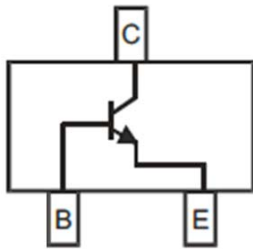


NPN High Voltage Transistors



SOT-23

Features

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

Applications

- NPN General Purpose Amplifier

Mechanical Data

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

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

Item	Symbol	Unit	Value
Collector-Base Voltage	V_{CBO}	V	300
Collector-Emitter Voltage	V_{CEO}	V	300
Emitter-Base Voltage	V_{EBO}	V	5
Collector Current -Continuous	I_C	mA	500
Total Device Dissipation	P_D	mW	350
Thermal Resistance Junction to Ambient	R_{thJA}	K/W	357
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	$I_C = 100\mu A, I_E = 0$	300		
Collector-emitter breakdown voltage	V_{CEO}	V	$I_C = 1mA, I_B = 0$	300		
Emitter-base breakdown voltage	V_{EBO}	V	$I_E = 100\mu A, I_C = 0$	5		
Collector-base cut-off current	I_{CBO}	μA	$V_{CB} = 200V, I_E = 0$			0.5
Emitter-base cut-off current	I_{EBO}	μA	$V_{EB} = 5V, I_C = 0$			0.5
DC current gain	h_{FE}		$V_{CE} = 10V, I_C = 1mA$	25		
	h_{FE}		$V_{CE} = 10V, I_C = 10mA$	40		300
	h_{FE}		$V_{CE} = 10V, I_C = 30mA$	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = 20mA, I_B = 2mA$			0.5
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C = 20mA, I_B = 2mA$			1.0

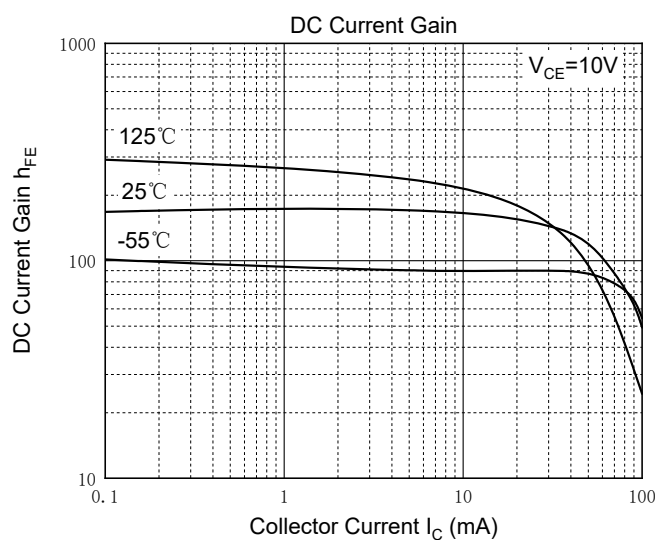
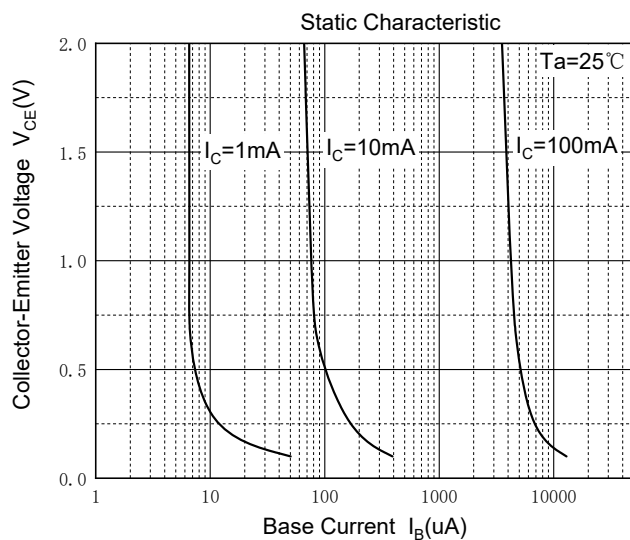
■ Other Characteristics (Ta=25°C unless otherwise noted)

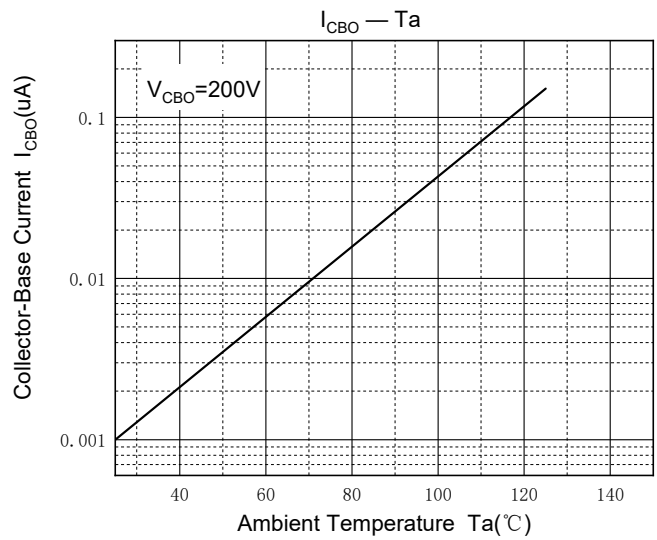
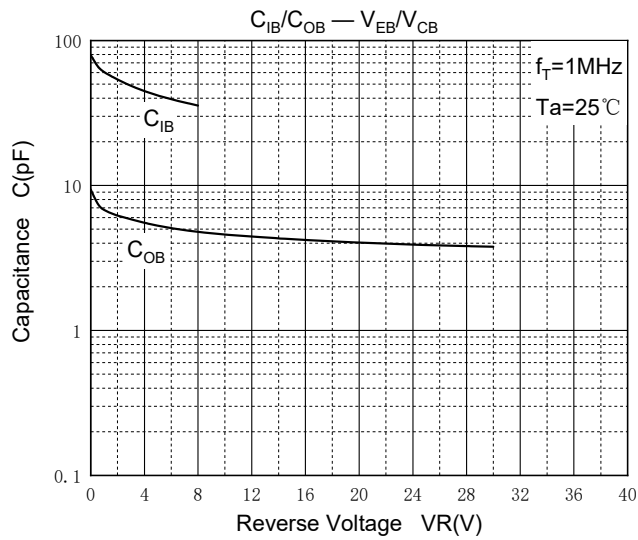
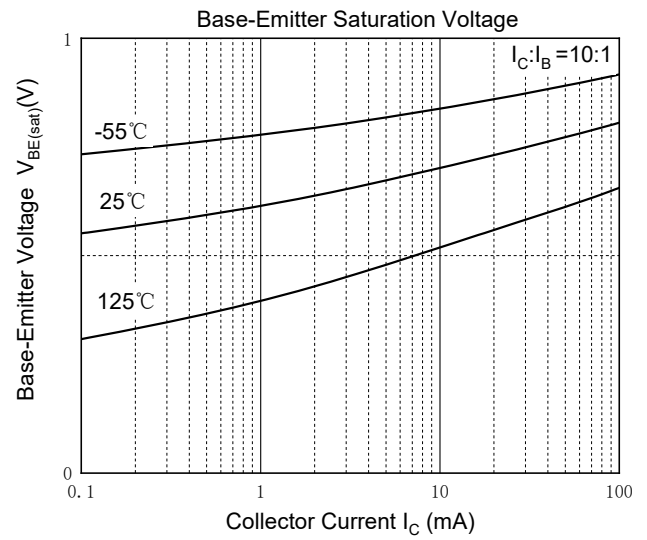
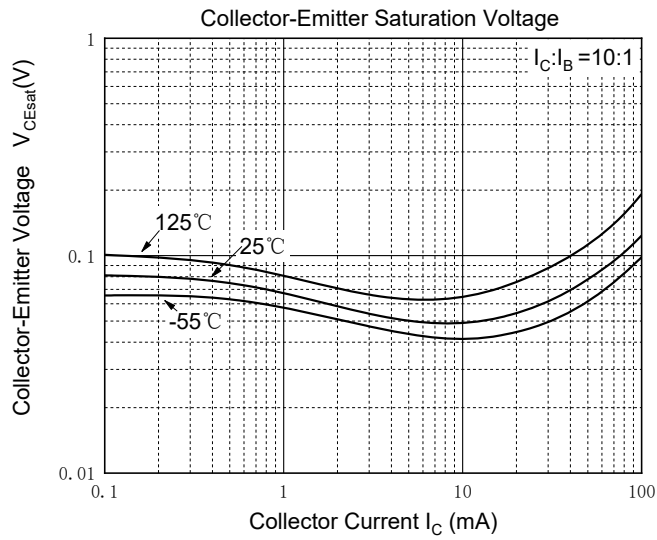
Item	Symbol	Unit	Conditions	Min	Typ	Max
Transition frequency	f_T	MHz	$V_{CE} = 20V, I_C = 10mA, f = 30MHz$	50		

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMBTA42Q	F2	Approximate 0.01	3000	30000	120000	7" reel

■ Characteristics(Typical)



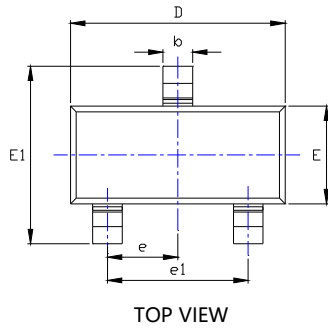




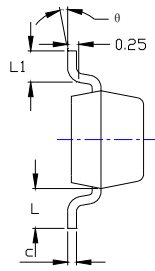
MMBTA42Q

RoHS
COMPLIANT

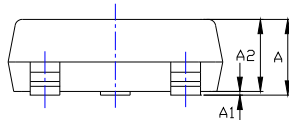
■SOT-23 Package Outline Dimensions & Suggested Pad Layout



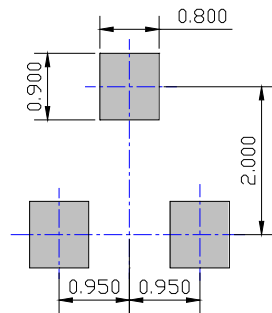
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT

SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

NOTE:

- 1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
- 2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
- 3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



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