

2SB1148, 2SB1148A

Silicon PNP epitaxial planar type

For low-voltage switching

Complementary to 2SD1752 and 2SD1752A

Features

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

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

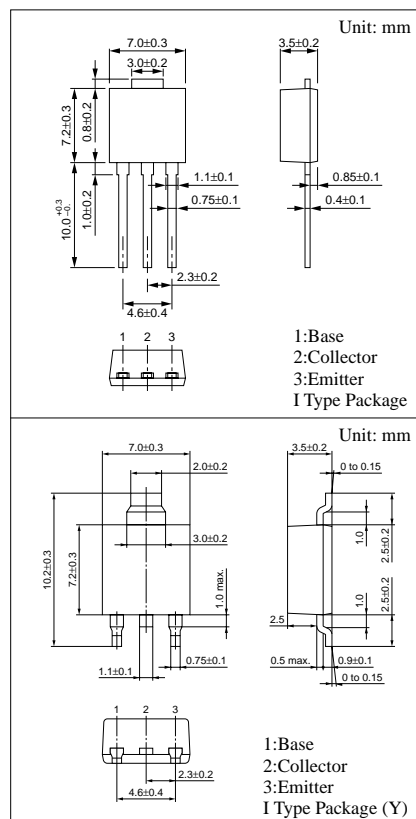
Parameter		Symbol	Ratings	Unit
Collector to base voltage	2SB1148	V_{CBO}	−40	V
	2SB1148A		−50	
Collector to emitter voltage	2SB1148	V_{CEO}	−20	V
	2SB1148A		−40	
Emitter to base voltage		V_{EBO}	−7	V
Peak collector current		I_{CP}	−20	A
Collector current		I_C	−10	A
Collector power dissipation	$T_C=25^{\circ}C$	P_C	15	W
	$T_a=25^{\circ}C$		1.3	
Junction temperature		T_j	150	$^{\circ}C$
Storage temperature		T_{stg}	−55 to +150	$^{\circ}C$

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

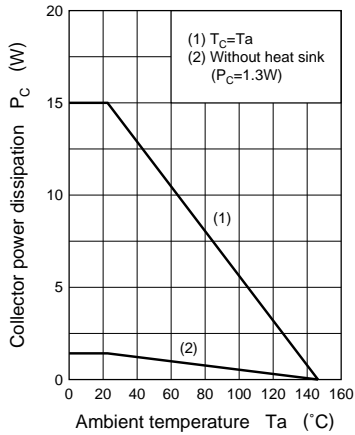
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	2SB1148 $V_{CB} = -40\text{V}, I_E = 0$			-50	μA
		2SB1148A $V_{CB} = -50\text{V}, I_E = 0$			-50	
Emitter cutoff current	I_{EBO}	$V_{EB} = -5\text{V}, I_C = 0$			-50	μA
Collector to emitter voltage	V_{CEO}	$I_C = -10\text{mA}, I_B = 0$	2SB1148 -20			V
			2SB1148A -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}	$I_C = -3\text{A}, I_{B1} = -0.1\text{A}, I_{B2} = 0.1\text{A}, V_{CC} = -20\text{V}$		0.1		μs
Storage time	t_{stg}			0.5		μs
Fall time	t_f			0.1		μs

* h_{FE2} Rank classification

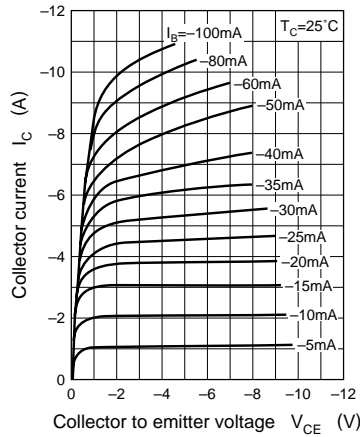
Rank	Q	P
h_{FE2}	90 to 180	130 to 260



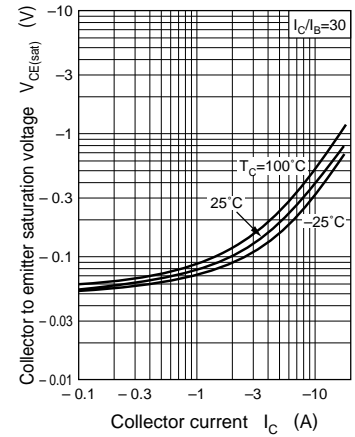
$P_C - T_a$



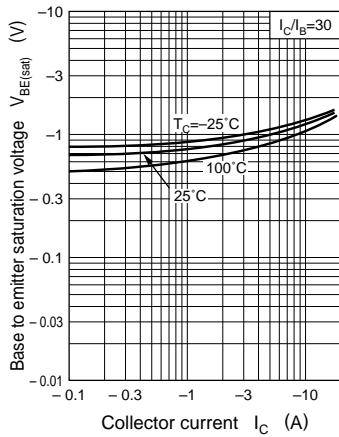
$I_C - V_{CE}$



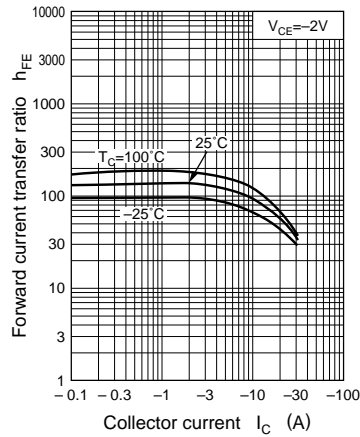
$V_{CE(sat)} - I_C$



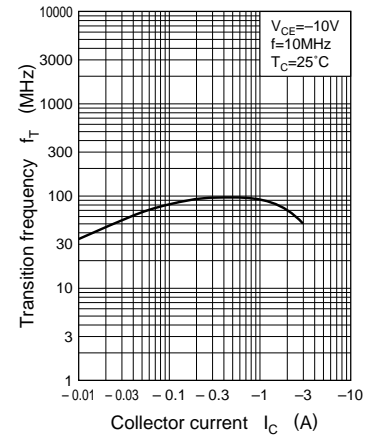
$V_{BE(sat)} - I_C$



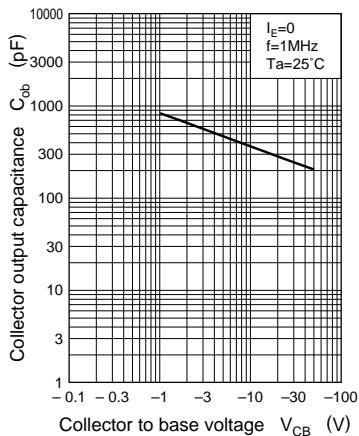
$h_{FE} - I_C$



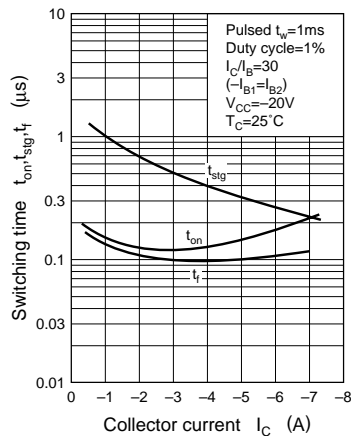
$f_T - I_C$



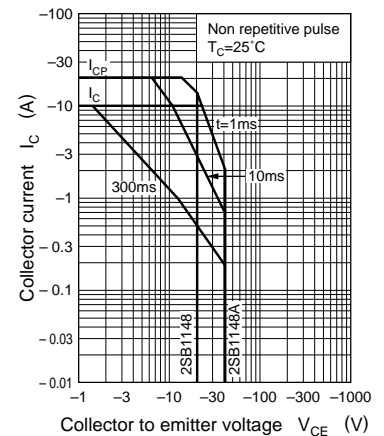
$C_{ob} - V_{CB}$

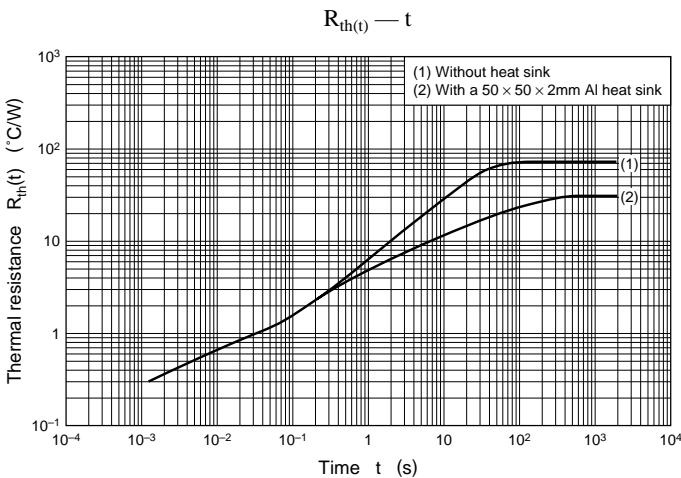


$t_{on}, t_{stg}, t_f - I_C$



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