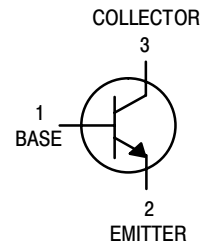
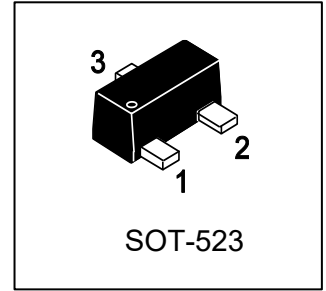


MBT2222AT

S-MBT2222AT

General Purpose Transistor NPN Silicon



1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.

2. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
MBT2222AT	1P	3000/Tape&Reel

3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	V _{CEO}	40	V
Collector–Base Voltage	V _{CB0}	75	V
Emitter–Base Voltage	V _{EB0}	6	V
Collector Current — Continuous	I _C	600	mA

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, (Note 1) @ TA = 25°C	PD	150	mW
Thermal Resistance, Junction–to–Ambient	R _{θJA}	833	°C/W
Operating and Storage Junction Temperature Range	T _J ,T _{stg}	-55~+150	°C

1. Device mounted on FR4 glass epoxy printed circuit board using the minimum recommended footprint.
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%.



5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)
OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector–Emitter Breakdown Voltage(Note 1) (IC = 1.0 mA, IB = 0)	V(BR)CEO	40	-	-	V
Collector–Base Breakdown Voltage (IC = 10 μA, IE = 0)	V(BR)CBO	75	-	-	V
Emitter–Base Breakdown Voltage (IE = 10 μA, IC = 0)	V(BR)EBO	6	-	-	V
Base Cutoff Current (VCE = 60 V, VEB = 3.0 V)	IBL	-	-	20	nA
Collector Cutoff Current (VCE = 60 V, VEB = 3.0 V)	ICEX	-	-	100	nA
Collector Cutoff Current (VCB = 60 V, IE = 0)	ICBO	-	-	100	nA
Emitter Cutoff Current (VEB = 3.0 V, IC = 0)	IEBO	-	-	100	nA

ON CHARACTERISTICS

DC Current Gain (IC = 0.1 mA, VCE = 10 V) (IC = 1.0 mA, VCE = 10 V) (IC = 10 mA, VCE = 10 V) (IC = 150 mA, VCE = 10 V) (IC = 500 mA, VCE = 10 V)	HFE	35 50 75 100 40	- - - - -	- - - - -	
Collector–Emitter Saturation Voltage (IC = 150 mA, IB = 15 mA) (IC = 500 mA, IB = 50 mA)	VCE(sat)	- -	- -	0.3 1	V
Base–Emitter Saturation Voltage (IC = 150 mA, IB = 15 mA) (IC = 500 mA, IB = 50 mA)	VBE(sat)	0.6 -	- -	1.2 2	V

SMALL-SIGNAL CHARACTERISTICS

Current–Gain – Bandwidth Product (IC = 20 mA, VCE = 20 V, f = 100 MHz)	fT	250	-	-	MHz
Output Capacitance (VCB = 10 V, IE = 0, f = 1.0 MHz)	Cobo	-	-	8	pF
Input Capacitance (VEB = 0.5 V, IC = 0, f = 1.0 MHz)	Cibo	-	-	30	pF
Input Impedance (VCE = 10 V, IC = 10 mA, f = 1.0 kHz)	hie	0.25	-	1.25	kΩ
Voltage Feedback Ratio (VCE = 10 V, IC = 10 mA, f = 1.0 kHz)	hre	-	-	4	X10 ⁻⁴
Small–Signal Current Gain (VCE = 10 V, IC = 10 mA, f = 1.0 kHz)	hfe	75	-	375	-
Output Admittance (VCE = 10 V, IC = 10 mA, f = 1.0 kHz)	hoe	25	-	200	μmhos
Noise Figure (VCE=10 V, IC=100μA, RS=1kΩ, f = 1 kHz)	NF	-	-	4	dB



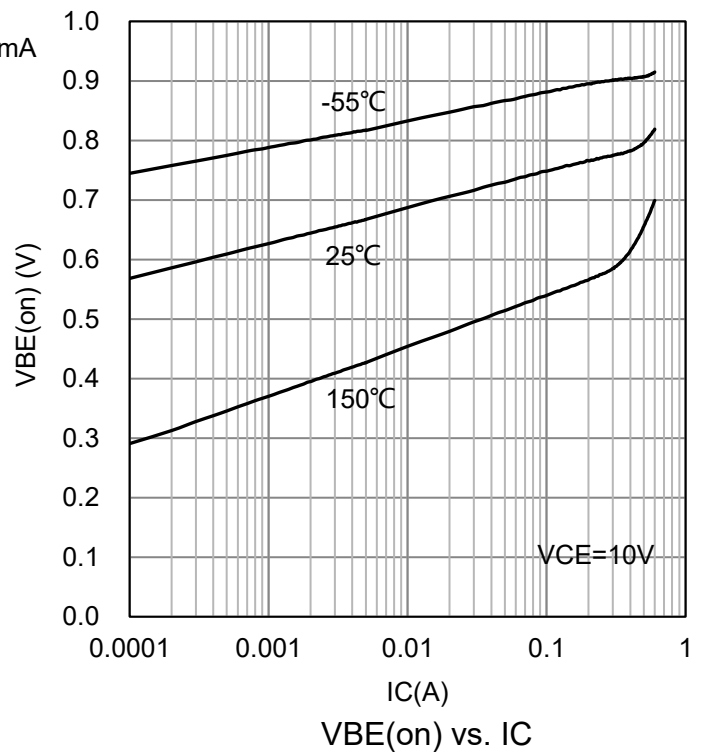
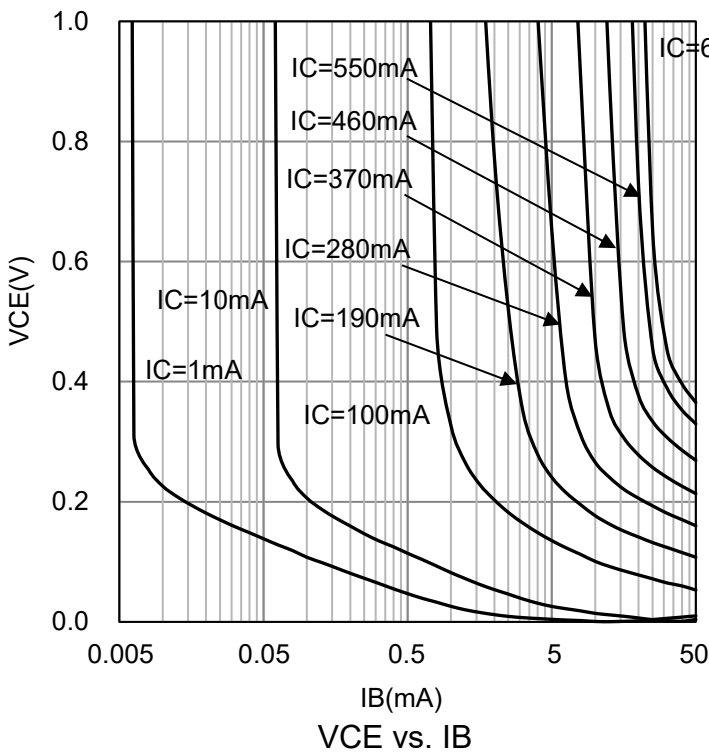
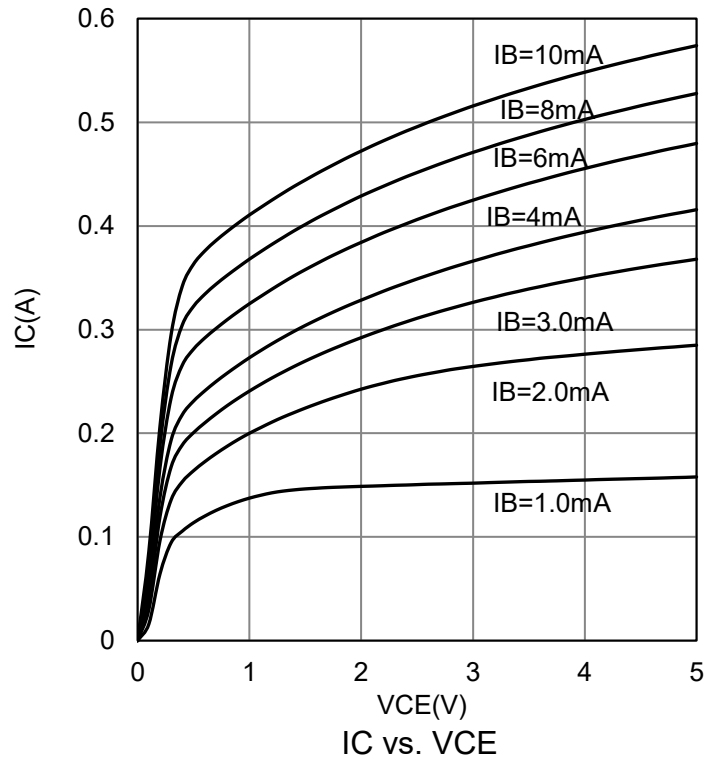
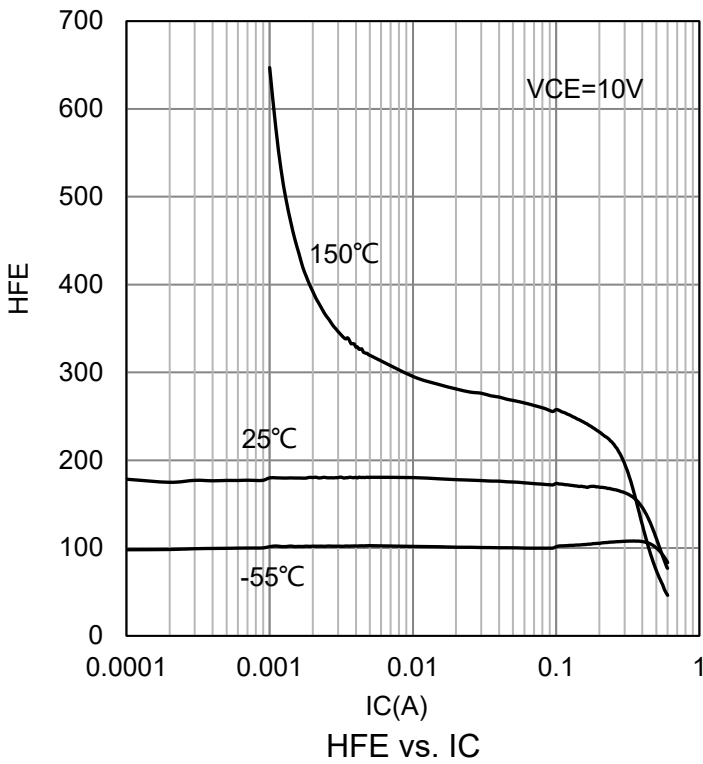
5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

SWITCHING CHARACTERISTICS

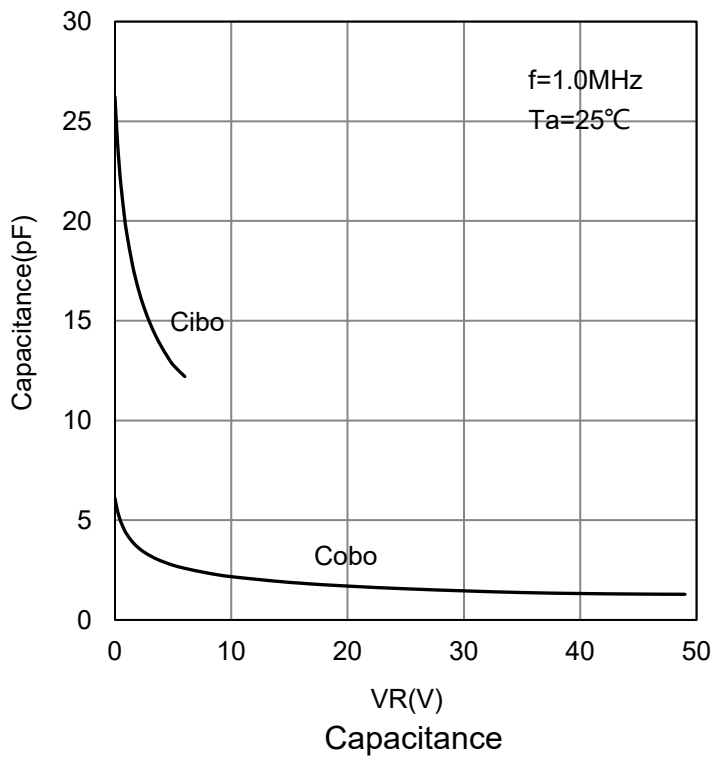
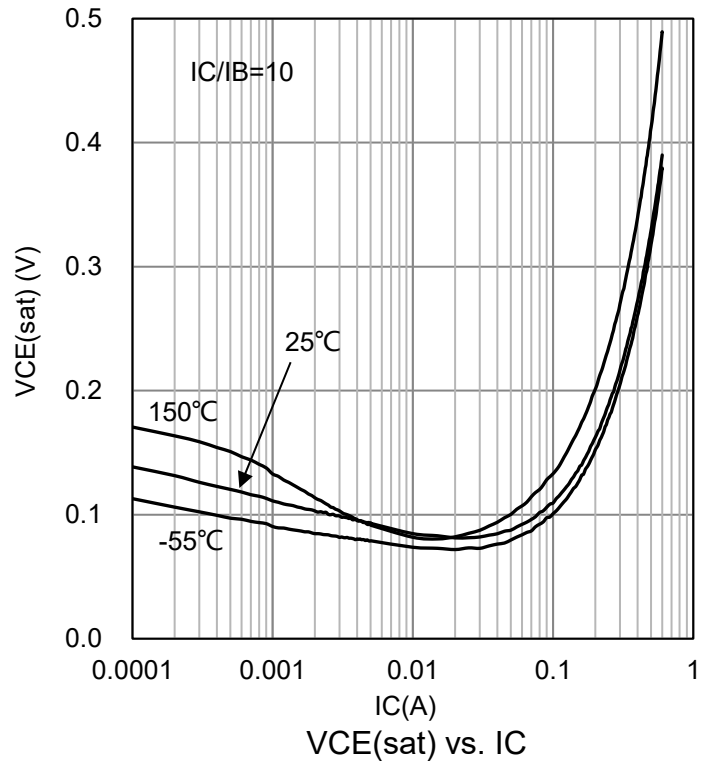
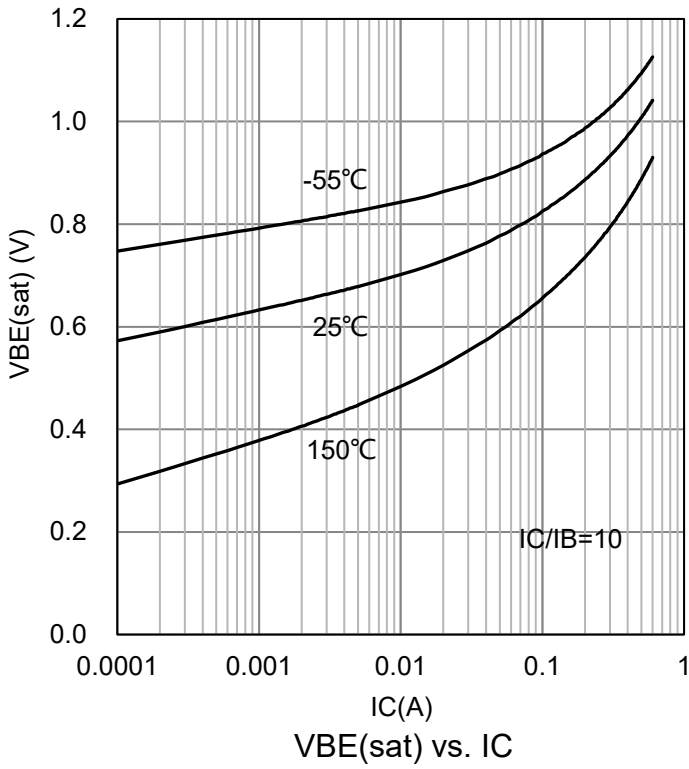
Delay Time	(VCC=3.0 V, VBE=-0.5 V, IC=150 mA, IB1=15 mA)	td	-	-	10	ns
Rise Time		tr	-	-	25	
Storage Time	(VCC=30 V, IC=150mA, IB1=IB2=15mA)	ts	-	-	225	
Fall Time		tf	-	-	60	



6.ELECTRICAL CHARACTERISTICS CURVES



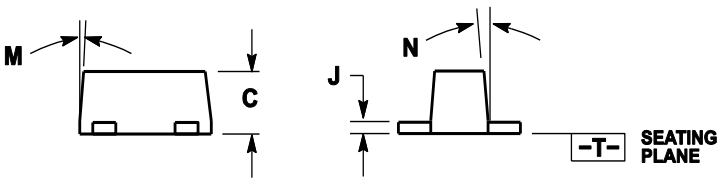
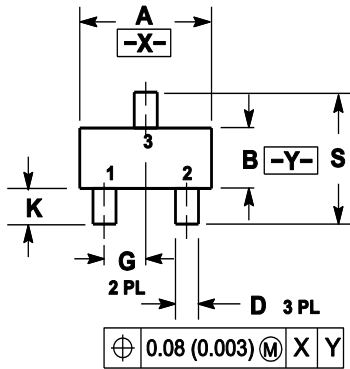
6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



7.OUTLINE AND DIMENSIONS

Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.50	1.60	1.70	0.059	0.063	0.067
B	0.75	0.85	0.95	0.030	0.034	0.040
C	0.60	0.70	0.80	0.024	0.028	0.031
D	0.23	0.28	0.33	0.009	0.011	0.013
G	0.50BSC			0.020BSC		
H	0.53REF			0.021REF		
J	0.10	0.15	0.20	0.004	0.006	0.008
K	0.30	0.40	0.50	0.012	0.016	0.02
L	1.10REF			0.043REF		
M	---	---	10°	---	---	10°
N	---	---	10°	---	---	10°
S	1.50	1.60	1.70	0.059	0.063	0.067

8.SOLDERING FOOTPRINT
