

2SB936, 2SB936A

Silicon PNP epitaxial planar type

For low-voltage switching

■ Features

- Low collector to emitter saturation voltage $V_{CE(sat)}$
- High-speed switching
- N type package enabling direct soldering of the radiating fin to the printed circuit board, etc. of small electronic equipment.

■ Absolute Maximum Ratings ($T_C=25^\circ\text{C}$)

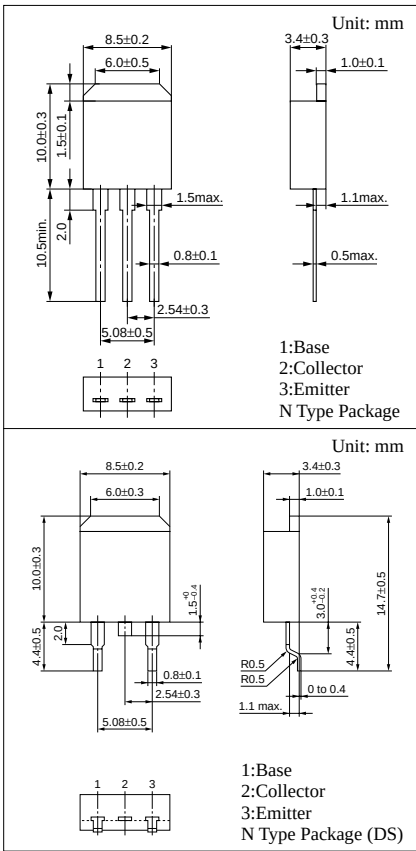
Parameter		Symbol	Ratings	Unit
Collector to base voltage	2SB936	V_{CBO}	-40	V
	2SB936A		-50	
Collector to emitter voltage	2SB936	V_{CEO}	-20	V
	2SB936A		-40	
Emitter to base voltage		V_{EBO}	-5	V
Peak collector current		I_{CP}	-20	A
Collector current		I_C	-10	A
Collector power	$T_C=25^{\circ}\text{C}$	P_C	40	W
dissipation	$T_a=25^{\circ}\text{C}$		1.3	
Junction temperature		T_j	150	$^{\circ}\text{C}$
Storage temperature		T_{sig}	-55 to +150	$^{\circ}\text{C}$

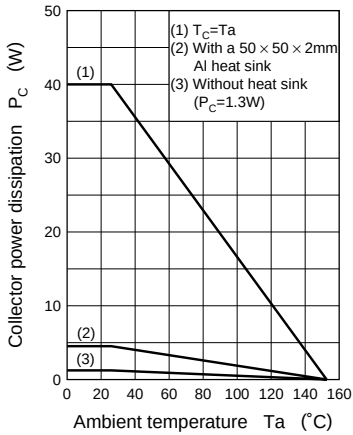
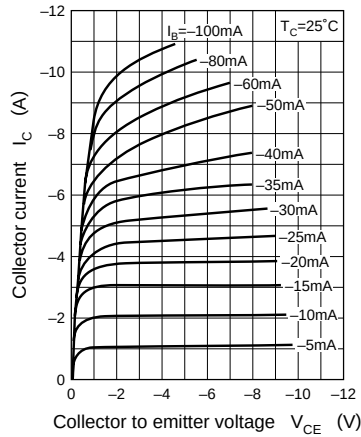
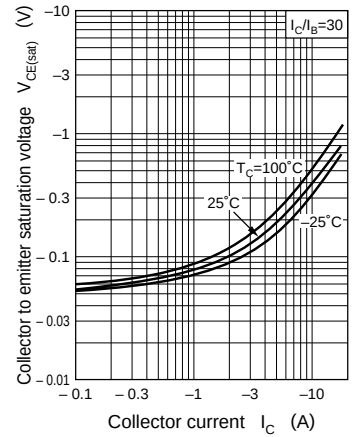
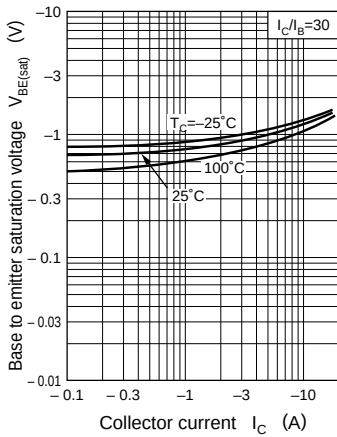
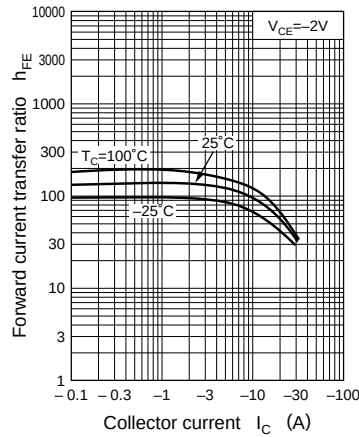
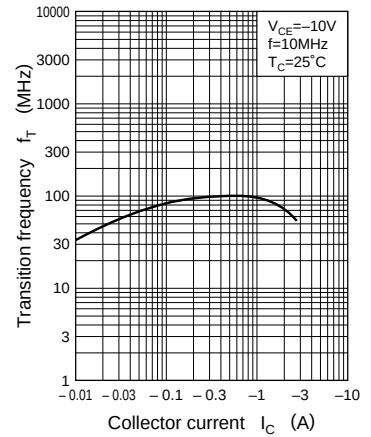
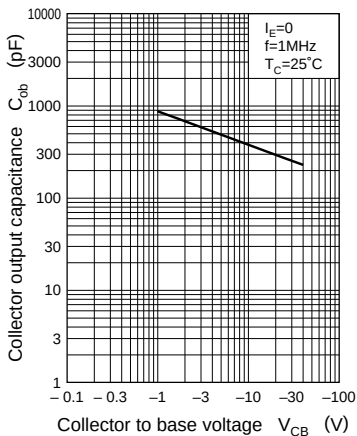
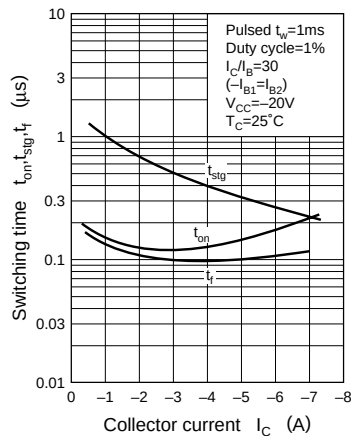
■ Electrical Characteristics ($T_C=25^\circ\text{C}$)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	2SB936 $V_{CB} = -40\text{V}, I_E = 0$			-50	μA
2SB936A $V_{CB} = -50\text{V}, I_E = 0$					-50	
Emitter cutoff current	I_{EBO}	$V_{EB} = -5\text{V}, I_C = 0$			-50	μA
Collector to emitter voltage	V_{CEO}	2SB936 $I_C = -10\text{mA}, I_B = 0$	-20			V
2SB936A $I_C = -10\text{mA}, I_B = 0$			-40			
Forward current transfer ratio	h_{FE1}	$V_{CE} = -2\text{V}, I_C = -0.1\text{A}$	45			
	h_{FE2}^*	$V_{CE} = -2\text{V}, I_C = -3\text{A}$	90		260	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10\text{A}, I_B = -0.33\text{A}$			-0.6	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = -10\text{A}, I_B = -0.33\text{A}$			-1.5	V
Transition frequency	f_T	$V_{CE} = -10\text{V}, I_C = -0.5\text{A}, f = 10\text{MHz}$		100		MHz
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$		400		pF
Turn-on time	t_{on}	$I_C = -3\text{A}, I_{B1} = -0.1\text{A}, I_{B2} = 0.1\text{A}$		0.1		μs
Storage time	t_{stg}			0.5		μs
Fall time	t_f			0.1		μs

* h_{FE2} Rank classification

Rank	Q	P
h_{FE2}	90 to 180	130 to 260



$P_C - T_a$  $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_C$  $C_{ob} - V_{CB}$  $t_{on}, t_{stg}, t_f - I_C$ 

Area of safe operation (ASO)

