2SB948, 2SB948A

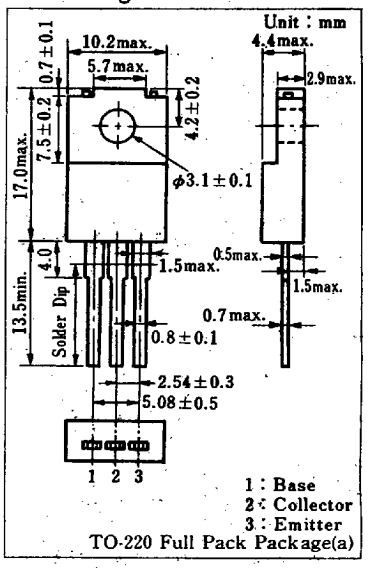
Silicon PNP Epitaxial Planar Type

Low Voltage Switching

■ Features

- Low collector-emitter saturation voltage ($V_{CE(sat)}$)
- High speed switching
- "Full Pack" package for simplified mounting on a heat sink with one screw

■ Package Dimensions



■ Absolute Maximum Ratings (Tc=25°C)

Item		Symbol	Value	Unit
Collector-base voltage	2SB948	V_{CBO}	−40	V
	2SB948A		−50	
Collector-emitter voltage	2SB948	V_{CEO}	−20	V
	2SB948A		−40	
Emitter-base voltage		V_{EBO}	−5	V
Peak collector current		I_{CP}	−20	A
Collector current		I_C	−10	A
Collector power dissipation	Tc=25 ℃	P_C	40	W
	Ta=25 ℃		2	
Junction temperature		T_j	150	℃
Storage temperature		T_{stg}	−55～+150	℃

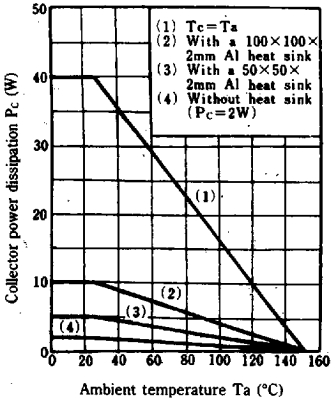
■ Electrical Characteristics (Tc=25°C)

Item		Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current		I_{CBO}	V_{CB}=−40 V, I_E=0			−50	μA
Emitter cutoff current		I_{EBO}	V_{EB}=−5 V, I_C=0			−50	μA
Collector-emitter voltage	2SB948	V_{CEO}	I_C=−10 mA, I_B=0	−20			V
	2SB948A			−40			
DC current gain		h_{FE1}	V_{CE}=−2 V, I_C=−0.1 A	45			
		h_{FE2}*	V_{CE}=−2 V, I_C=−3 A	60		260	
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C=−10 A, I_B=−0.33 A			−0.6	V
Base-emitter saturation voltage		$V_{BE(sat)}$	I_C=−10 A, I_B=−0.33 A			−1.5	V
Transition frequency		f_T	V_{CE}=−10 V, I_C=−0.5A, f=10MHz		100		MHz
Collector output capacitance		C_{ob}	V_{CB}=−10 V, I_E=0, f=1 MHz		400		pF
Turn-on time		t_{on}	I_C=−3 A, I_{B1}=−0.1A, I_{B2}=0.1A		0.1		μs
Storage time		t_{stg}			0.5		μs
Collector current fall time		t_f			0.1		μs

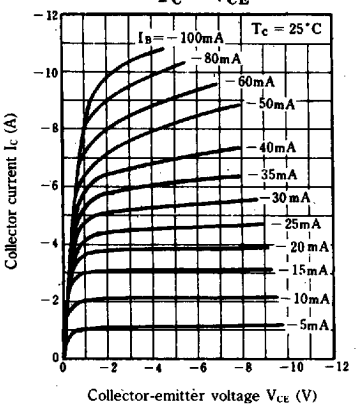
*h_{FE2} Classifications

Class	R	Q	P
h_{FE2}	60～120	90～180	130～260

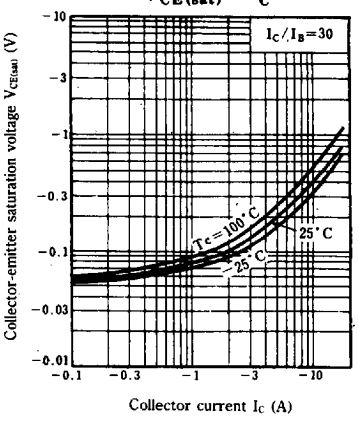
$P_C - Ta$



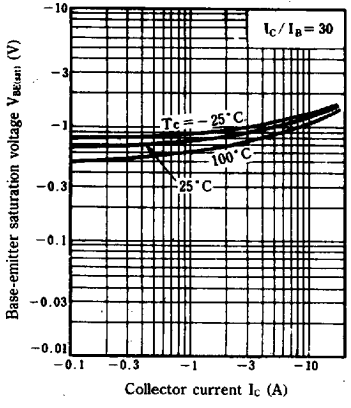
$I_C - V_{CE}$



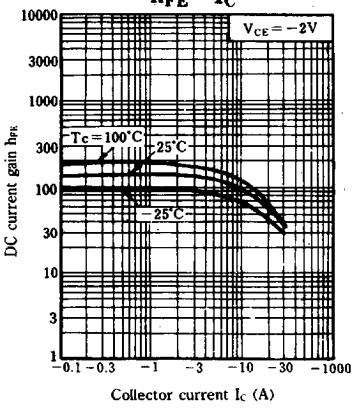
$V_{CE(sat)} - I_C$



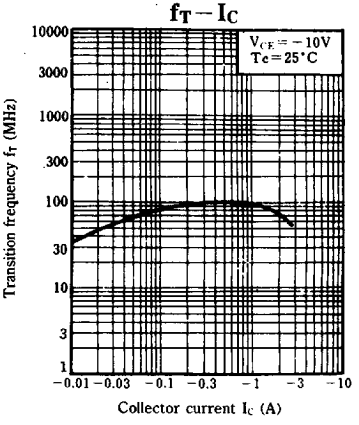
$V_{BE(sat)} - I_C$



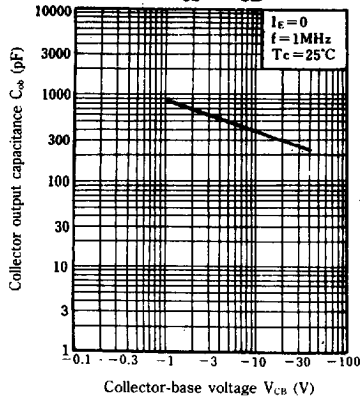
$h_{FE} - I_C$



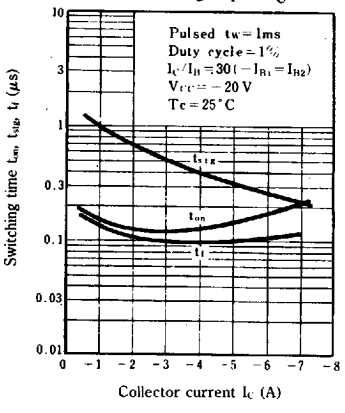
$f_T - I_C$



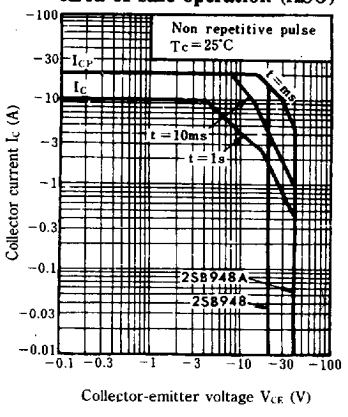
$C_{ob} - V_{CB}$



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



Area of safe operation (ASO)



Note) Refer to P.198 (on 2SB951/A) for $R_{th(t)} - t$ characteristics.