2SB0947 (2SB947), 2SB0947A (2SB947A)

Silicon PNP epitaxial planar type

For low-voltage switcing

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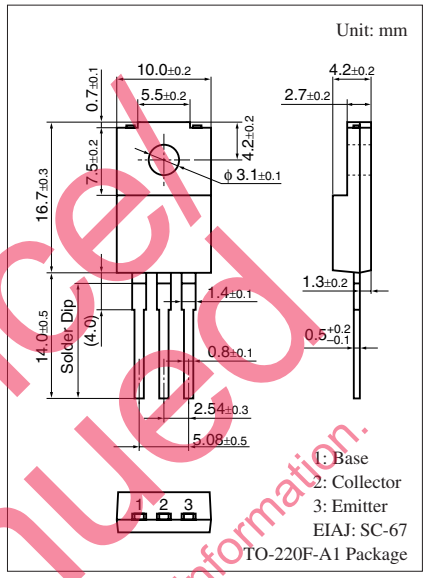
■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- High-speed switching
- Full-pack package which can be installed to the heat sink with one screw



■ Absolute Maximum Ratings $T_C = 25°C$

Parameter		Symbol	Rating	Unit
Collector-base voltage (Emitter open)	2SB0947	V_{CBO}	−40	V
	2SB0947A		−50	
Collector-emitter voltage (Base open)	2SB0947	V_{CEO}	−20	V
	2SB0947A		−40	
Emitter-base voltage (Collector open)		V_{EBO}	−5	V
Collector current		I_C	−10	A
Peak collector current		I_{CP}	−15	A
Collector power dissipation	$T_a = 25°C$	P_C	35	W
			2	
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

■ Electrical Characteristics $T_C = 25°C \pm 3°C$

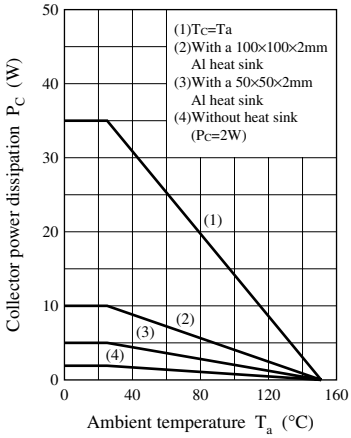
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	2SB0947	V_{CEO}	$I_C = -10$ mA, $I_B = 0$	−20			V
	2SB0947A			−40			
Collector-base cutoff current (Emitter open)	2SB0947	I_{CBO}	$V_{CB} = -40$ V, $I_E = 0$			−50	μA
	2SB0947A		$V_{CB} = -50$ V, $I_E = 0$			−50	
Emitter-base cutoff current (Collector open)		I_{EBO}	$V_{EB} = -5$ V, $I_C = 0$			−50	μA
Forward current transfer ratio		h_{FE1}	$V_{CE} = -2$ V, $I_C = -0.1$ A	45			—
		h_{FE2} *	$V_{CE} = -2$ V, $I_C = -2$ A	60		260	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -7$ A, $I_B = -0.23$ A			− 0.6	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = -7$ A, $I_B = -0.23$ A			−1.5	V
Transition frequency		f_T	$V_{CE} = -10$ V, $I_C = -0.5$ A, f = 10 MHz		150		MHz
Collector output capacitance (Common base, input open circuited)		C_{ob}	$V_{CB} = -10$ V, $I_E = 0$, f = 1 MHz		200		pF
Turn-on time		t_{on}	$I_C = -2$ A, $I_{B1} = -66$ mA, $I_{B2} = 66$ mA		0.1		μs
Storage time		t_{stg}	$V_{CC} = -20$ V		0.5		μs
Fall time		t_f			0.1		μs

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. *: Rank classification

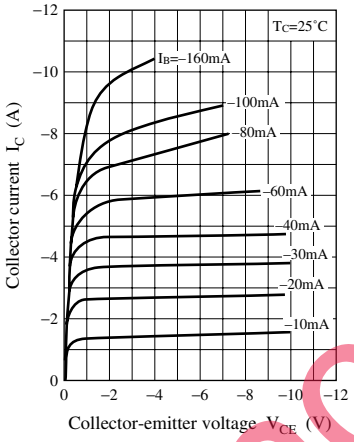
Rank	R	Q	P
h_{FE2}	60 to 120	90 to 180	130 to 260

Note) The part numbers in the parenthesis show conventional part number.

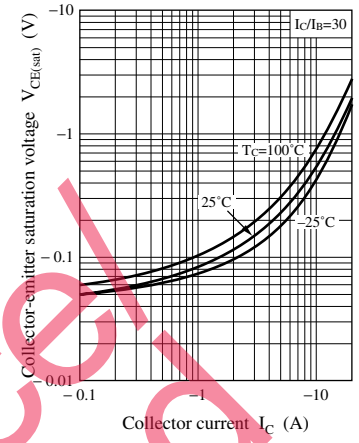
P_C — T_a



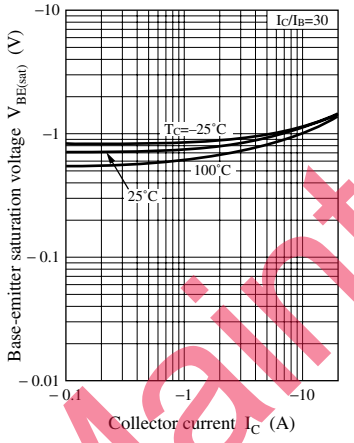
I_C — V_{CE}



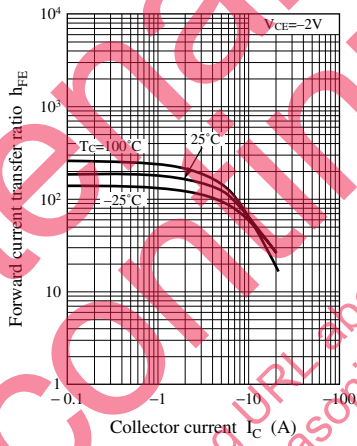
$V_{CE(sat)}$ — I_C



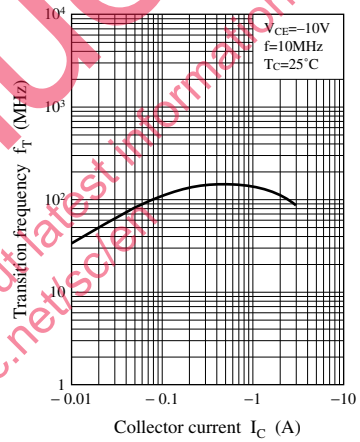
$V_{BE(sat)}$ — I_C



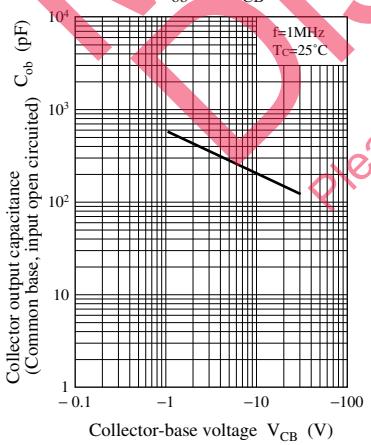
h_{FE} — I_C



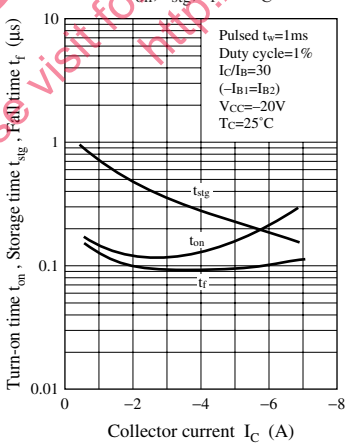
f_T — I_C



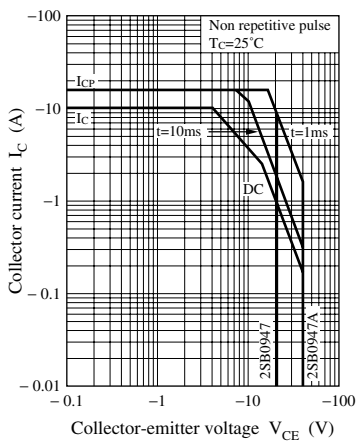
C_{ob} — V_{CB}



t_{on}, t_{stg}, t_f — I_C



Safe operation area



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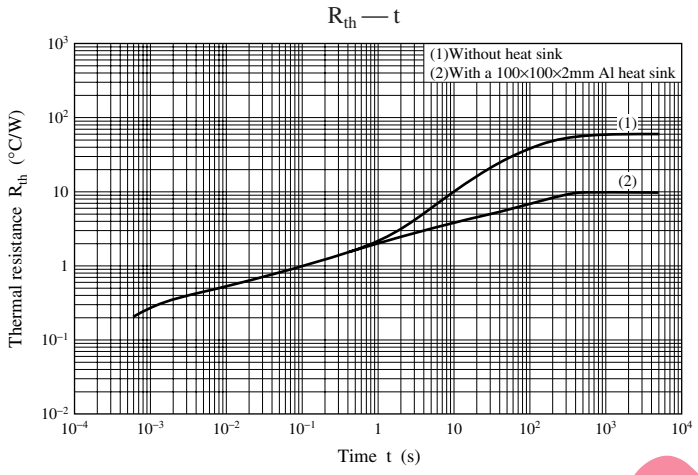

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