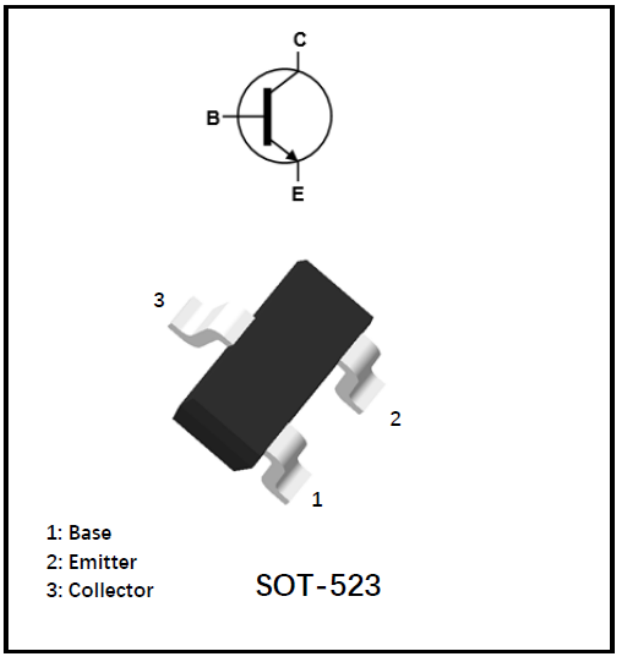
NPN General Purpose Amplifier



Features

- Moisture Sensitivity Level 1
- Surface mount package ideally Suited for Automatic Insertion
- Epoxy meets UL-94 V-0 flammability rating, halogen-free

Mechanical Data

- **Package**: SOT-523
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 1P

■Maximum Ratings (Ta=25℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Collector-Emitter Voltage	V_{CEO}	V	I_C=10mAdc, I_B=0	40
Collector-Base Voltage	V_{CBO}	V	I_C=10uAdc, I_E=0	75
Emitter-Base Voltage	V_{EBO}	V	I_E=10uAdc, I_C=0	6
Collector Current	I_C	mA		600
Collector Power Dissipation	P_C	mW		150
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	℃/W		833
Operation Junction Temperature	T_J	℃		-55 to +150
Storage Temperature	T_{STG}	℃		-55 to +150

■Electrical Characteristics (Ta=25℃ unless otherwise specified)

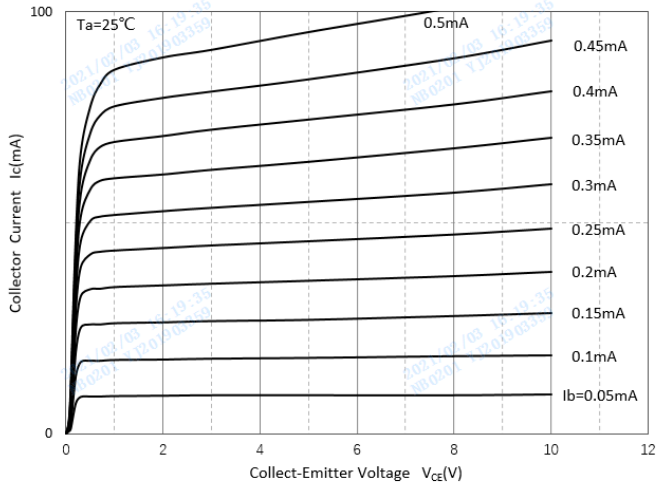
Item	Symbol	Unit	Conditions	Min	Max
Collector-Emitter Voltage	V_{CEO}	V	I_C=10mAdc, I_B=0	40	
Collector-Base Voltage	V_{CBO}	V	I_C=10uAdc, I_E=0	75	
Emitter-Base Voltage	V_{EBO}	V	I_E=10uAdc, I_C=0	6	
Collector-base Cut-off Current	I_{CBO}	nA	V_{CB}=70Vdc		100
Emitter-base cut-off current	I_{EBO}	nA	V_{EB}=3Vdc		100
Collector-emitter Cut-off Current	I_{CEX}	nA	V_{CE}=60Vdc,V_{EB}=3Vdc		10
DC Current Gain	h_{FE}		I_C=0.1mAdc, V_{CE}=10Vdc	35	
			I_C=1mAdc, V_{CE}=10Vdc	50	
			I_C=10mAdc, V_{CE}=10Vdc	75	
			I_C=150mAdc, V_{CE}=10Vdc	100	300
			I_C=500mAdc, V_{CE}=10Vdc	40	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	I_C=150mAdc, I_B=15mAdc		0.3
			I_C=500mAdc, I_B=50mAdc		1
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	V	I_C=150mAdc, I_B=15mAdc		1.2
			I_C=500mAdc, I_B=50mAdc		2
Collector-base Output Capacitance	Cobo	pF	V_{CB}=10Vdc, f=1.0MHz, I_E=0		8
Transition frequency	f_T	MHz	I_C=20mA, V_{CE}=20V, f=100MHz	300	
Delay Time	td	ns	V_{CC}=30V,V_{BE}=0.5V,I_C=150mA, I_{B1}=15mA		10
Rise Time	tr	ns			25
Storage Time	ts	ns	V_{CC}=30V,I_C=150mA, I_{B1}=I_{B2}=15mA		225
Fall Time	tf	ns			60

■ Ordering Information (Example)

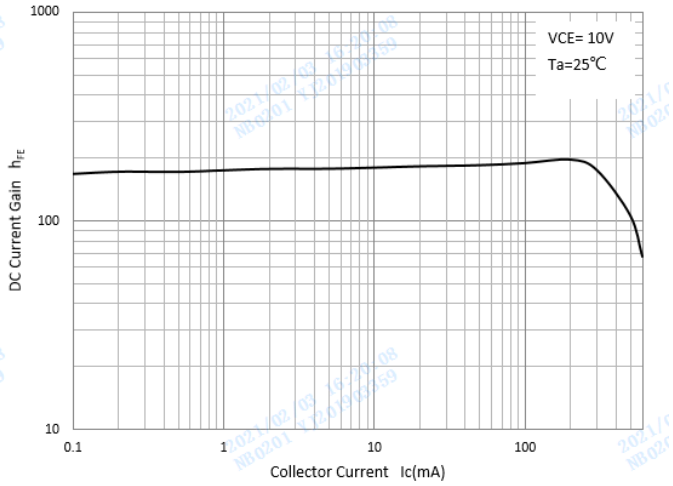
Prefered P/N	Packing Code	Unit Weight(G)	Minimum Package(Pcs)	Inner Box Quantity(Pcs)	Outer Carton Quantity(Pcs)	Delivery Mode
MMBT2222AT	F2	Approximate 0.0027	3000	30000	120000	7” reel

■ **Characteristics** (Typical)

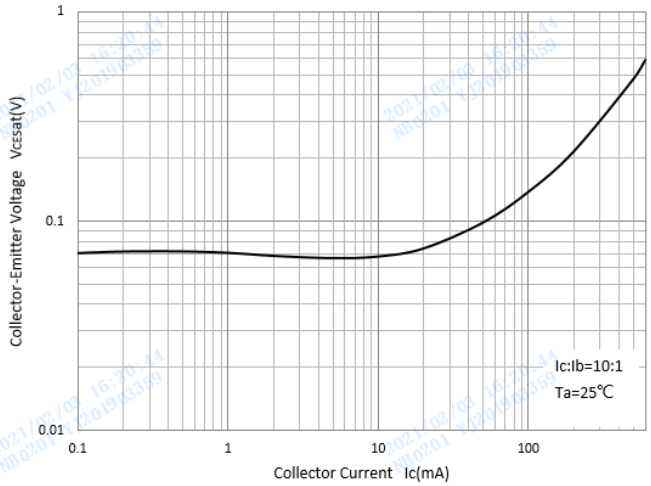
Static Characteristic



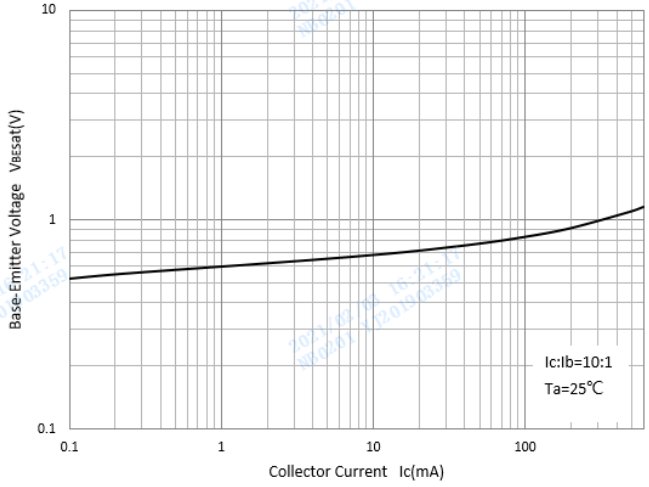
DC Current Gain



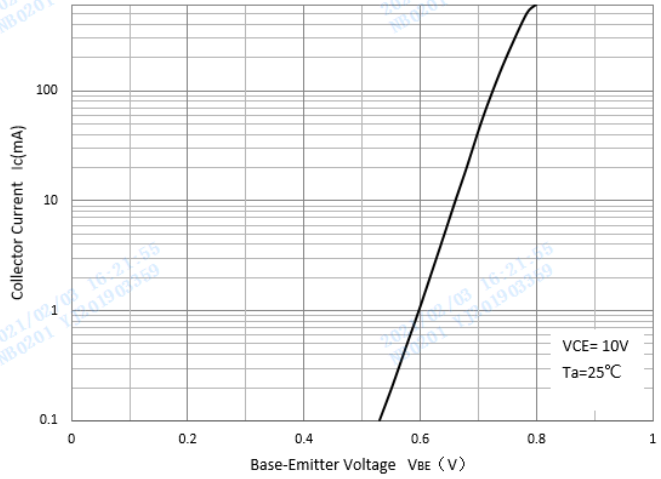
Collector-Emitter Saturation Voltage



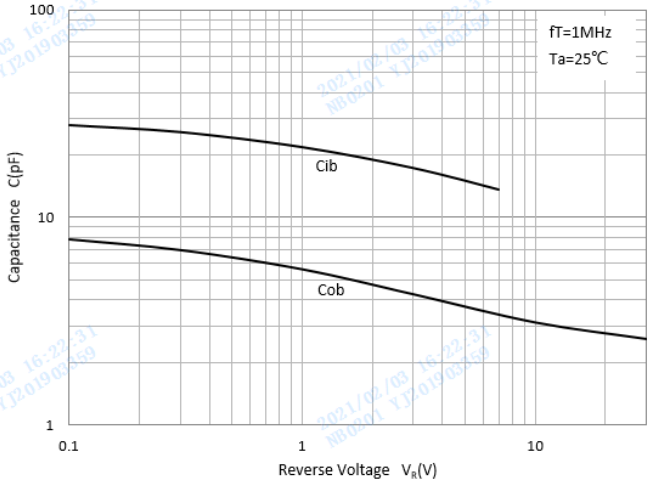
Base-Emitter Saturation Voltage

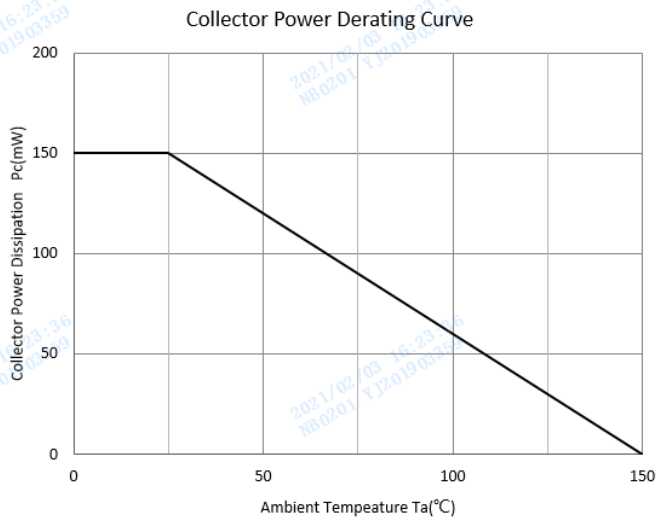


Base-Emitter On Voltage

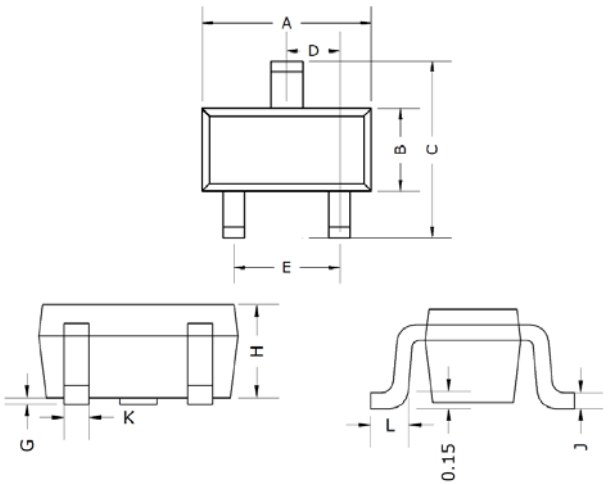


Cob/Cib-V_{CB}/V_{EB}



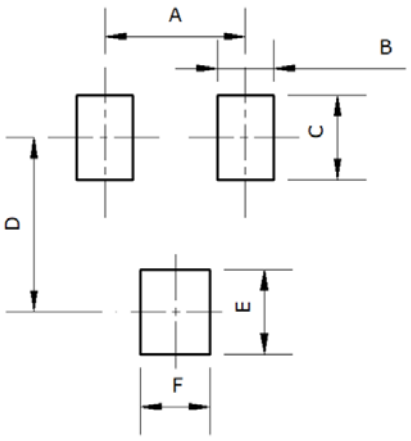


■ SOT-523 Package Outline Dimensions



DIM	DIMENSIONS			
	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.059	0.067	1.50	1.70
B	0.030	0.033	0.75	0.85
C	0.057	0.069	1.45	1.75
D	0.020TYP		0.50TYP	
E	0.035	0.043	0.90	1.10
G	0.000	0.004	0.00	0.10
H	0.024	0.031	0.60	0.80
J	0.004	0.008	0.10	0.20
K	0.006	0.014	0.15	0.35
L	0.010	0.018	0.26	0.46

■ SOT-523 Suggested Pad Layout



DIMENSIONS	
DIM	MM（TYP）
A	1.00
B	0.40
C	0.60
D	1.24
E	0.60
F	0.50

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