

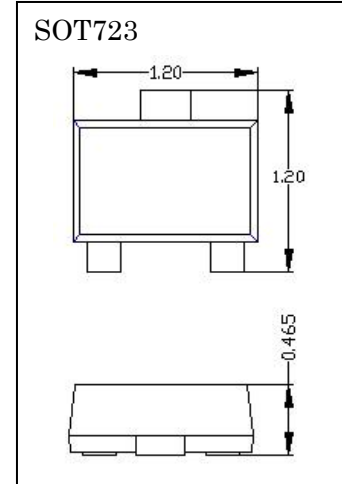
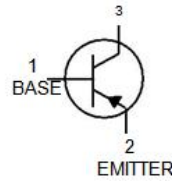
DATA SHEET

MMBT2907AM

- ◇ Epitaxial planar die construction
- ◇ Operating and Storage Junction Temperatures: -55°C to 150°C
- ◇ Small Outline Surface Mount Package
- ◇ RoHS compliant / Green EMC

Device Marking Code	
MMBT2907AM	AC

Circuit Diagram



Maximum Ratings ($T_a = 25^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-60	V
V_{CEO}	Collector-Emitter Voltage	-60	V
V_{EBO}	Emitter-Base Voltage	-5.0	V
I_C	Collector Current-Continuous	-600	mA
P_D	Total Device Dissipation	265	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	470	$^{\circ}\text{C}/\text{W}$
T_j	Alumina Substrate, $T_A=25^{\circ}\text{C}$	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	$-55 \sim +150$	$^{\circ}\text{C}$

Off Electrical Characteristics $T_a=25^{\circ}\text{C}$

Symbol	Parameter	Test Conditions	Min	Max	Units
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage(Note 1)	$I_C=-10.0\text{mA}$, $I_B=0$	-60	-	V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=-10\mu\text{A}$, $I_E=0$	-60	-	V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=-10\mu\text{A}$, $I_C=0$	-5.0	-	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=-50\text{V}$, $I_E=0$		-0.01	μA
I_{CEX}	Collector Cutoff Current	$V_{CE}=-30\text{V}$, $V_{EB(off)}=-0.5\text{V}$		50	nA
I_{EBO}	Collector Cutoff Current	$V_{EB}=-5\text{V}$, $I_C=0$		-0.1	μA
I_{BL}	Base Cutoff Current	$V_{CE}=-30\text{V}$, $V_{EB(off)}=-0.5\text{V}$		-50	nA

On Electrical Characteristics Ta=25°C

Symbol	Parameter	Test Conditions	Min	Max	Units
h_{FE}	DC Current Gain	$I_C = -0.1\text{mA}$, $V_{CE} = -10\text{V}$	75	–	–
		$I_C = -1.0\text{mA}$, $V_{CE} = -10\text{V}$	100	–	
		$I_C = -10\text{mA}$, $V_{CE} = -10\text{V}$	100	–	
		$I_C = -150\text{mA}$, $V_{CE} = -10\text{V}$	100	300	
		$I_C = -500\text{mA}$, $V_{CE} = -10\text{V}$ (Note 1)	50	–	
$V_{CE}(\text{Sat})$	Collector–Emitter Saturation Voltage (Note 1)	($I_C = -150\text{mA}$, $I_B = -15\text{mA}$) (Note 1)	–	–0.4	V
		($I_C = -500\text{mA}$, $I_B = -50\text{mA}$)	–	–1.6	
$V_{BE}(\text{Sat})$	Base–Emitter Saturation Voltage (Note 1)	$I_C = -150\text{mA}$, $I_B = -15\text{mA}$	–	–1.3	V
		$I_C = -500\text{mA}$, $I_B = -50\text{mA}$	–	–2.6	

Small–Signal Characteristics

Symbol	Parameter	Test Conditions	Min	Max	Units
f_T	Current–Gain – Bandwidth Product	$I_C = -50\text{mA}$, $V_{CE} = -20\text{V}$, $f = 100\text{MHz}$ (Notes 1,2)	200	–	MHz
Cobo	Output Capacitance	$V_{CB} = -10\text{V}$, $I_E = 0$, $f = 1.0\text{MHz}$	–	8.0	pF
Cibo	Input Capacitance	$V_{EB} = -2.0\text{V}$, $I_C = 0$, $f = 1.0\text{MHz}$	–	30	

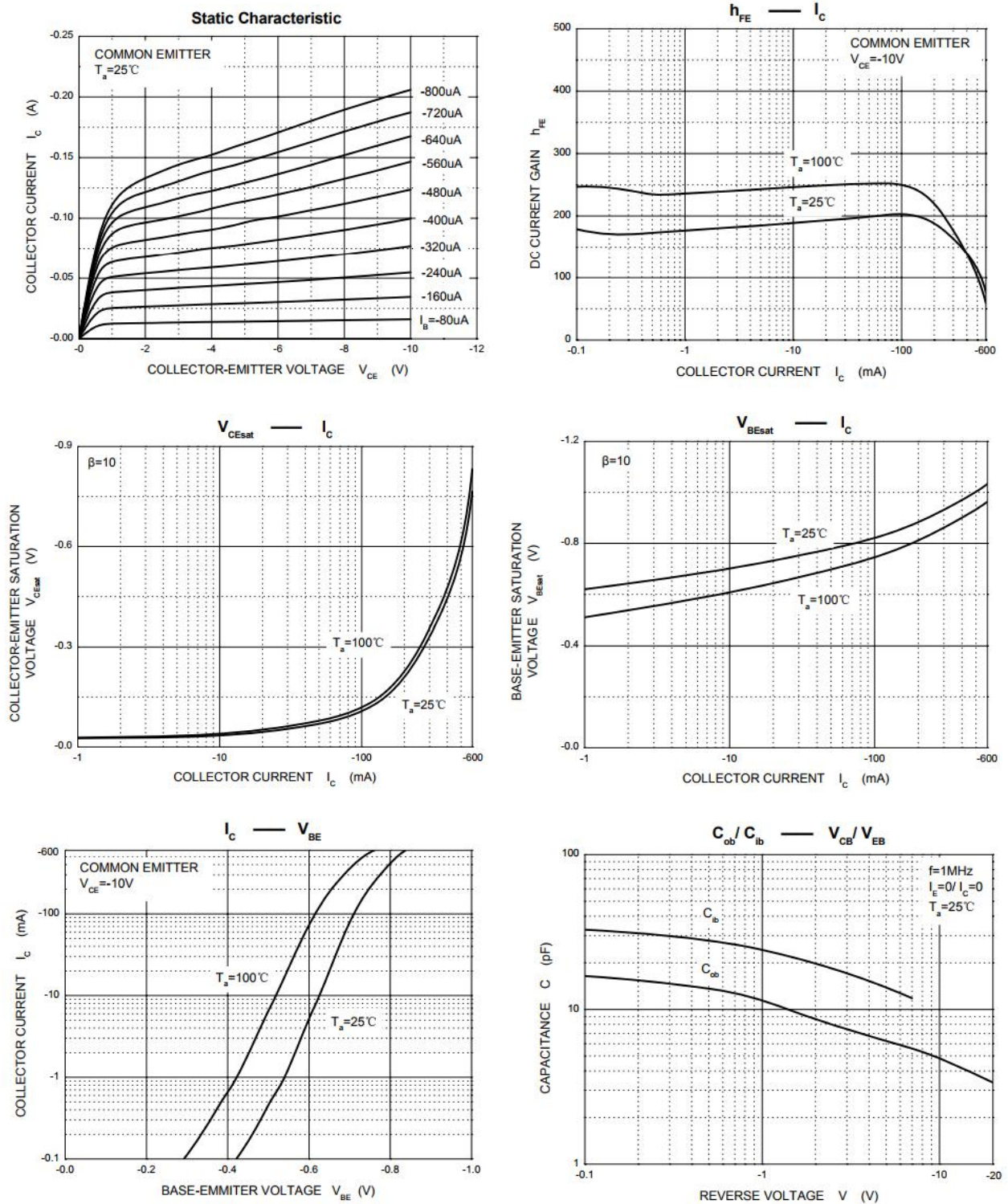
Note 1. Pulse Test: Pulse Width $\leq 300\text{ us}$, Duty Cycle $\leq 2.0\%$.

Note 2. f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.

Switching Characteristics

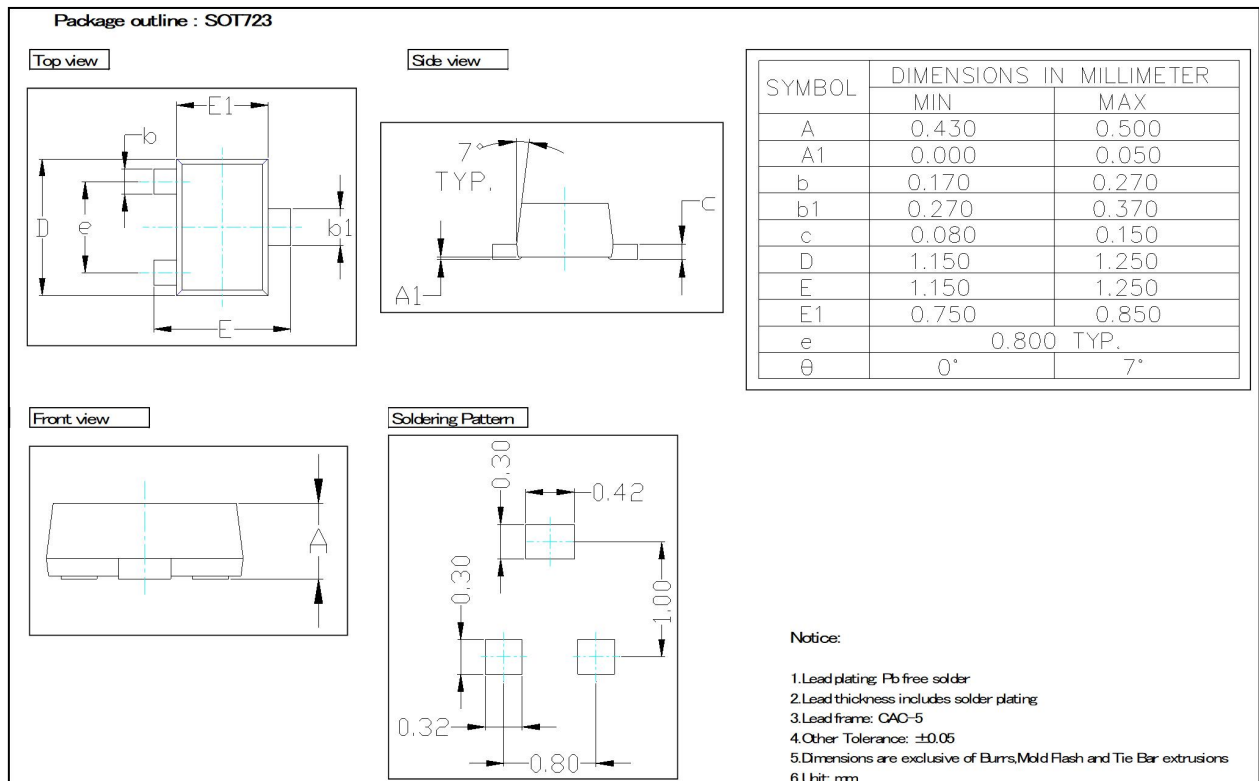
Symbol	Parameter	Test Conditions	Min	Max	Units
t_{on}	Turn–On Time	$(V_{CC} = -30\text{V}$, $I_C = -150\text{mA}$, $I_{B1} = -15\text{mA})$	–	45	ns
t_d	Delay Time		–	10	
t_r	Rise Time		–	40	
t_{off}	Turn–Off Time	$(V_{CC} = -6.0\text{V}$, $I_C = -150\text{mA}$, $I_{B1} = I_{B2} = -15\text{mA})$	–	100	
t_s	Storage Time		–	80	
t_f	Fall Time		–	30	

Typical Characteristics



Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
MMBT2907AM	SOT723	Tape & Reel 8000pcs /7" Reel	8mm	4mm	Conductive	

PACKAGE DIMENSIONS



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