MMBTA44 TRANSISTOR (NPN)

1.BASE
2.COLLECTOR
3.EMITTER

SOT-23-3

FEATURES

- High Collector-Emitter Voltage
- Complement to MMBTA94

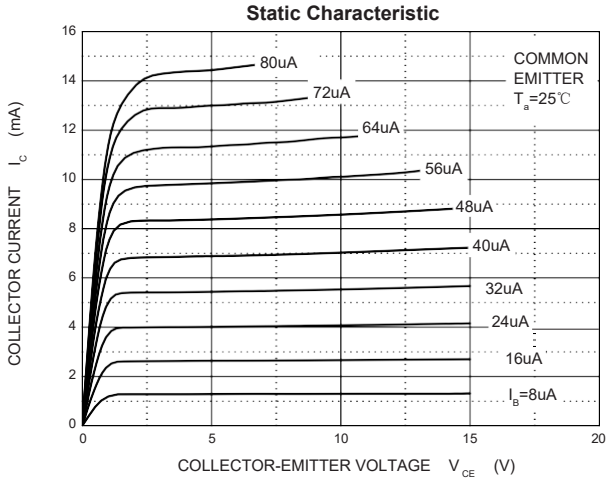
MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

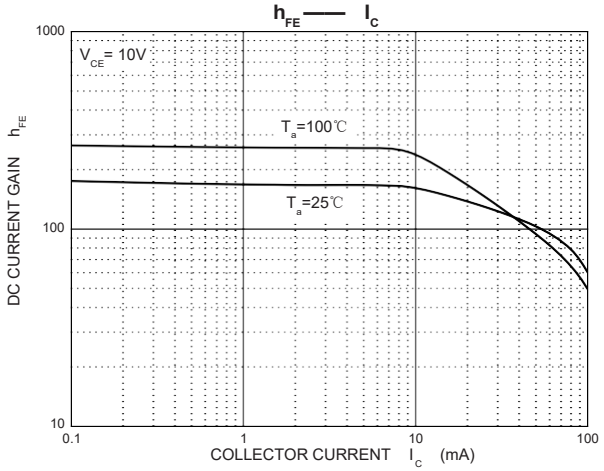
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	400	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current-Continuous	200	mA
I_{CM}	Collector Current -Pulsed	300	mA
P_C	Collector Power Dissipation	350	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	357	℃/W
T_j,T_{STG}	Operation Junction and Storage Temperature Range	-55～+150	℃

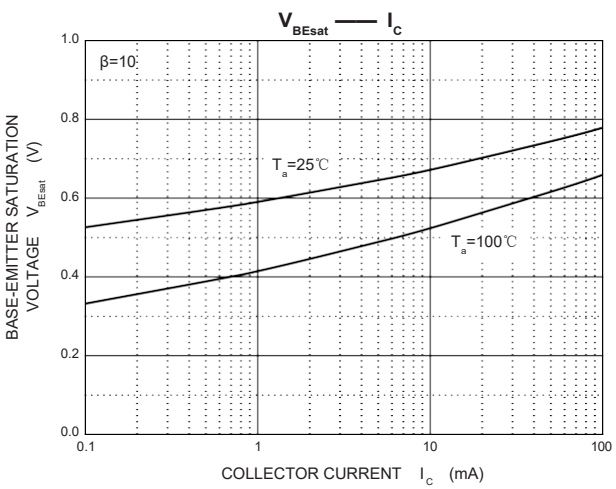
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

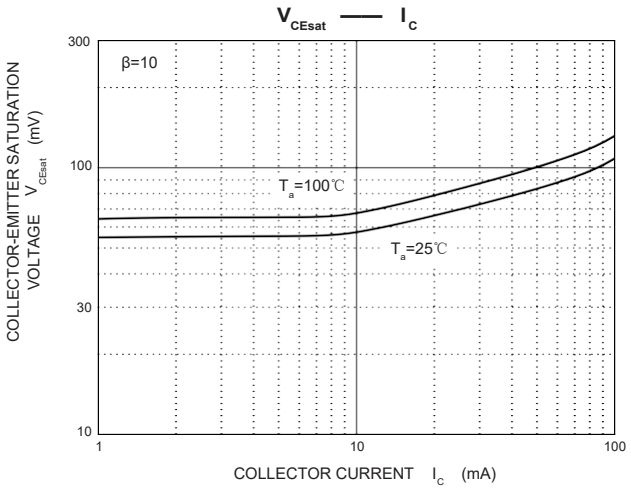
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100μA, I_E=0	400			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$*	I_C=1mA, I_B=0	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	6			V
Collector cut-off current	I_{CBO}	V_{CB}=400V, I_E=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=4V, I_C=0			0.1	μA
DC current gain	$h_{FE(1)}$ *	V_{CE}=10V, I_C=1mA	40			
	$h_{FE(2)}$ *	V_{CE}=10V, I_C=10mA	50		200	
	$h_{FE(3)}$ *	V_{CE}=10V, I_C=50mA	45			
	$h_{FE(4)}$ *	V_{CE}=10V, I_C=100mA	40			
Collector-emitter saturation voltage	$V_{CE(sat)1}$*	I_C=1mA, I_B=0.1mA			0.4	V
	$V_{CE(sat)2}$*	I_C=10mA, I_B=1mA			0.5	V
	$V_{CE(sat)3}$*	I_C=50mA, I_B=5mA			0.75	V
Base-emitter saturation voltage	$V_{BE(sat)}$*	I_C=10mA, I_B=1mA			0.75	V
Collector output capacitance	C_{ob}	V_{CB}=20V, I_E=0, f=1MHz			7	pF
Emitter input capacitance	C_{ib}	V_{EB}=0.5V, I_C=0, f=1MHz			130	pF
Transition frequency	f_T	V_{CE}=20V, I_C=10mA,f=30MHz	50			MHz

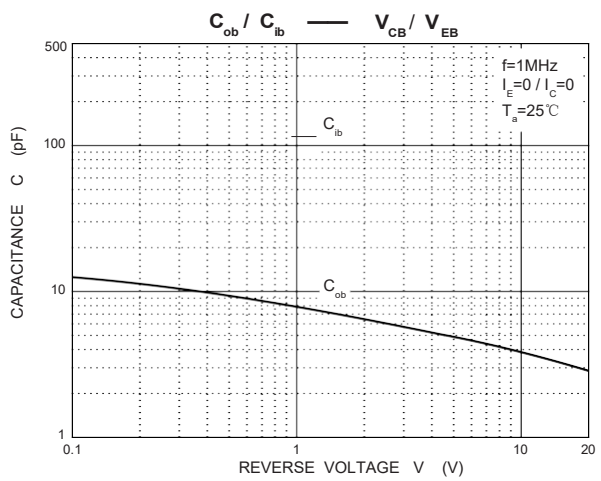
*Pulse test: pulse width ≤300μs, duty cycle≤ 2.0%.

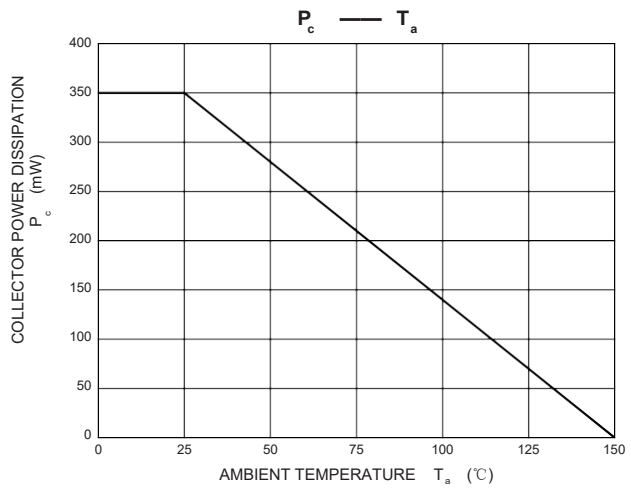

Static Characteristic
COLLECTOR CURRENT I_C (mA)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
80uA
72uA
64uA
56uA
48uA
40uA
32uA
24uA
16uA
I_B=8uA
COMMON EMITTER
T_a=25℃


h_{FE} —— I_C
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (mA)
V_{CE}= 10V
T_a=100℃
T_a=25℃


V_{BEsat} —— I_C
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (V)
COLLECTOR CURRENT I_C (mA)
β=10
T_a=25℃
T_a=100℃


V_{CEsat} —— I_C
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (mV)
COLLECTOR CURRENT I_C (mA)
β=10
T_a=100℃
T_a=25℃


C_{ob} / C_{ib} —— V_{CB} / V_{EB}
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)
f=1MHz
I_E=0 / I_C=0
T_a=25℃
C_{ib}
C_{ob}


P_c —— T_a
COLLECTOR POWER DISSIPATION P_c (mW)
AMBIENT TEMPERATURE T_a (℃)