

2SB1156

Silicon PNP epitaxial planar type

For power switching

Complementary to 2SD1707

■ Features

- Low collector to emitter saturation voltage $V_{CE(sat)}$
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Large collector current I_C
- Full-pack package which can be installed to the heat sink with one screw

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

Parameter	Symbol	Rating	Unit	
Collector to base voltage	V_{CBO}	-130	V	
Collector to emitter voltage	V_{CEO}	-80	V	
Emitter to base voltage	V_{EBO}	-7	V	
Peak collector current	I_{CP}	-30	A	
Collector current	I_C	-20	A	
Collector power dissipation	P_C	$T_C = 25^\circ\text{C}$	100	W
		$T_a = 25^\circ\text{C}$	3	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$	

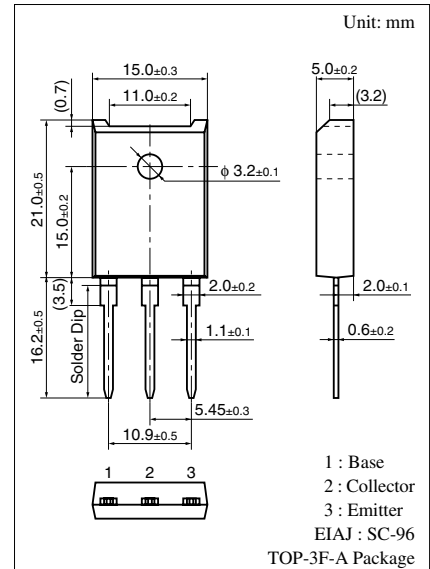
■ Electrical Characteristics $T_C = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = -100\text{ V}, I_E = 0$			-10	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = -5\text{ V}, I_C = 0$			-50	μA
Collector to emitter voltage	V_{CEO}	$I_C = -10\text{ mA}, I_B = 0$	-80			V
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	
	h_{FE3}	$V_{CE} = -2\text{ V}, I_C = -10\text{ A}$	30			
Collector to emitter saturation voltage	$V_{CE(sat)1}$	$I_C = -8\text{ A}, I_B = -0.4\text{ A}$			-0.5	V
	$V_{CE(sat)2}$	$I_C = -20\text{ A}, I_B = -2\text{ A}$			-1.5	V
Base to emitter saturation voltage	$V_{BE(sat)1}$	$I_C = -8\text{ A}, I_B = -0.4\text{ A}$			-1.5	V
	$V_{BE(sat)2}$	$I_C = -20\text{ A}, I_B = -2\text{ A}$			-2.5	V
Transition frequency	f_T	$V_{CE} = -10\text{ V}, I_C = -0.5\text{ A}, f = 10\text{ MHz}$		25		MHz
Turn-on time	t_{on}	$I_C = -3\text{ A}, I_{B1} = -0.8\text{ A}, I_{B2} = 0.8\text{ A}$		0.5		μs
Storage time	t_{stg}	$V_{CC} = -50\text{ V}$		1.2		μs
Fall time	t_f			0.2		μs

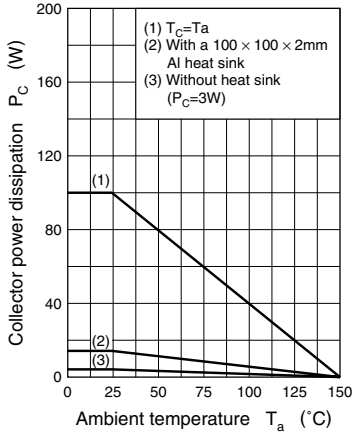
Note) *: Rank classification

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

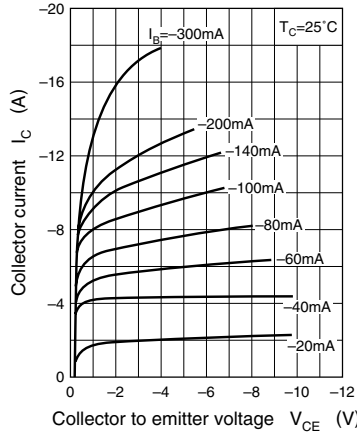
Ordering can be made by the common rank (PQ rank $h_{FE2} = 90$ to 260) in the rank classification.



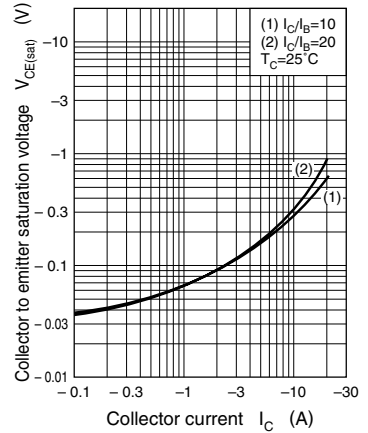
$P_C - T_a$



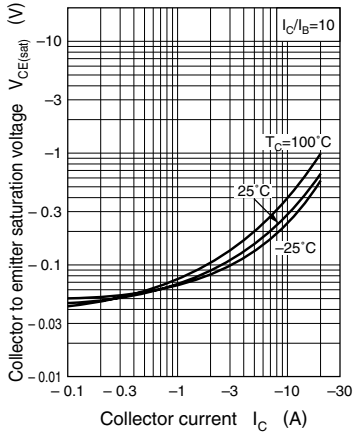
$I_C - V_{CE}$



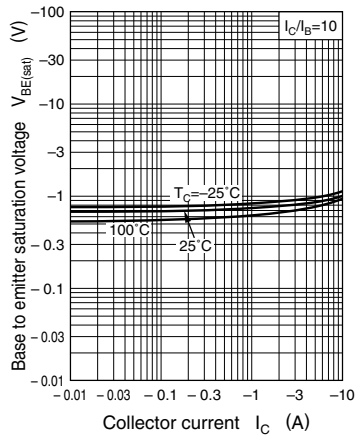
$V_{CE(sta)} - I_C$



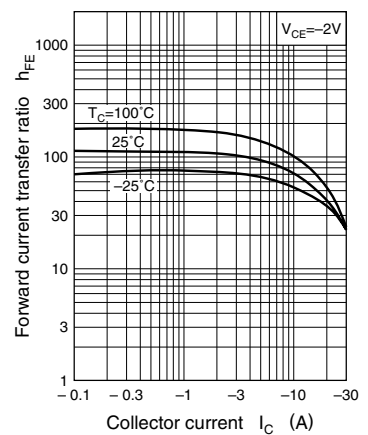
$V_{CE(sat)} - I_C$



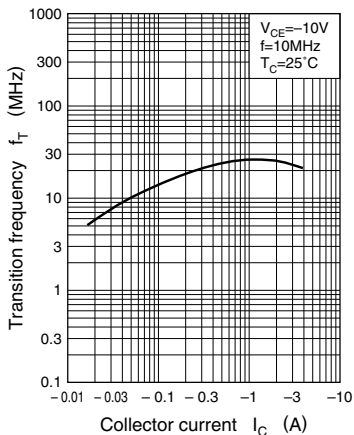
$V_{BE(sat)} - I_C$



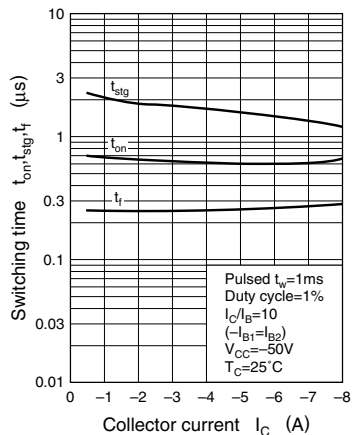
$h_{FE} - I_C$



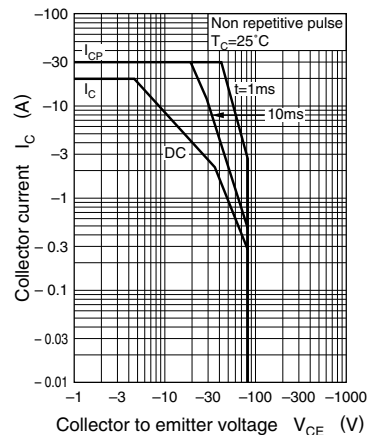
$f_T - I_C$

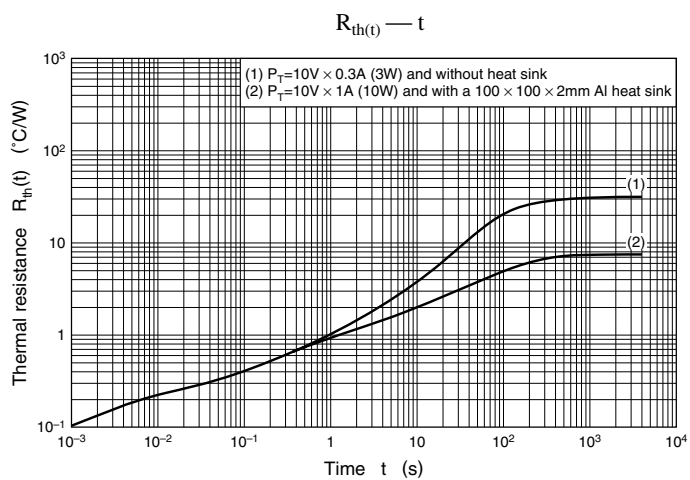


$t_{on}, t_{stg}, t_f - I_C$



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