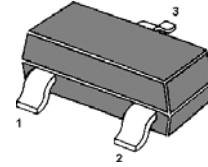


NPN Silicon Epitaxial Planar Transistor

Features

- Halogen and Antimony Free(HAF), RoHS compliant
- AEC-Q101 Qualified
- For switching and amplifier

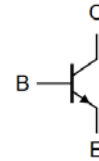


1.Base 2. Emitter 3. Collector



Mechanical Data

- SOT-23 Plastic Package
- Mounting position: Any



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector Base Voltage ABC846 ABC847, ABC850 ABC848, ABC849	V_{CBO}	80 50 30	V
Collector Emitter Voltage ABC846 ABC847, ABC850 ABC848, ABC849	V_{CEO}	65 45 30	V
Emitter Base Voltage ABC846, ABC847 ABC848, ABC849, ABC850	V_{EBO}	6 5	V
Collector Current	I_C	100	mA
Peak Collector Current	I_{CM}	200	mA
Power Dissipation	P_D	300	mW
Operating Junction Temperature Range	T_J	- 65 to + 150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 65 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance Junction to Ambient ¹⁾	R_{thJA}	417	$^\circ\text{C/W}$

¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

Electrical Characteristics (T _A = 25°C unless otherwise noted)					
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V _{CE} = 5 V, I _C = 2 mA Current Gain Group A B C	h _{FE}	110 200 420	- - -	220 450 800	- - -
Collector Base Cutoff Current at V _{CB} = 30 V	I _{CBO}	-	-	15	nA
Collector Base Breakdown Voltage at I _C = 100 μA ABC846 ABC847, ABC850 ABC848, ABC849	V _{(BR)CBO}	80 50 30	- - -	- - -	V
Collector Emitter Breakdown Voltage at I _C = 2 mA ABC846 ABC847, ABC850 ABC848, ABC849	V _{(BR)CEO}	65 45 30	- - -	- - -	V
Emitter Base Breakdown Voltage at I _E = 100 μA ABC846, ABC847 ABC848, ABC849, ABC850	V _{(BR)CEO}	6 5	- -	- -	V
Collector Emitter Saturation Voltage at I _C = 10 mA, I _B = 0.5 mA at I _C = 100 mA, I _B = 5 mA	V _{CE(sat)}	- -	- -	0.25 0.6	V
Base Emitter Saturation Voltage at I _C = 10 mA, I _B = 0.5 mA at I _C = 100 mA, I _B = 5 mA	V _{BE(sat)}	- -	0.7 -	- 1	V
Base Emitter On Voltage at V _{CE} = 5 V, I _C = 2 mA at V _{CE} = 5 V, I _C = 10 mA	V _{BE(on)}	0.58 -	- -	0.7 0.72	V
Transition Frequency at V _{CE} = 5 V, I _C = 10 mA, f = 100 MHz	f _T	-	300	-	MHz
Collector Output Capacitance at V _{CB} = 10 V, f = 1 MHz	C _{ob}	-	-	6	pF
Input Capacitance at V _{EB} = 0.5 V, f = 1 MHz	C _{ib}	-	9	-	pF

Typical Characteristics Curves

Fig. 1 Output Characteristics Curve

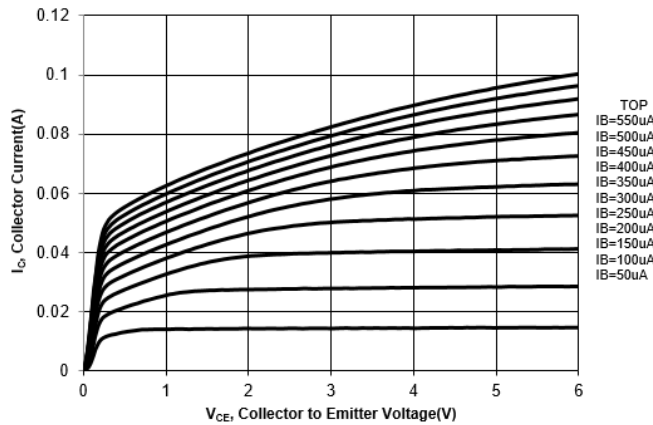


Fig. 2 Collector Current vs. Base to Emitter Voltage

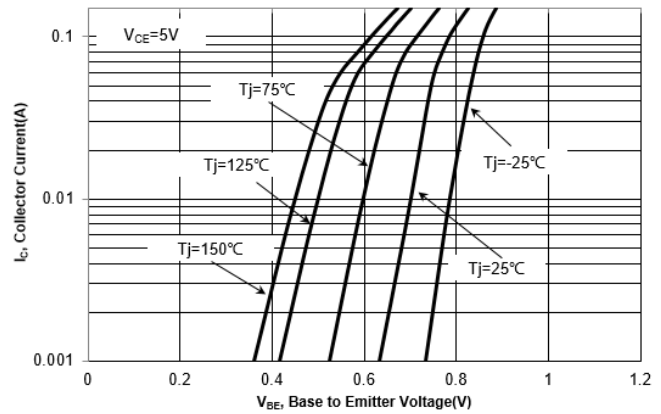


Fig. 3 DC Current Gain vs. Collector Current

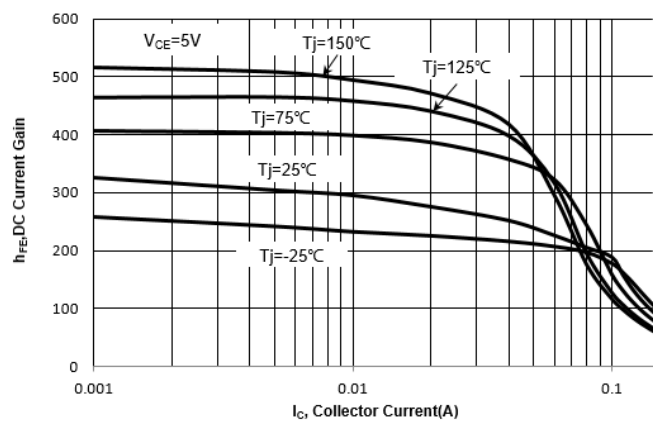


Fig. 4 V_{BESAT} vs. Collector Current

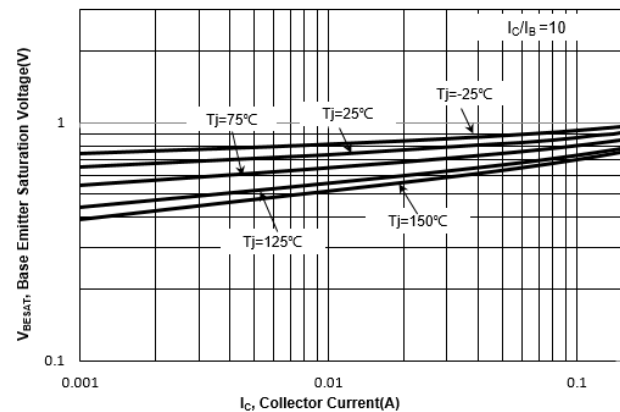


Fig. 5 V_{CESAT} vs. Collector Current

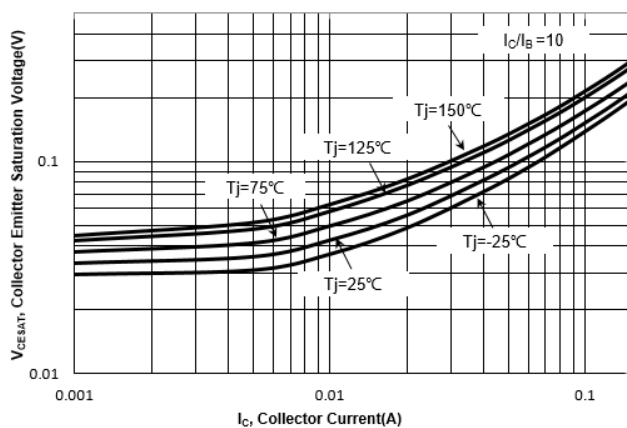


Fig. 6 Output Capacitance

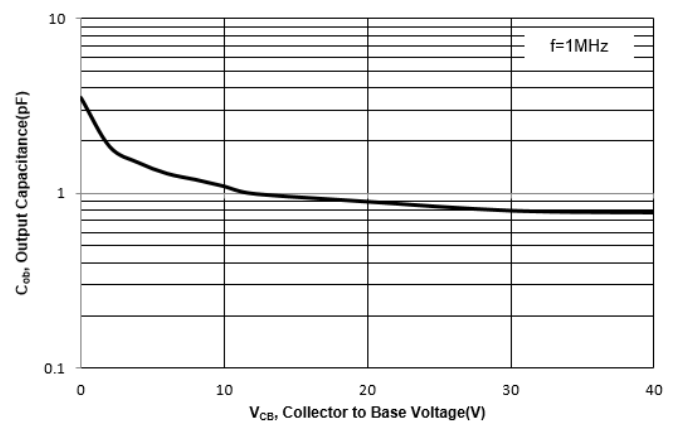
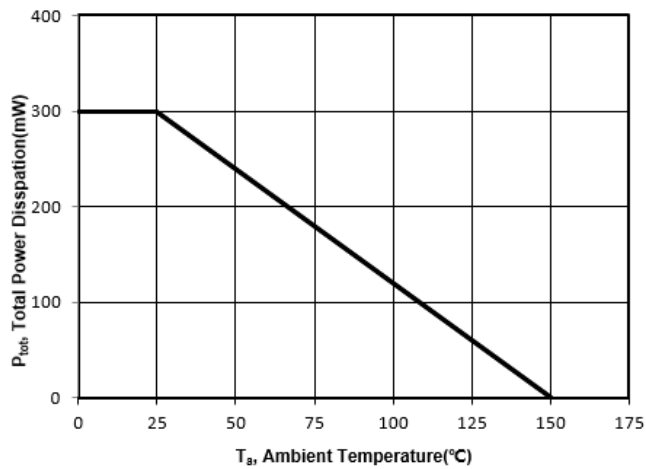
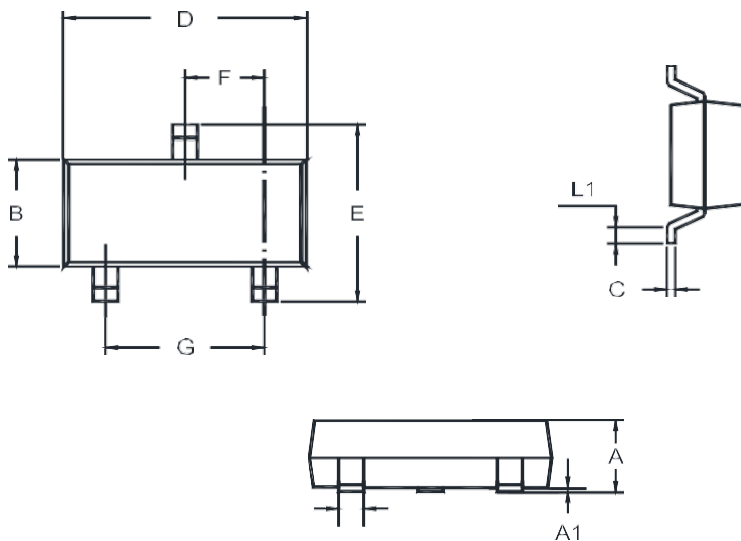


Fig. 7 Power Derating Curve



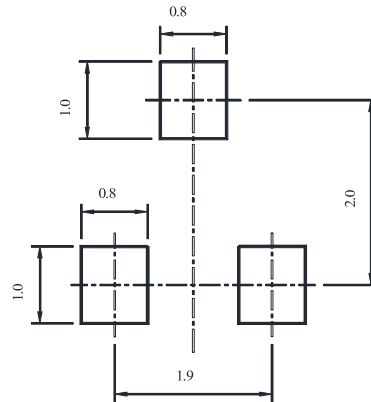
Package Outline Dimensions (Unit: millimeters)

SOT-23



SYMBOL	MILLIMETER		
	MIN	TYP	MAX
A	0.89	/	1.2
A1	0.013	/	0.1
B	1.2	/	1.4
C	0.08	/	0.19
D	2.8	/	3.04
E	2.2	/	2.6
F	0.89	/	1.02
G	1.78	/	2.04
L	0.37	/	0.51
L1	/	/	0.2

Recommended Soldering Footprint (Unit: millimeters)



Packing Information

Package	Tape Width	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-23	8	4 ± 0.1	0.157 ± 0.004	178	7	3000

Marking information

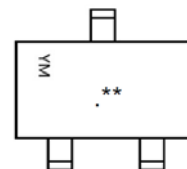
Type	Marking
ABC846A	1A
ABC846B	1B
ABC846C	1C
ABC847A ~ ABC850A	1E
ABC847B ~ ABC850B	1F
ABC847C ~ ABC850C	1G

" ** " = Part No. (See table of Marking information)

" YM " = Date Code Marking

" • " = Automotive-grade material

Font type: Arial



Revision History

Version	Date	Major Changes
Rev.A	2025.01.19	Official Release

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