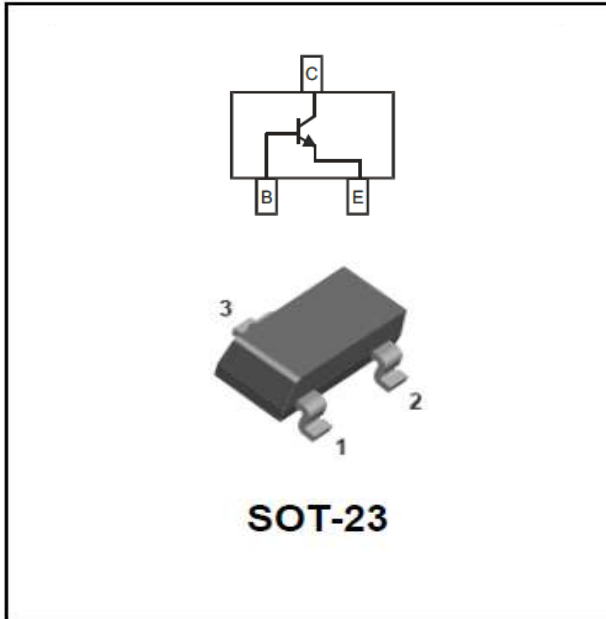


## NPN Transistor



### Features

- Epoxy meets UL-94 V-0 flammability rating
- Halogen free available upon request by adding suffix "HF"
- Moisture Sensitivity Level 1
- High Conductance
- Surface mount package ideally Suited for Automatic Insertion

### Mechanical Data

- **Package:** SOT-23
- Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 3D

### ■ Maximum Ratings (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Value
Collector-Base Voltage	$V_{CBO}$	V	400
Collector-Emitter Voltage	$V_{CEO}$	V	400
Emitter-Base Voltage	$V_{EBO}$	V	6
Collector Current	$I_C$	mA	200
Collector Power Dissipation	$P_C$	mW	350
Operation Junction Temperature	$T_j$	°C	150
Storage Temperature	$T_{stg}$	°C	-55 to +150



## ■ Electrical Characteristics (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{CB0}$	V	IC=100uA,IE=0	400		
Collector-emitter breakdown voltage	$V_{CEO^*}$	V	IC =1mA,IB=0	400		
Emitter-base breakdown voltage	$V_{EBO}$	V	IE=10μA,IC=0	6		
Collector-base cut-off current	$I_{CBO}$	nA	VCB=400V, IE =0			100
Emitter-base cut-off current	$I_{EBO}$	nA	VEB=4 V, IC =0			100
DC current gain	$h_{FE}$		VCE=10V,IC=1mA	40		
	$h_{FE}$		VCE=10V,IC=10mA	50		200
	$h_{FE}$		VCE=10V,IC=50mA	45		
	$h_{FE}$		VCE=10V,IC=100mA	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	IC=10mA,IB=1mA			0.5
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	IC=50mA,IB=5mA			0.75
Base-emitter saturation voltage	$V_{BE(sat)}$	V	IC=10mA,IB=1mA			0.75

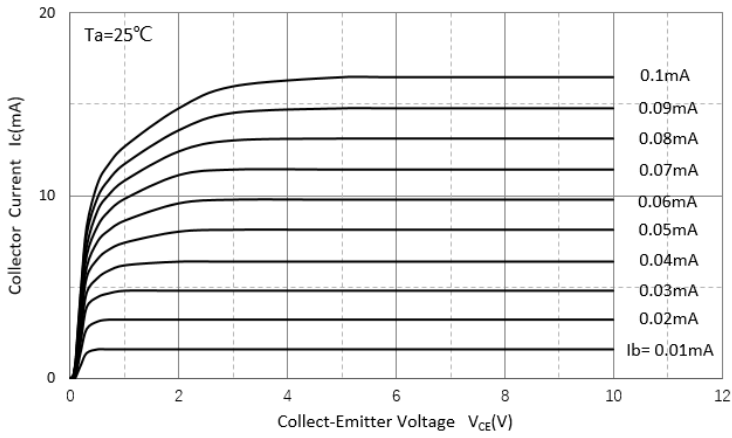
## ■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMBTA44	F2	Approximate 0.008	3000	30000	120000	7" reel

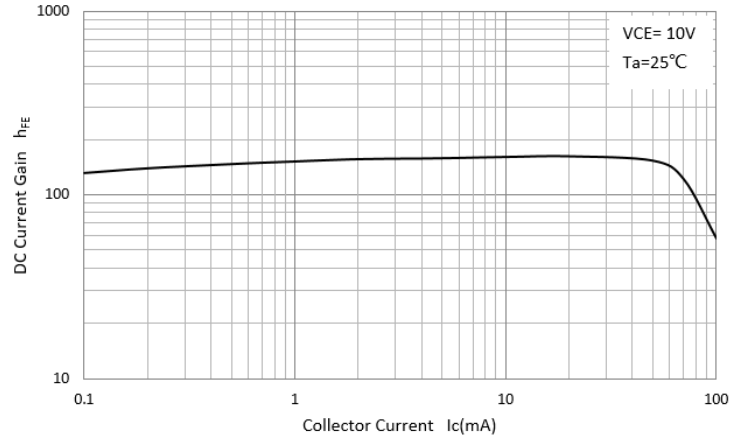


## ■ Characteristics(Typical)

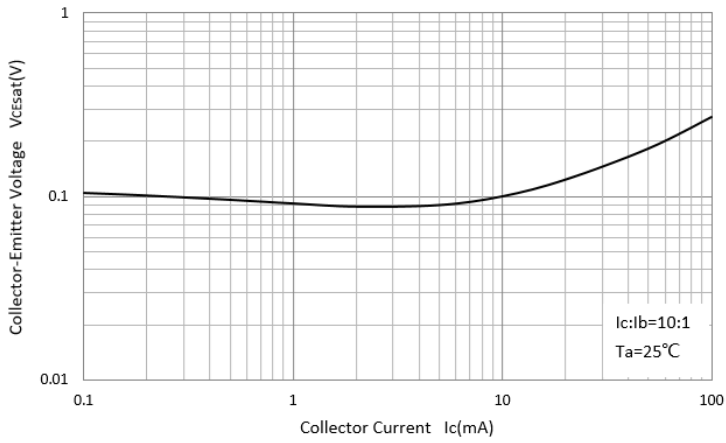
### Static Characteristic



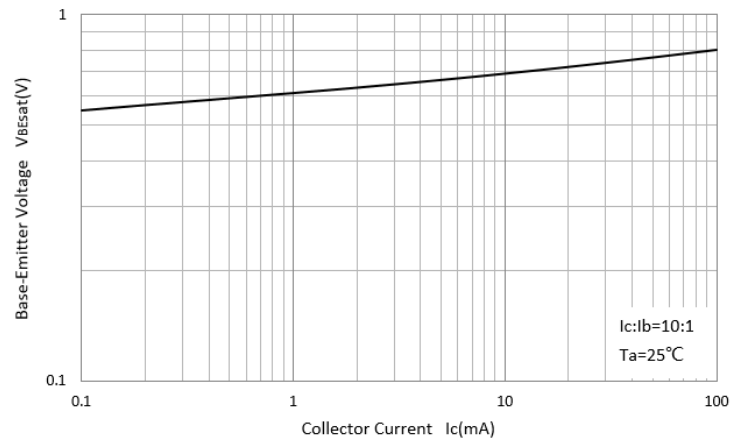
### DC Current Gain



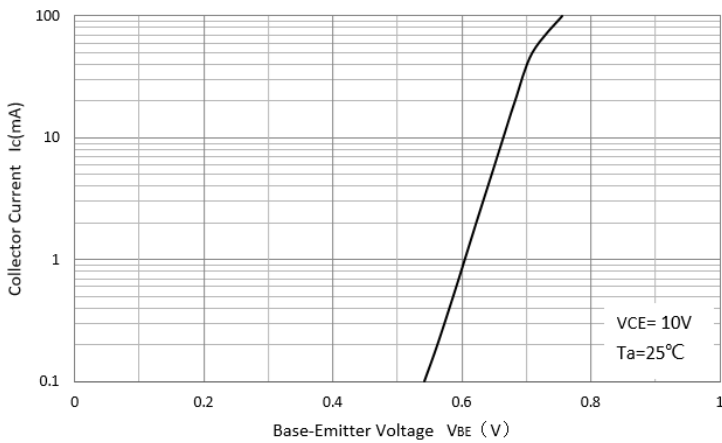
### Collector-Emittor Saturation Voltage



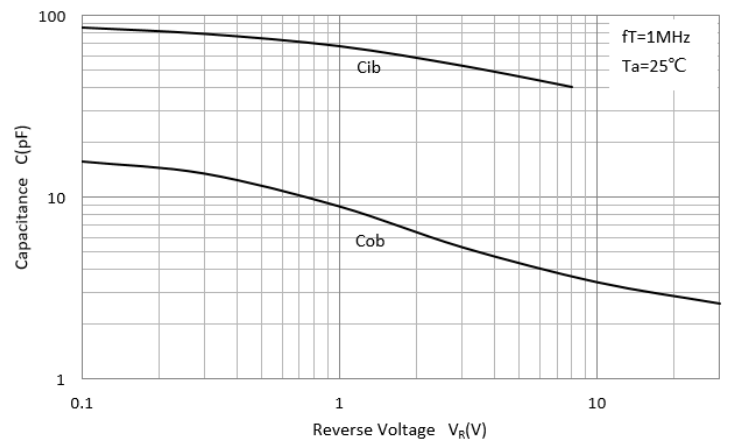
### Base-Emittor Saturation Voltage



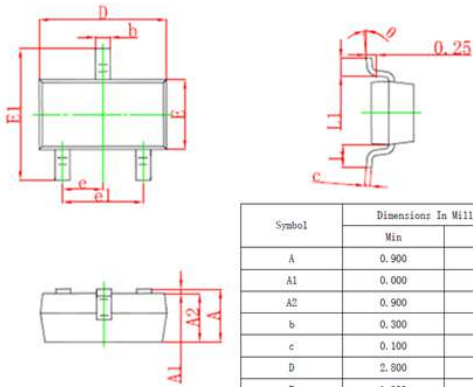
### Base-Emittor On Voltage



### $C_{ob}/C_{ib}-V_{CB}/V_{EB}$

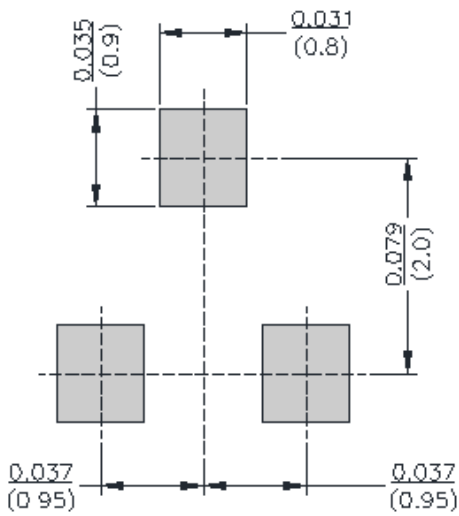


## ■SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
ø	0"	8"	0"	8"

## ■SOT-23 Soldering Footprint





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