MMBT2222A

Small Signal Transistor

40V NPN
SOT23

Features

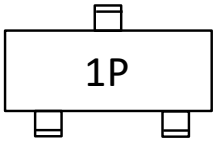
- Power Dissipation of 300mW
- Epitaxial Planar Die Construction
- High Stability and High Reliability
- Complementary PNP Type Available (MMBT2907A)

Mechanical Data

- Case: SOT23 Package
- Case Material: “Green” Molding Compound UL Flammability Classification Rating 94V-0
- Halogen Free

Note: Products with logo HY® or HY® are made by HY Electronic (Cayman) Limited.

Marking Information



"1P" = Product Type Marking Code

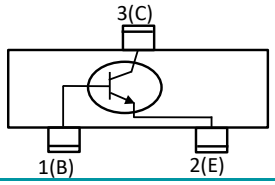
Ordering Information

- Package :SOT23
- Reel Size :7 (inches)
- Quantity Per Reel :3,000 pcs
- Quantity One Box :45,000 pcs
- Quantity One Carton :180,000 pcs

Package Outline

SOT23 Top View

Device Schematic & PIN Configuration



Pin Assignment	
1	Base
2	Emitter
3	Collector

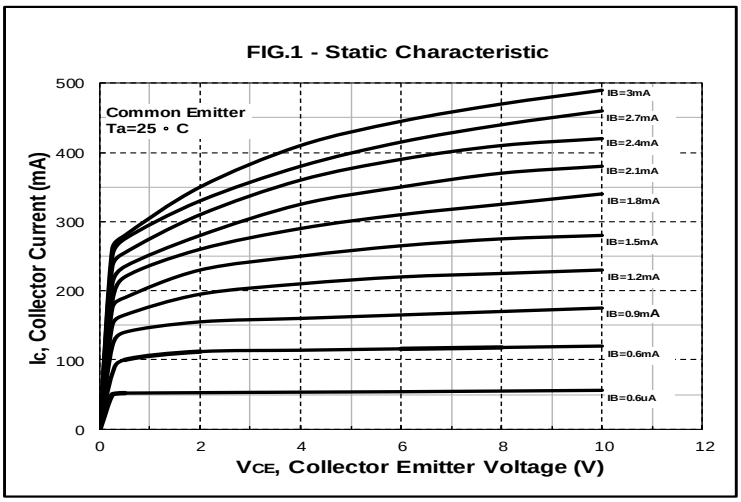
Maximum Ratings (@TA = +25°C, unless otherwise specified.)

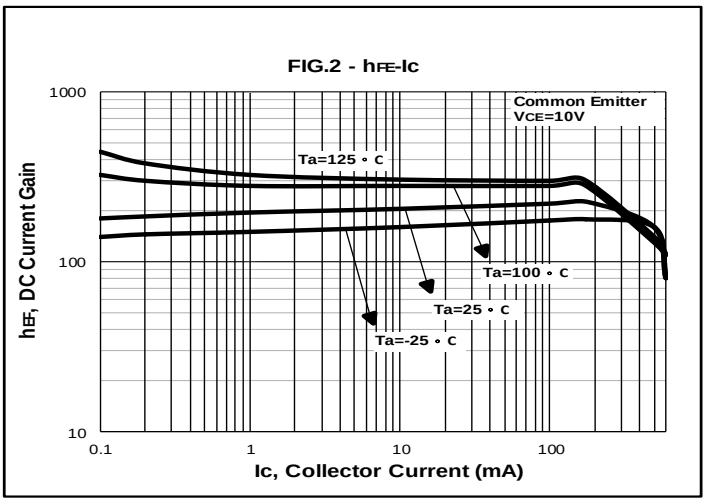
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V_{CEO}	40	
Emitter-Base Voltage	V_{EBO}	6	
Collector Current-Continuous	I_C	600	mA
Collector Power Dissipation	P_C	300	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

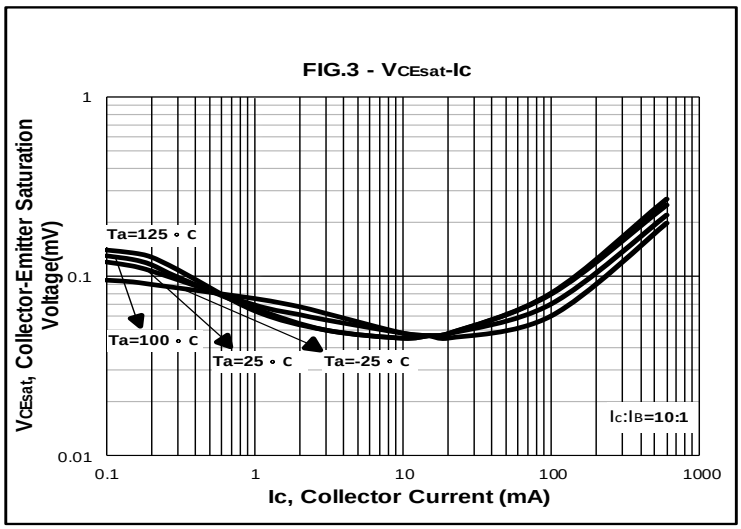
Electrical Characteristics(@TA = +25°C, unless otherwise specified.)

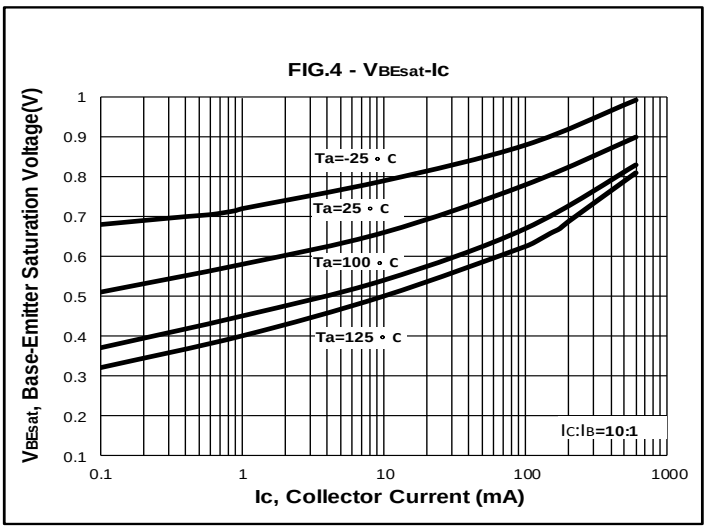
Parameter	Test Conditions	Symbol	Min	Max	Unit
Collector-Base Breakdown Voltage	I_C =10μA, I_E=0	$V_{(BR)CBO}$	75	-	V
Collector-Emitter Breakdown Voltage	I_C =10mA, I_B=0	$V_{(BR)CEO}$	40	-	
Emitter-Base Breakdown Voltage	I_E =10μA, I_C=0	$V_{(BR)EBO}$	6	-	
Collector Cut-Off Current	V_{CB}=60V, I_E=0	I_{CBO}	-	100	nA
Collector Cut-Off Current	V_{CE}=60V, V_{EB}(Off)=3V	I_{CEX}	-	10	
Emitter Cut-Off Current	V_{EB}=3V, I_C=0	I_{EBO}	-	100	
DC Current Gain	V_{CE}=10V, I_C=150mA	$h_{FE(1)}$	100	300	-
	V_{CE}=10V, I_C=0.1mA	$h_{FE(2)}$	20	-	
	V_{CE}=10V, I_C=500mA	$h_{FE(3)}$	40	-	
Collector-Emitter Saturation Voltage	I_C=150mA, I_B=15mA	$V_{CE(sat)1}$	-	0.3	V
	I_C=500mA, I_B=50mA	$V_{CE(sat)2}$	-	1	
Base-Emitter Saturation Voltage	I_C=150mA, I_B=15mA	$V_{BE(sat)1}$	-	1.2	V
	I_C=500mA, I_B=50mA	$V_{BE(sat)2}$	-	2.00	
Transition Frequency	V_{CE}=20V, I_C=20mA, F=100MHz	f_T	300	-	MHz
Delay Time	V_{CC}=30V, $V_{BE(off)}$=-0.5V I_C=150mA, I_{B1}=15mA	td	-	15	ns
Rise Time		tr	-	25	
Storage Time	V_{CC}=30V I_C=150mA, I_{B1}=I_{B2}=15mA	ts	-	225	
Fall Time		tf	-	60	

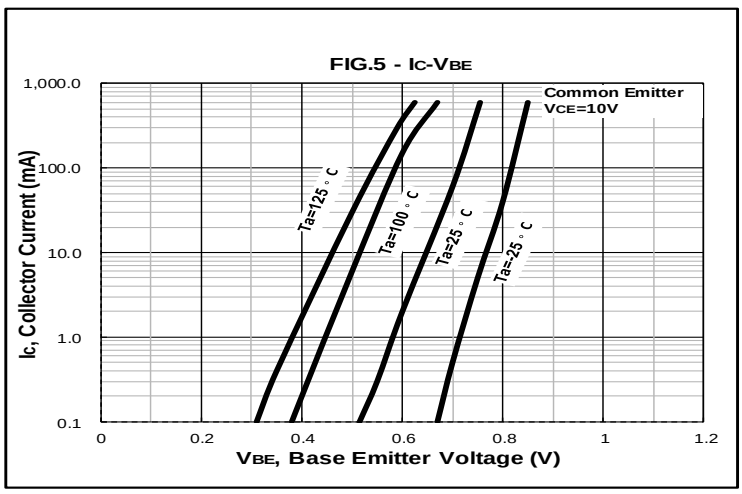
Rating and Characteristic Curves

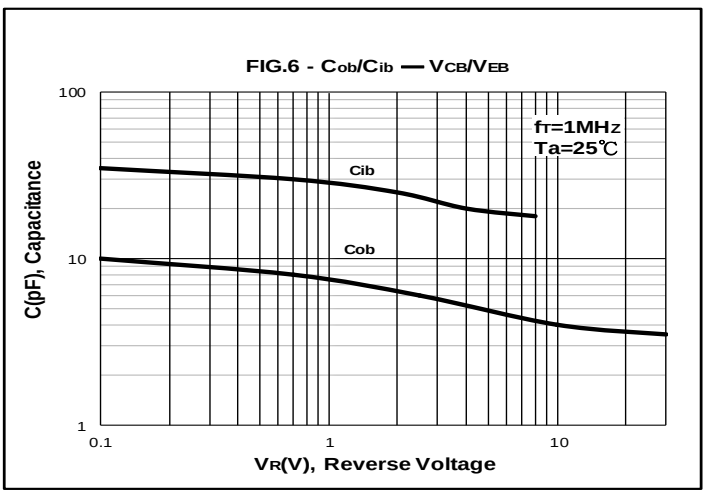






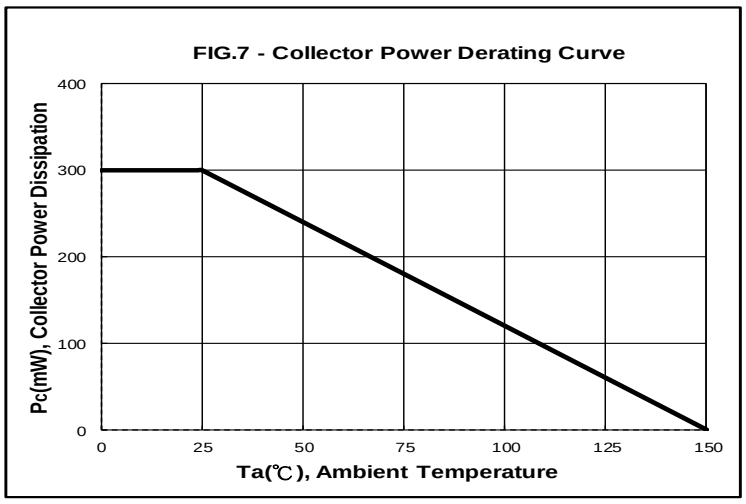






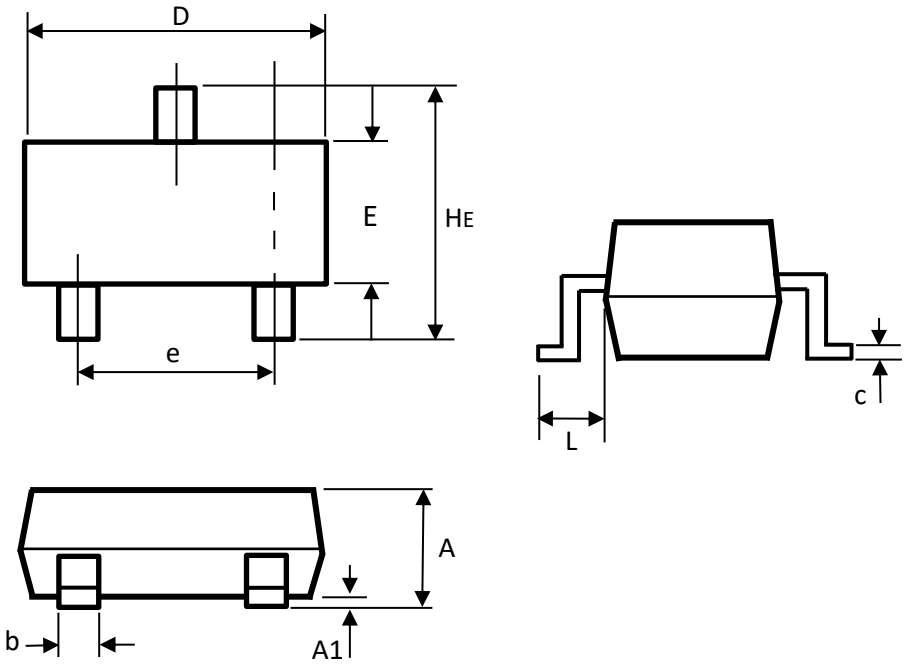
The curve above is for reference only.

Rating and Characteristic Curves



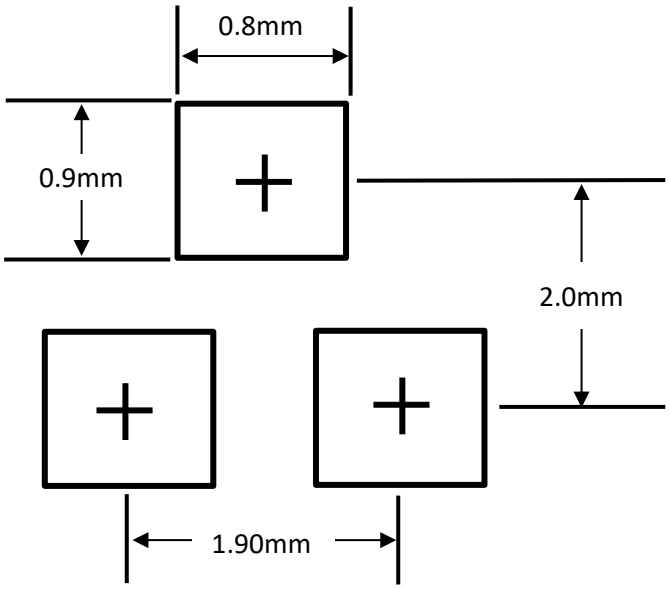
The curve above is for reference only.

Package Outline Dimensions



SOT23 Package		
Dim	Min	Max
A	0.90	1.15
A1	0.00	0.10
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
e	1.80	2.00
L	0.55 REF	
HE	2.25	2.55
All Dimensions in mm		

Suggested Soldering Pad Layout



Note:

1.The pad layout is for reference purposes only.

2.General tolerance ±0.05mm

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