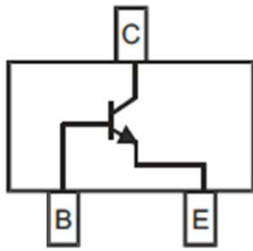


NPN General Purpose Transistor



SOT-23

Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- High Conductance
- Part no. with suffix "Q" means AEC-Q101 qualified

Applications

- NPN General Purpose switching and amplification

Mechanical Data

- Case: SOT-23
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- Marking: 1H

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

Item	Symbol	Unit	Value
Collector-Base Voltage	V_{CBO}	V	60
Collector-Emitter Voltage	V_{CEO}	V	60
Emitter-Base Voltage	V_{EBO}	V	4
Collector Current -Continuous	I_C	mA	500
Total Device Dissipation	P_D	mW	300
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	°C/W	417
Junction Temperature	T_j	°C	-55 to +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_{CBO}	V	$I_C = 100\mu A, I_E = 0$	60		
Collector-emitter breakdown voltage	V_{CEO}	V	$I_C = 1mA, I_B = 0$	60		
Emitter-base breakdown voltage	V_{EBO}	V	$I_E = 100\mu A, I_C = 0$	4		
Collector-base cut-off current	I_{CBO}	μA	$V_{CB} = 60V, I_E = 0$			0.1
Emitter-base cut-off current	I_{EBO}	μA	$V_{EB} = 3V, I_C = 0$			0.1
DC current gain	h_{FE}		$V_{CE} = 1V, I_C = 10mA$	100		
	h_{FE}		$V_{CE} = 1V, I_C = 100mA$	100		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = 100mA, I_B = 10mA$			0.25
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C = 100mA, I_B = 10mA$			1.2

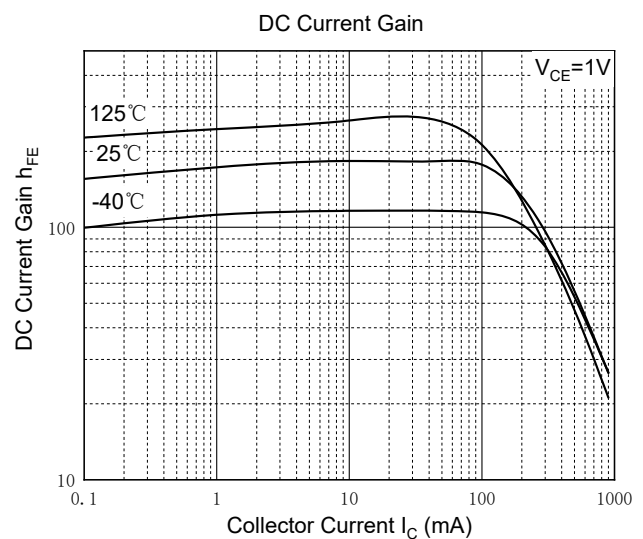
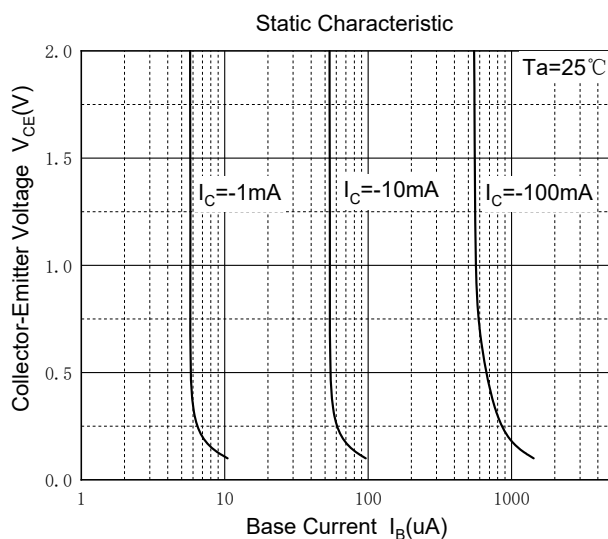
■ Other Characteristics (Ta=25°C unless otherwise noted)

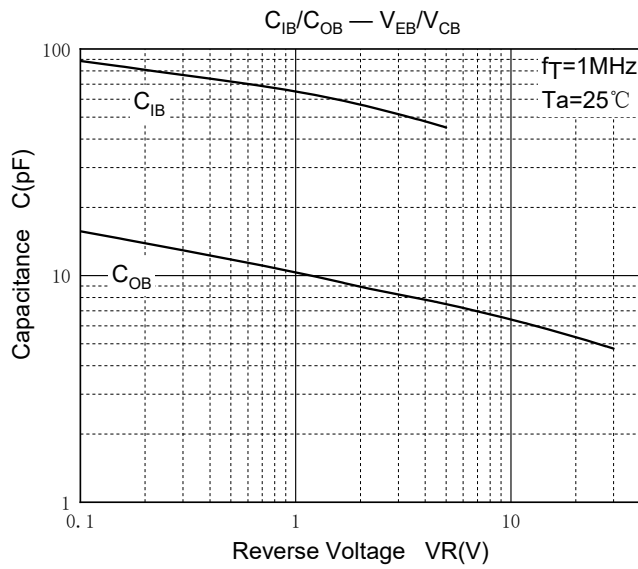
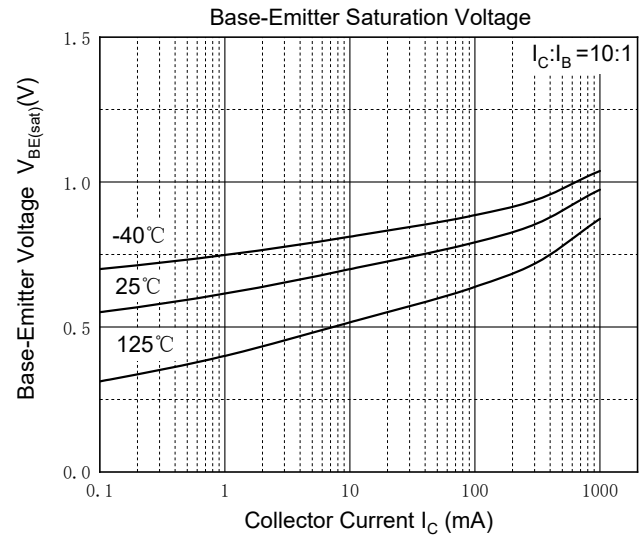
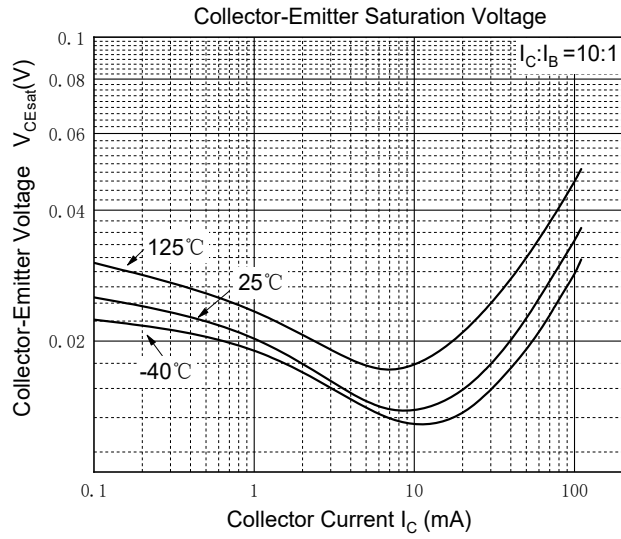
Item	Symbol	Unit	Conditions	Min	Typ	Max
Transition frequency	f_T	MHz	$V_{CE} = 2V, I_C = 10mA, f = 100MHz$	100		

■ Ordering Information (Example)

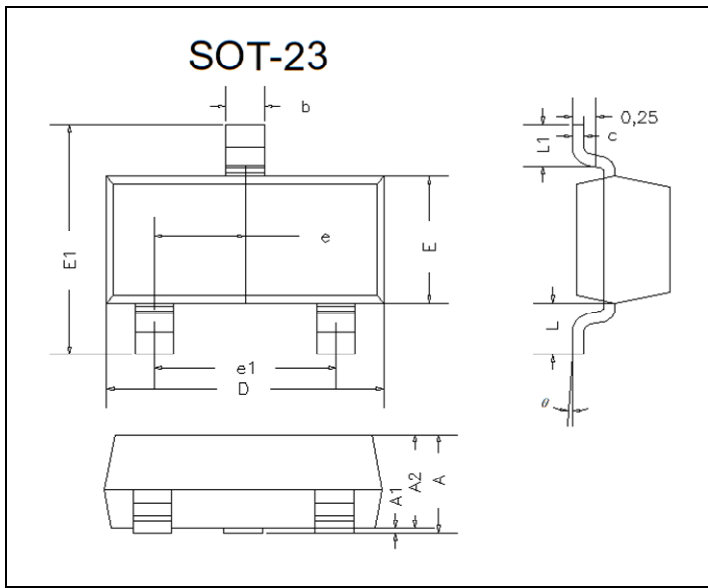
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMBTA05Q	F2	Approximate 0.01	3000	30000	120000	7" reel

■ Characteristics(Typical)



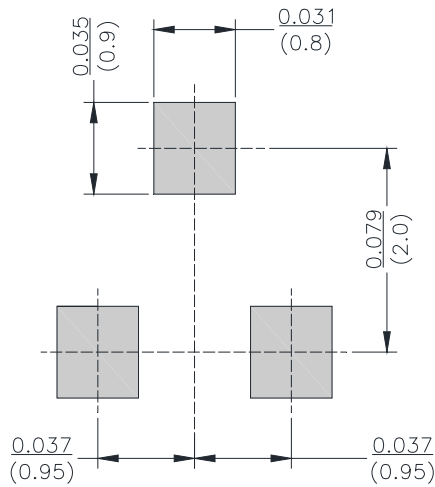


■ SOT-23 Package Outline Dimensions



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.035	0.045	0.90	1.15	
A1	0.000	0.004	0.00	0.10	
A2	0.035	0.041	0.90	1.05	
b	0.012	0.020	0.30	0.50	
c	0.004	0.008	0.10	0.20	
D	0.110	0.118	2.80	3.00	
E	0.047	0.055	1.20	1.40	
E1	0.089	0.100	2.25	2.55	
e	0.370TYP		0.95TYP		
e1	0.071	0.079	1.80	2.00	
L	0.220REF		0.55REF		
L1	0.012	0.020	0.30	0.50	
θ	0°	8°	0°	8°	

■ SOT-23 Suggested Pad Layout



Unit: $\frac{\text{inch}}{\text{mm}}$



Disclaimer

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