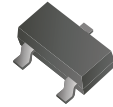


## MMBT4403-G (PNP) RoHS Device

### Features

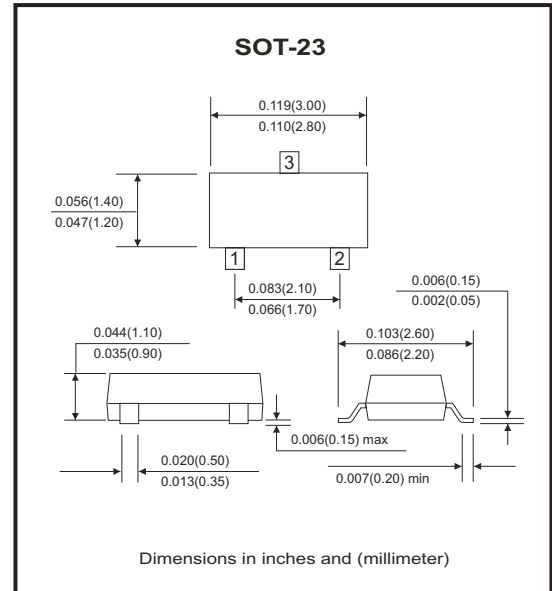
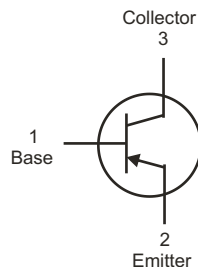
- Epitaxial planar die construction.
- Ideal for medium power amplification and switching.



### Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Approx. weight: 0.008 grams(approx.).

### Diagram:



### Maximum Ratings (at TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base voltage	V <sub>CB0</sub>	-40	V
Collector-Emitter voltage	V <sub>CE0</sub>	-40	V
Emitter-Base voltage	V <sub>EB0</sub>	-5	V
Collector current	I <sub>c</sub>	-600	mA
Collector power dissipation	P <sub>c</sub>	300	mW
Thermal resistance from junction to ambient	R <sub>θJA</sub>	417	°C/W
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature range	T <sub>STG</sub>	-55 to +150	°C

## Electrical Characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-Base breakdown voltage	$V_{(BR)CBO}$	$I_C=-100\mu\text{A}, I_E=0$	-40			V
Collector-Emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, I_B=0$	-40			V
Emitter-Base breakdown voltage	$V_{(BR)EBO}$	$I_E=-100\mu\text{A}, I_C=0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=-35\text{V}, I_E=0$			-0.1	$\mu\text{A}$
Collector cut-off current	$I_{CEX}$	$V_{CE}=-35\text{V}, V_{BE}=0.4\text{V}$			-0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=-4\text{V}, I_C=0$			-0.1	$\mu\text{A}$
DC current gain	$h_{FE1}$	$V_{CE}=-1\text{V}, I_C=-0.1\text{mA}$	30			
	$h_{FE2}$	$V_{CE}=-1\text{V}, I_C=-1\text{mA}$	60			
	$h_{FE3}$	$V_{CE}=-1\text{V}, I_C=-10\text{mA}$	100			
	$h_{FE4}$	$V_{CE}=-2\text{V}, I_C=-150\text{mA}$	100		300	
	$h_{FE5}$	$V_{CE}=-2\text{V}, I_C=-500\text{mA}$	20			
Collector-Emitter saturation voltage	$V_{CE(SAT)}$	$I_C=-150\text{mA}, I_B=-15\text{mA}$			-0.4	V
		$I_C=-500\text{mA}, I_B=-50\text{mA}$			-0.75	V
Base-Emitter saturation voltage	$V_{BE(SAT)}$	$I_C=-150\text{mA}, I_B=-15\text{mA}$			-0.95	V
		$I_C=-500\text{mA}, I_B=-50\text{mA}$			-1.30	V
Transition frequency	$f_T$	$V_{CE}=-10\text{V}, I_C=-20\text{mA}$ $f=100\text{MHz}$	200			MHz
Delay time	$t_d$	$V_{CC}=-30\text{V}, V_{BE(off)}=-0.5\text{V}$			15	ns
Rise time	$t_r$	$I_C=-150\text{mA}, I_{B1}=-15\text{mA}$			20	ns
Storage time	$t_s$	$V_{CC}=-30\text{V}, I_C=-150\text{mA}$			225	ns
Fall time	$t_f$	$I_{B1}=I_{B2}=-15\text{mA}$			60	ns

## Rating And Characteristic Curves (MMBT4403-G)

Fig.1 - Static Characteristic

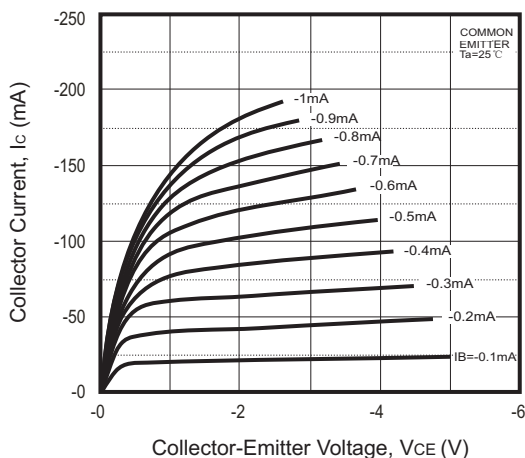
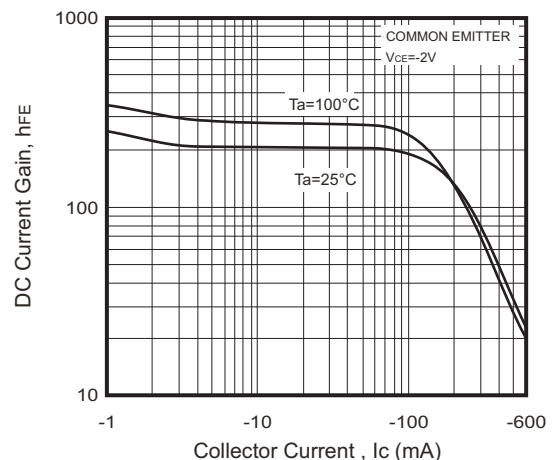


Fig.2 -  $h_{FE}-I_C$



## Rating And Characteristic Curves (MMBT4403-G)

Fig.3 -  $V_{CEsat} - I_c$

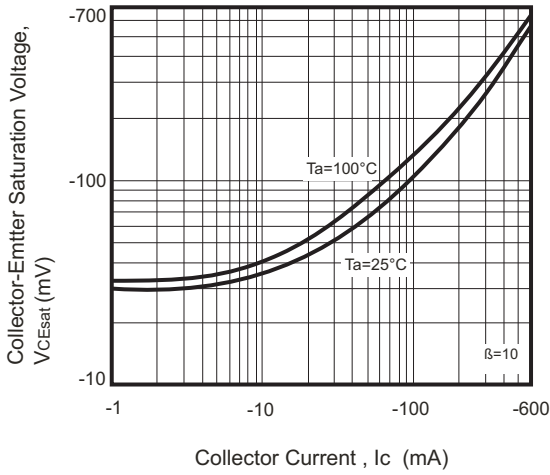


Fig.4 -  $V_{BEsat} - I_c$

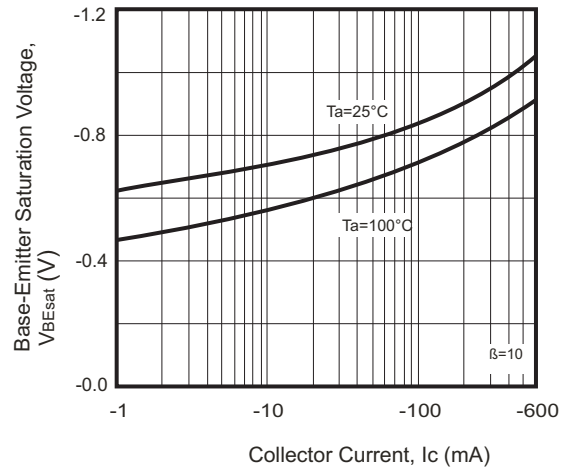


Fig.5 -  $I_c - V_{BE}$

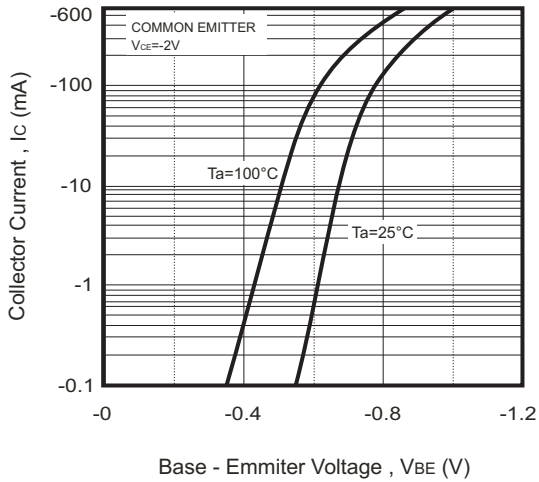


Fig.6 -  $C_{ob}/C_{ib} - V_{CB}/V_{EB}$

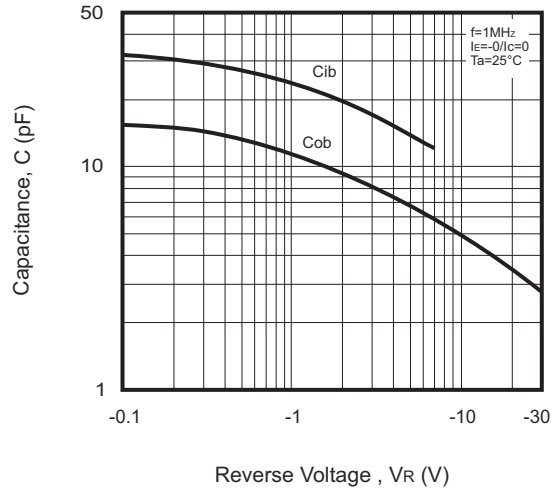


Fig.7 -  $f_r - I_c$

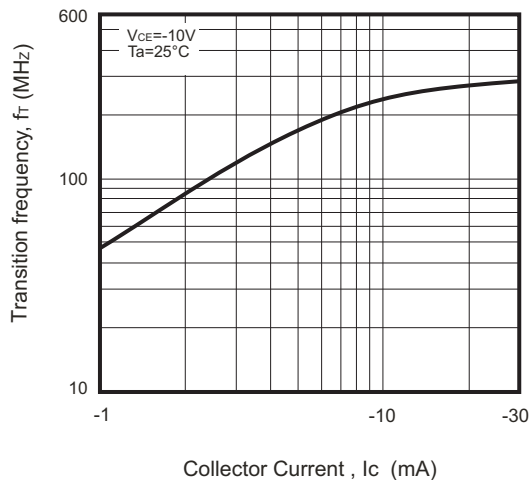
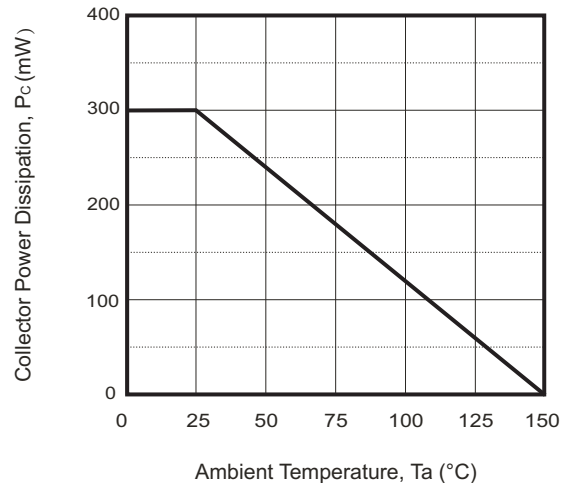
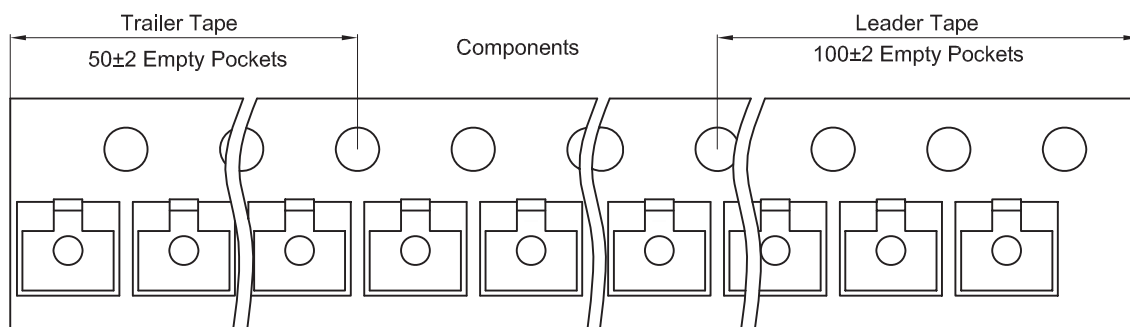
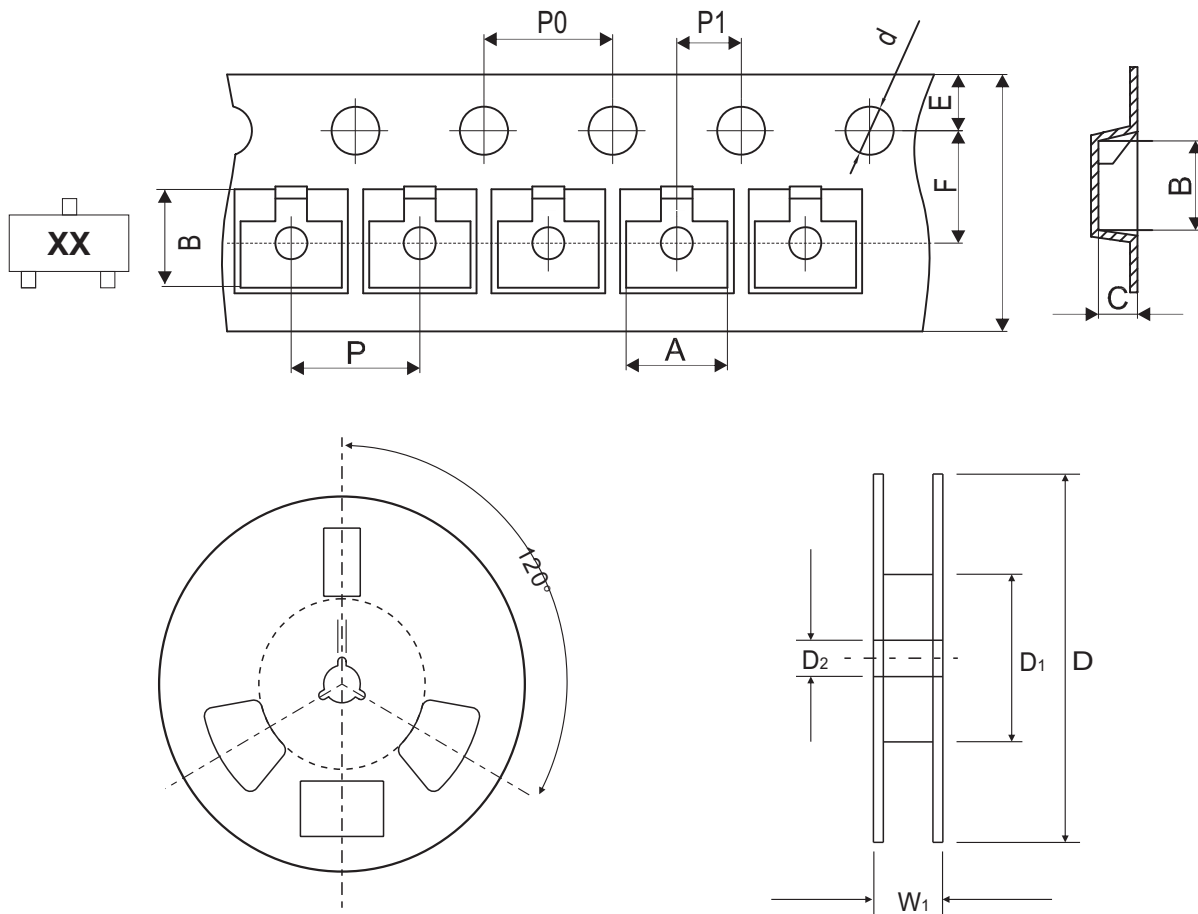


Fig.8 -  $P_c - T_a$



## Reel Taping Specification



SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

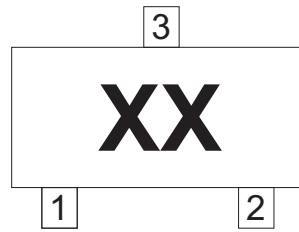
SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.00 + 0.30 / - 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.315 + 0.012 / - 0.004	0.484 ± 0.039

Company reserves the right to improve product design, functions and reliability without notice.

REV:B

## Marking Code

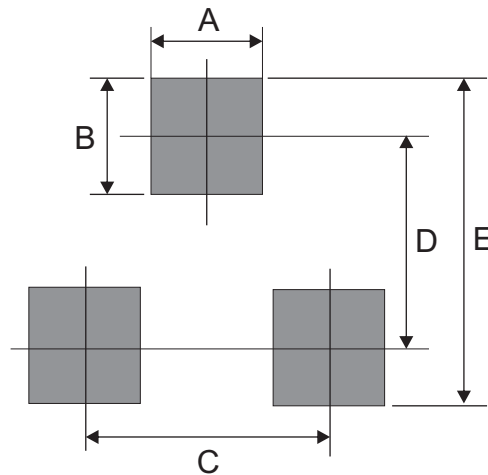
Part Number	Marking Code
MMBT4403-G	2T



xx = Product type marking code

## Suggested PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.60	0.024
B	0.80	0.031
C	1.90	0.075
D	2.02	0.080
E	2.82	0.111



## Standard Packaging

Case Type	Qty Per Reel	Reel Size
	(Pcs)	(inch)
SOT-23	3,000	7

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