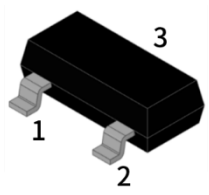
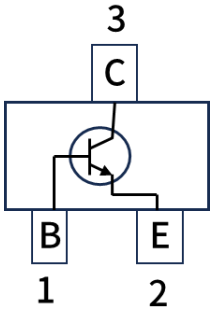
MMBT2222ALST1

Transistors NPN



SOT23 (TO-236)



1. FEATURES

- The material of product compliance with RoHS requirements and Halogen Free.
- Comolementary PNP Type Available(MMBT2907A).
- Epitaxial Planar Die Construction.

2. Mechanical Data

- SOT-23 Small Outline Plastic Package.
- Tin plated leads, solderable per J-STD-002 and JESD22-B102.
- Marking: 1P

3. ORDERING INFORMATION

Device	Min Pack	Inner Box	Outer Carton	Reel
MMBT2222ALST1	3000	45000	180000	7 inch

4. MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Limit	Unit
Collector-Emitter Voltage	VCEO	40	V
Collector-Base Voltage	VCBO	75	V
Emitter-Base Voltage	VEBO	6	V
Collector Current--Continuous	Ic	600	mA
Collector Power Dissipation	PC	300	mW

5. THERMAL CHARACTERISTICS

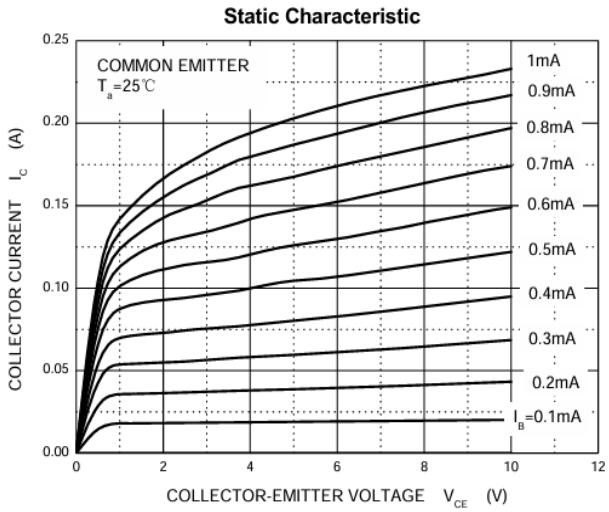
Parameter	Symbol	Limit	Unit
Storage Temperature	TSTG	-55~150	°C
Juntion Temperature	TJ	150	°C
Thermal Resistance From Junction to Ambient	RΘJA	417	°C/W

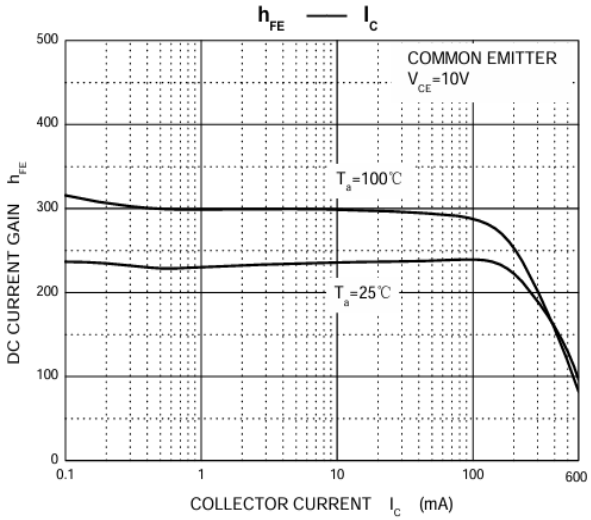
6. ELECTRICAL CHARACTERISTICS (Ta= 25°C unless otherwise specified)

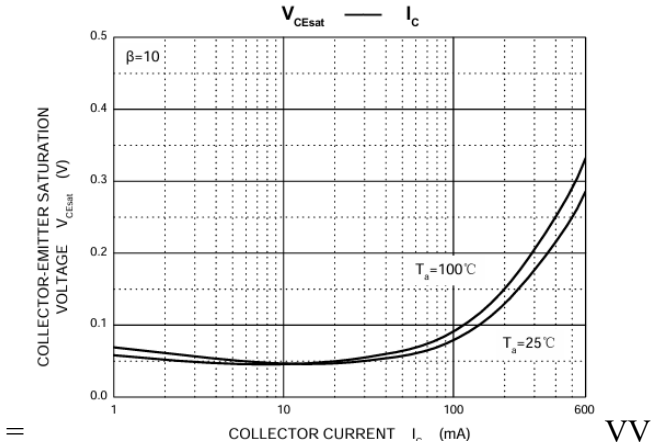
Parameter	Symbol	Condition	Min	Max	Unit
Collector–Emitter Breakdown Voltage	V(BR)CEO	IC = 10 mA, IB = 0	40		V

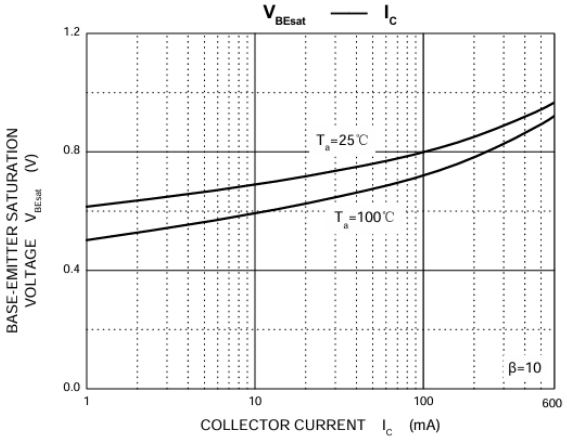
Collector–Base Breakdown Voltage	V(BR)CBO	IC = 10 μA, IE = 0	75		V
Emitter–Base Breakdown Voltage	V(BR)EBO	IE = 10 μA, IC = 0	6		V
Collector Cutoff Current	ICBO	VCB= 60 V, IE=0		10	nA
Collector Cutoff Current	ICEX	VCE = 30 V,VBE(off)=3V		10	nA
Emitter cut-off current	IEBO	VEB= 3V, IC=0		100	nA
DC current gain	hFE1	IC = 150 mA, VCE = 10 V	100	300	
	hFE2	IC = 0.1 mA, VCE = 10 V	40		
	hFE3	IC = 500 mA, VCE = 10 V	42		
Collector-Emitter Saturation voltage	VCE(sat)	IC = 150 mA, IB = 15 mA		0.3	V
		IC = 500 mA, IB = 50 mA		1	
Base–Emitter Saturation Voltage	VBE(sat)	IC = 150 mA, IB =15 mA		1.2	V
		IC = 500 mA, IB = 50 mA		2	
Transition frequency	fT	IC = 20 mA, VCE= 20 V, f = 100MHz	300		MHz
Delay time	Td	VCC=30V,VBE(off)=-0.5V		10	nS
Rise time	Tr	IC = 150 mA, IB = 15 mA		25	nS
Storage time	Ts	VCC=30V,IC=150mA		225	nS
Fall time	Tf	IB1=-IB2=15mA		60	nS

7. ELECTRICAL CHARACTERISTICS CURVES



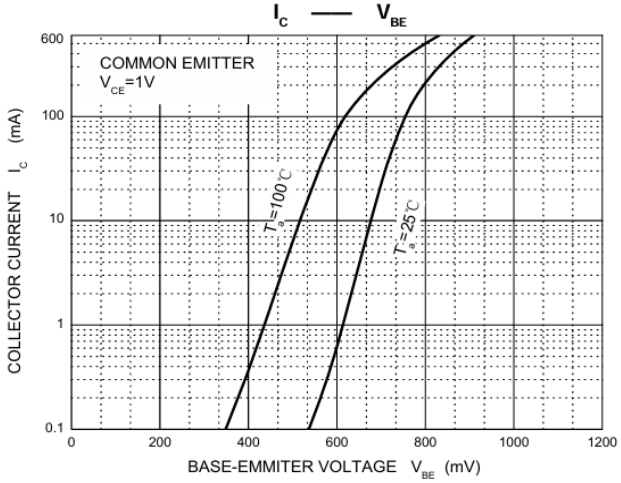


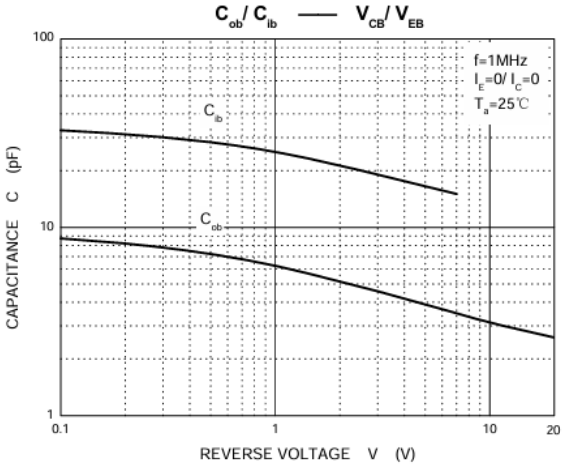

V_{CEsat} — I_C
β=10
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (V)
T_a=100℃
T_a=25℃
COLLECTOR CURRENT I_C (mA)

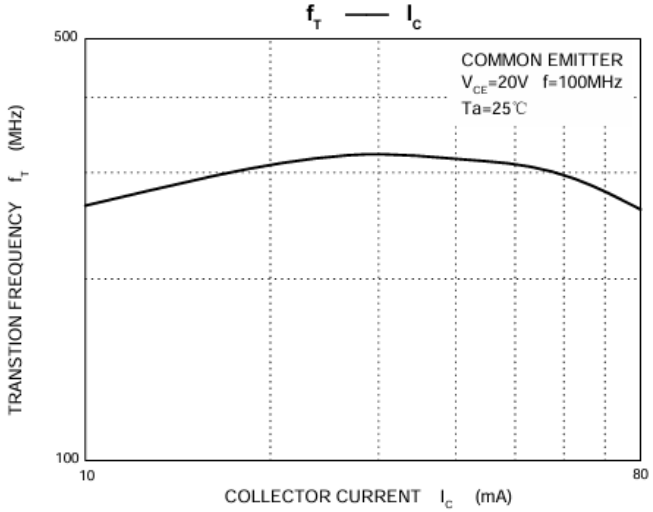

V_{BEsat} — I_C
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (V)
T_a=25℃
T_a=100℃
β=10
COLLECTOR CURRENT I_C (mA)

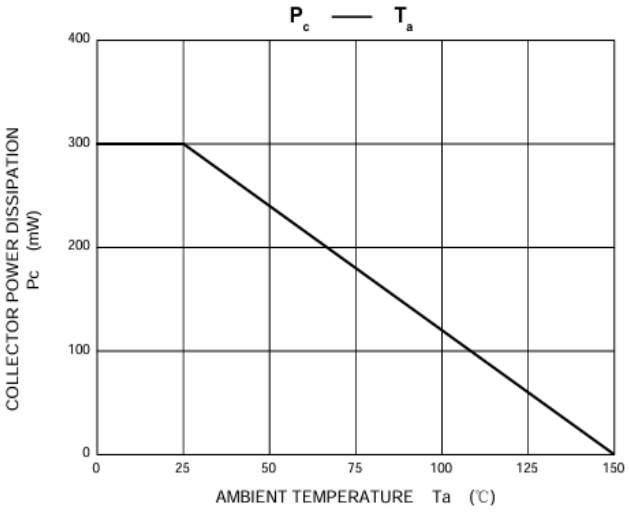
=

VV

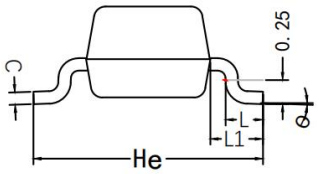

I_C — V_{BE}
COMMON EMITTER
V_{CE}=1V
COLLECTOR CURRENT I_C (mA)
T_a=100℃
T_a=25℃
BASE-EMMITER VOLTAGE V_{BE} (mV)

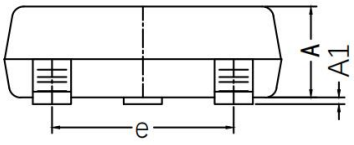

C_{ob}/ C_{ib} — V_{CB}/ V_{EB}
f=1MHz
I_E=0/ I_C=0
T_a=25℃
C_{ib}
C_{ob}
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)

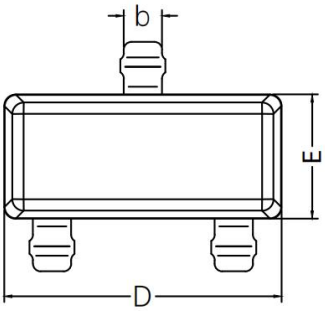

f_T — I_C
COMMON EMITTER
V_{CE}=20V f=100MHz
Ta=25℃
TRANSTION FREQUENCY f_T (MHz)
COLLECTOR CURRENT I_C (mA)


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

8. OUTLINE AND DIMENSIONS

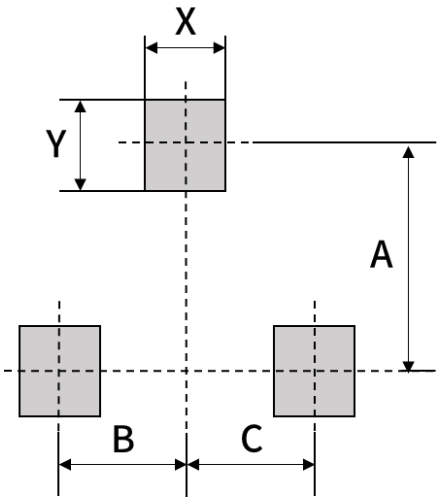






DIM	MIN	NOR	MAX
A	0.85	0.95	1.05
A1	0.01	0.06	0.10
b	0.36	0.44	0.52
c	0.09	0.13	0.18
D	2.80	2.90	3.10
E	1.20	1.30	1.40
e	1.78	1.90	2.04
L	0.30	0.40	0.50
L1	0.35	0.50	0.65
He	2.10	2.35	2.50
θ	0°	-	10°
All Dimensions in mm			

9. SUGGESTED PAD LAYOUT



SOT23		
DIM	mm	inch
A	2.00	0.079
B	0.95	0.037
C	0.95	0.037
X	0.80	0.031
Y	0.90	0.035

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