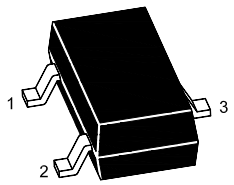
MMBTSC2412
NPN Transistor

Features

- For general purpose application.
- According to its DC current gain, the transistor is subdivided into three groups Q, R and S.

SOT-23

(TO-236)



1.Base 2.Emitter 3.Collector

Marking: Q :1Q
R :1B
S :1C

Absolute Maximum Ratings (T_A = 25˚C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	60	V
Collector Emitter Voltage	V_{CEO}	50	V
Emitter Base Voltage	V_{EBO}	7	V
Collector Current	I_C	150	mA
Power Dissipation	P_D	200	mW
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	- 55 to + 150	°C

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Electrical Characteristics at T_A = 25℃

Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_{CE} = 6 V, I_C = 1mA	Q R S	h_{FE} h_{FE} h_{FE}	120 180 270	- - -	270 390 560	- - -
Collector Base Cutoff Current at V_{CB} = 60 V		I_{CBO}	-		100	nA
Emitter Base Cutoff Current at V_{EB} = 7 V		I_{EBO}	-		100	nA
Collector Base Breakdown Voltage at I_C = 50 μA		$V_{(BR)CBO}$	60		-	V
Collector Emitter Breakdown Voltage at I_C = 1 mA		$V_{(BR)CEO}$	50		-	V
Emitter Base Breakdown Voltage at I_E = 50 μA		$V_{(BR)EBO}$	7		-	V
Collector Emitter Saturation Voltage at I_C = 50 mA, I_B = 5 mA		$V_{CE(sat)}$	-		0.4	V
Base Emitter Saturation Voltage at I_C = 50 mA, I_B = 5 mA		$V_{BE(sat)}$	-		1	V
Current Gain Bandwidth Product at V_{CE} = 12 V, I_E = 2 mA, f = 100 MHz		f_T	-	180	-	MHz
Collector Output Capacitance at V_{CE} = 12 V, f = 1 MHz		C_{ob}	-		3.5	pF

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Electrical Characteristics Curves

Fig. 1 Grounded emitter propagation characteristics

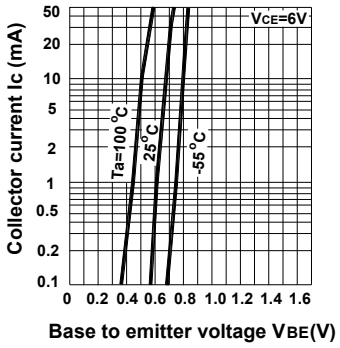


Fig.2 Grounded emitter output characteristics(I)

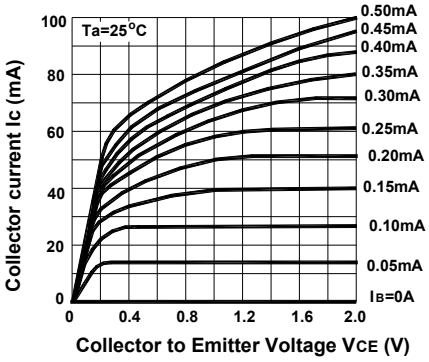


Fig.3 Grounded emitter output characteristics(II)

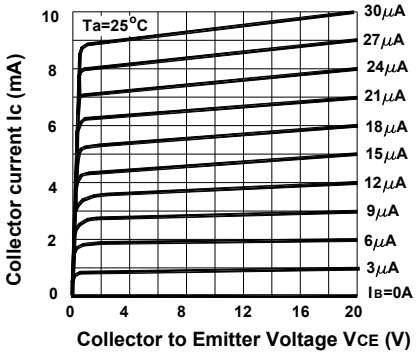


Fig.4 DC current gain vs. collector current (I)

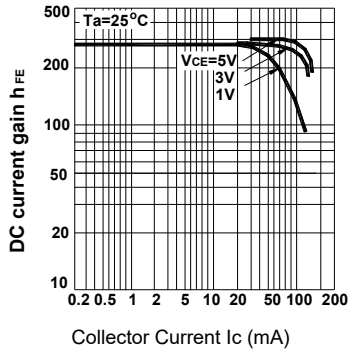


Fig.5 DC current gain vs. collector current (II)

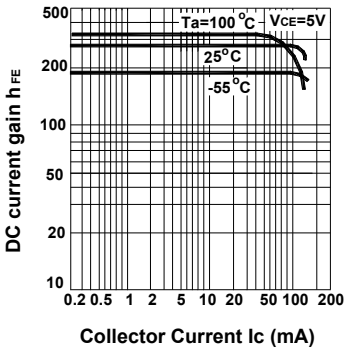


Fig.6 Collector-emitter saturation voltage vs. collector current

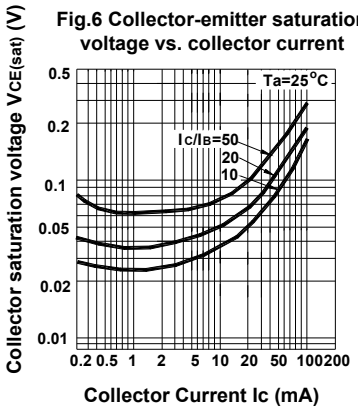


Fig.7 Collector-emitter saturation voltage vs. collector current(I)

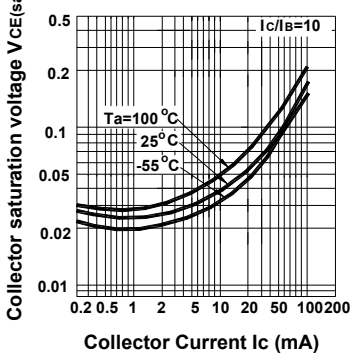


Fig.8 Collector-emitter saturation voltage vs. collector current(II)

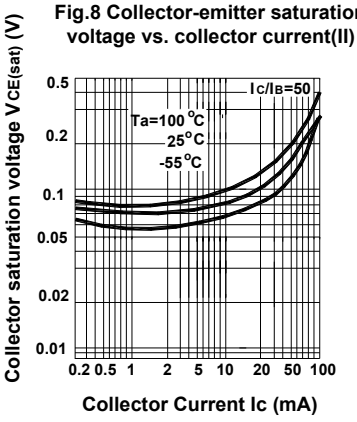
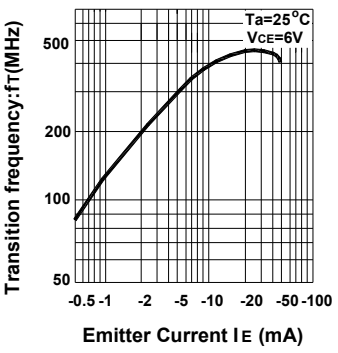


Fig.9 Gain bandwidth product vs. emitter current



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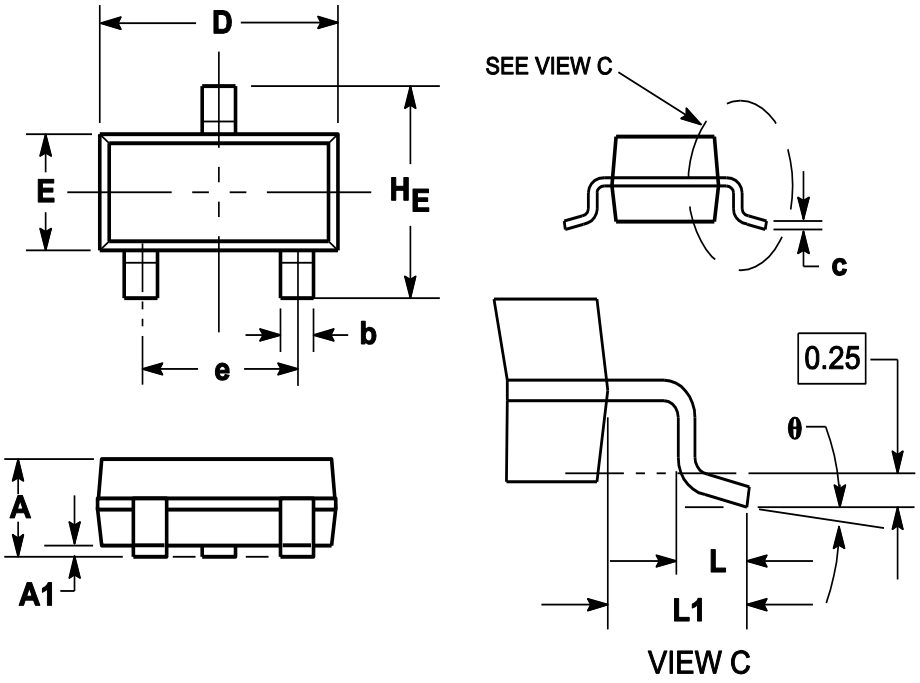
Package Outline (SOT-23)



Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.900	1.025	1.150
A1	0.000	0.050	0.100
b	0.300	0.400	0.500
c	0.080	0.115	0.150
D	2.800	2.900	3.000
E	1.200	1.300	1.400
H_E	2.250	2.400	2.550
e	1.800	1.900	2.000
L1	0.550REF		
L	0.300		0.500
θ	0°		8°

Ordering Information

Device	Package	Reel Dimension (inch)	Shipping Quantity
MMBTSC2412	SOT-23	7	3,000

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