCRIPTION

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

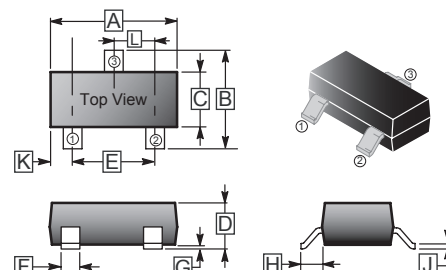
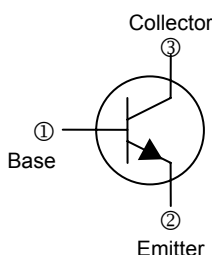
## SOT-23

## FEATURES

VHF/UHF Transistor

## PACKAGING INFORMATION

Weight: 0.0078g (Approximately)



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.80	3.04	G	0.09	0.18
B	2.10	2.55	H	0.45	0.60
C	1.20	1.40	J	0.08	0.177
D	0.89	1.15	K	0.6 REF.	
E	1.78	2.04	L	0.89	1.02
F	0.30	0.50			

## MARKING CODE

3EM

## ABSOLUTE MAXIMUM RATINGS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

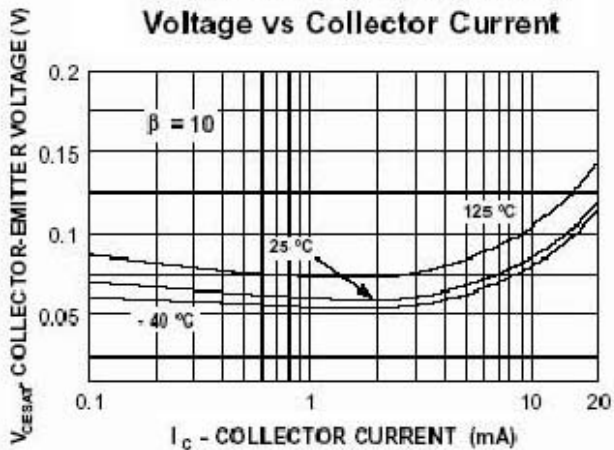
Parameter	Symbol	Ratings	Unit
Collector Power Dissipation	$P_C$	225	mW
Collector Current - Continuous	$I_C$	50	mA
Emitter - Base Voltage	$V_{EBO}$	3	V
Collector - Emitter Voltage	$V_{CEO}$	25	V
Collector - Base Voltage	$V_{CBO}$	30	V
Junction, Storage Temperature	$T_J, T_{STG}$	+150, -55 ~ +150	$^\circ\text{C}$

## CHARACTERISTICS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

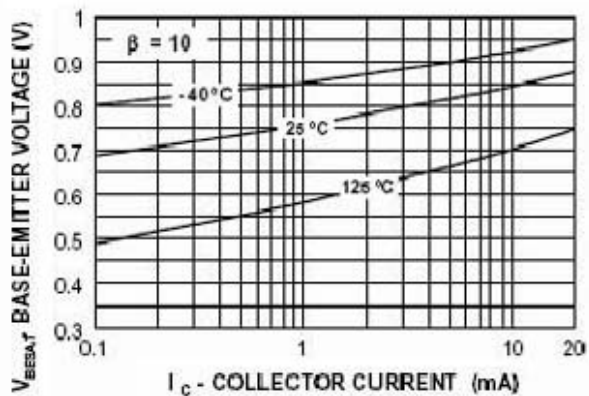
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	30	-	-	V	$I_C=100\mu\text{A}, I_E=0$
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	25	-	-	V	$I_C=1\text{mA}, I_B=0$
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	3	-	-	V	$I_E=10\mu\text{A}, I_C=0$
Collector Cut - Off Current	$I_{CBO}$	-	-	100	nA	$V_{CB}=25\text{V}, I_E=0$
Emitter Cut - Off Current	$I_{EBO}$	-	-	100	nA	$V_{EB}=2\text{V}, I_C=0$
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$	-	-	500	mV	$I_C=4\text{mA}, I_B=0.4\text{mA}$
Base - Emitter Voltage	$V_{BE}$	-	-	950	mV	$V_{CE}=10\text{V}, I_C=4\text{mA}$
DC Current Gain	$h_{FE}$	60	-	-		$V_{CE}=10\text{V}, I_C=4\text{mA}$
Transition Frequency	$f_T$	650	-	-	MHZ	$V_{CE}=10\text{V}, I_C=4\text{mA}, f=100\text{MHZ}$
Output Capacitance	$C_{ob}$	-	-	0.70	pF	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHZ}$
Common - Base Feedback Capacitance	$C_{rb}$	-	-	0.65	pF	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHZ}$
Collector Base Time Constant	$C_c \cdot r_{bb}$	-	-	9	pS	$V_{CB}=10\text{V}, I_C=4\text{mA}, f=31.8\text{MHZ}$

**CHARACTERISTIC CURVES**

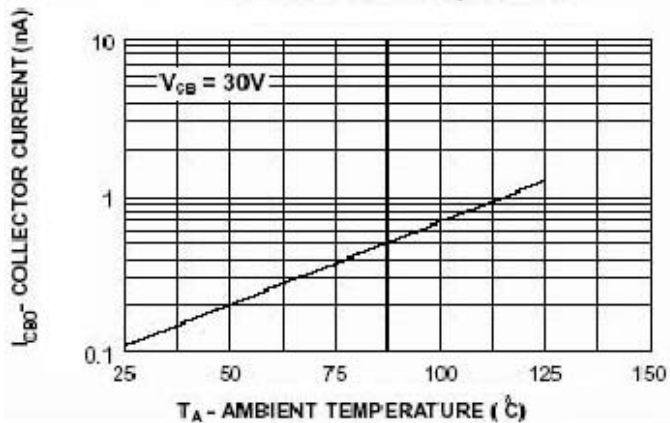
**Collector-Emitter Saturation Voltage vs Collector Current**



**Base-Emitter Saturation Voltage vs Collector Current**



**Collector-Cutoff Current vs Ambient Temperature**



**Power Dissipation vs Ambient Temperature**

