

RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## FEATURES

- Epoxy Meets UL94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- High Conductance
- Surface Mount Package Ideally Suited for Automatic Insertion

## MECHANICAL DATA

- Package: SOT-23
- Terminals: Tin Plated Leads, Solderable per J-STD-002 and JESD22-B102

## MARKING

1D

## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch

## ORDER INFORMATION

Part Number	Type
MMBTA42Y	Lead (Pb)-free
MMBTA42Y-C	Lead (Pb)-free and Halogen-free

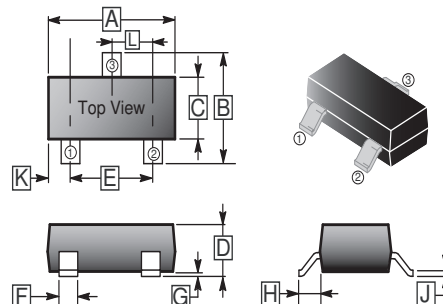
## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Collector-Base Voltage	V <sub>CBO</sub>	300	V
Collector-Emitter Voltage	V <sub>CEO</sub>	300	
Emitter-Base Voltage	V <sub>EBO</sub>	5	
Collector Current-Continuous	I <sub>C</sub>	500	mA
Collector Power Dissipation	P <sub>C</sub>	350	mW
Junction, Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	150, -55~150	°C

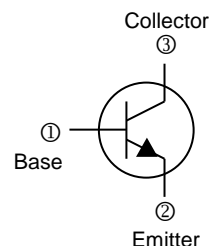
## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	300	-	-	V	I <sub>C</sub> =100μA, I <sub>E</sub> =0
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	300	-	-	V	I <sub>C</sub> =1mA, I <sub>B</sub> =0
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	5	-	-	V	I <sub>E</sub> =100μA, I <sub>C</sub> =0
Collector Cut-off Current	I <sub>CBO</sub>	-	-	0.5	μA	V <sub>CB</sub> =200V, I <sub>E</sub> =0
Emitter Cut-off Current	I <sub>EBO</sub>	-	-	0.5	μA	V <sub>EB</sub> =5V, I <sub>C</sub> =0
DC Current Gain	h <sub>FE</sub>	25	-	-		V <sub>CE</sub> =10V, I <sub>C</sub> =1mA
		40	-	300		V <sub>CE</sub> =10V, I <sub>C</sub> =10mA
		40	-	-		V <sub>CE</sub> =10V, I <sub>C</sub> =30mA
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	-	-	0.5	V	I <sub>C</sub> =20mA, I <sub>B</sub> =2mA
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	-	-	1	V	I <sub>C</sub> =20mA, I <sub>B</sub> =2mA
Transition Frequency	f <sub>T</sub>	50	-	-	MHz	V <sub>CE</sub> =20V, I <sub>C</sub> =10mA, f=30MHz

## SOT-23

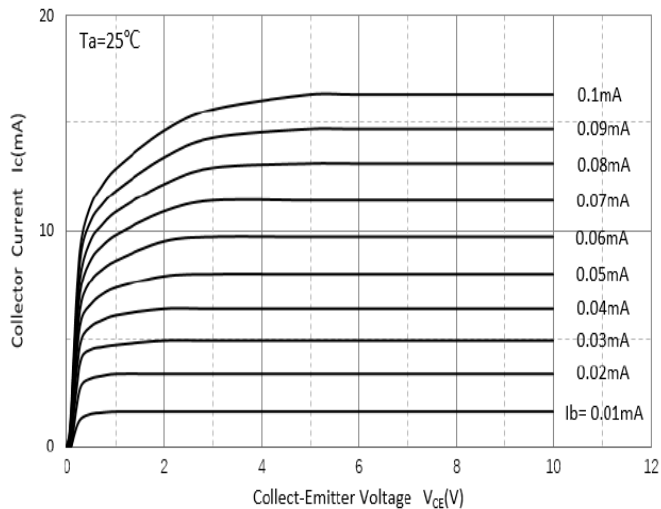


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.65	3.10	G	0	0.18
B	2.10	3.00	H	0.55	REF.
C	1.10	1.80	J	0.05	0.26
D	0	1.40	K	0.60	REF.
E	1.70	2.30	L	0.95	TYP.
F	0.28	0.55			

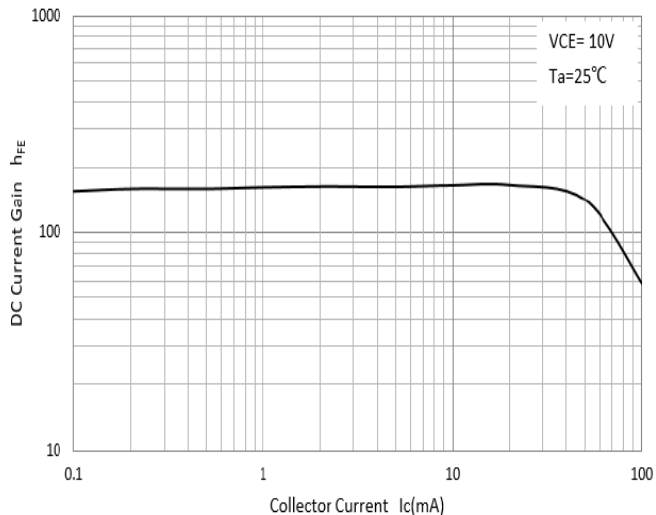


**CHARACTERISTICS CURVE**

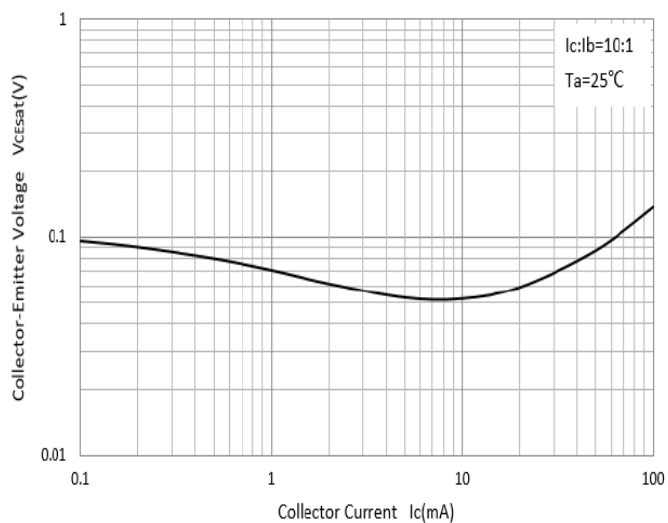
Static Characteristic



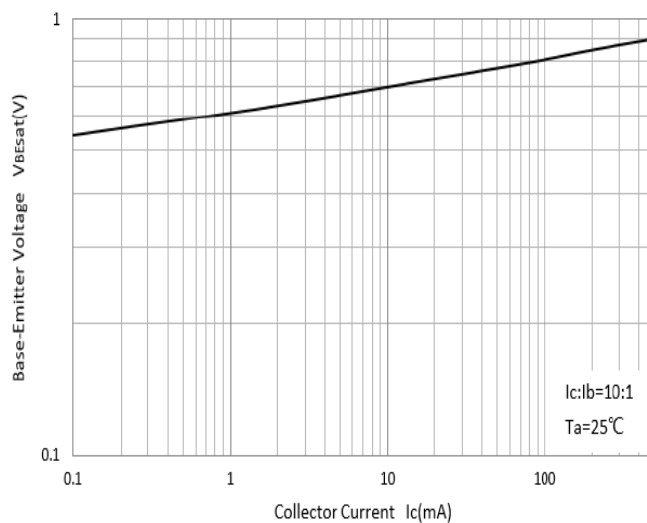
DC Current Gain



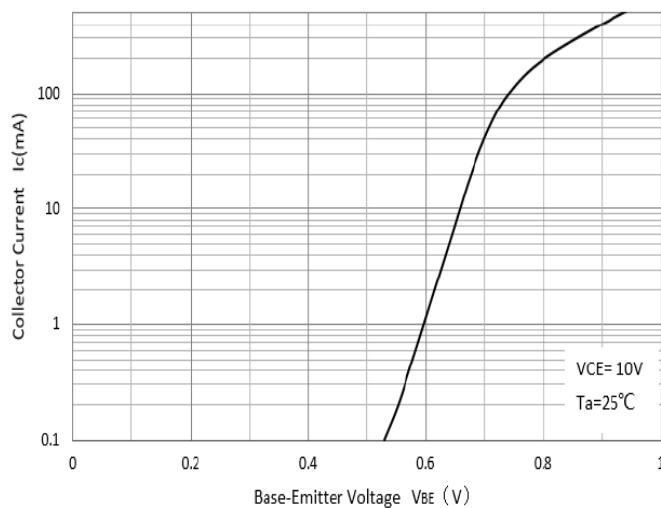
Collector-Emitter Saturation Voltage



Base-Emitter Saturation Voltage



Base-Emitter On Voltage



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

