

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

## Silicon PNP epitaxial planar type

For low-voltage switching

### ■ 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 $T_C = 25^\circ\text{C}$

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	$P_C$	35	W	
dissipation	$T_a = 25^\circ\text{C}$	2		
Junction temperature	$T_j$	150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$	

### ■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

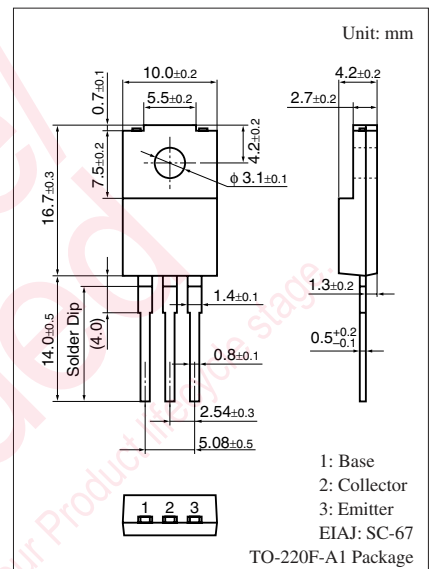
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	2SB0947	$I_C = -10\text{ mA}, I_B = 0$	-20			V
	2SB0947A		-40			
Collector-base cutoff current (Emitter open)	2SB0947	$V_{CB} = -40\text{ V}, I_E = 0$			-50	$\mu\text{A}$
	2SB0947A	$V_{CB} = -50\text{ V}, I_E = 0$			-50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

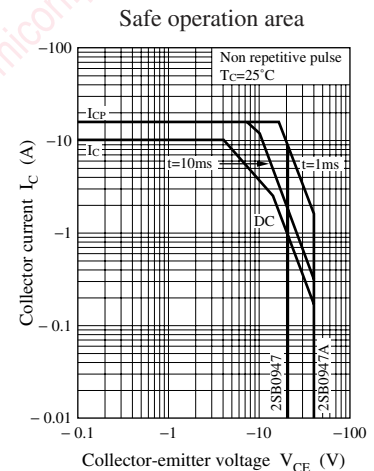
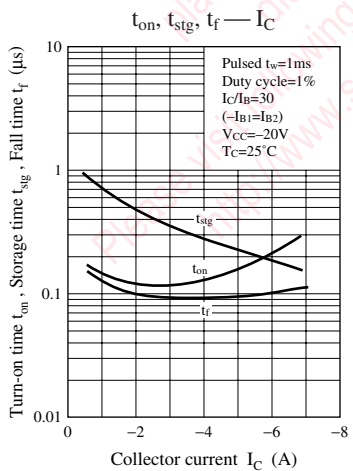
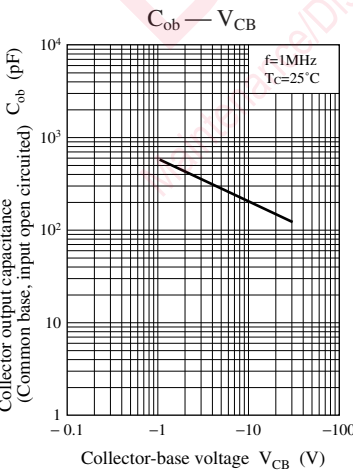
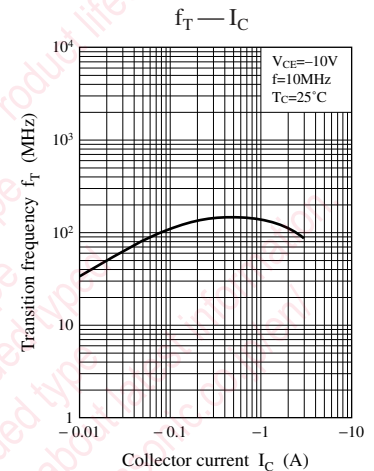
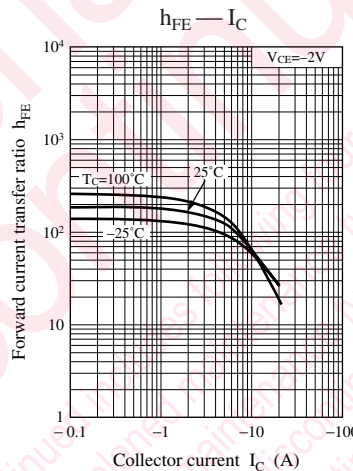
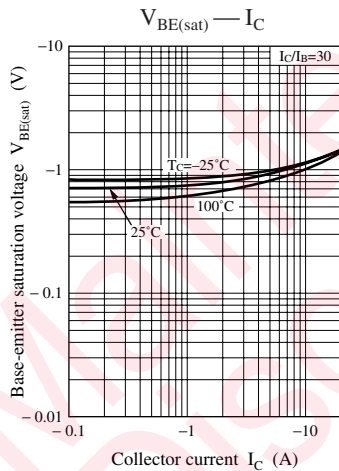
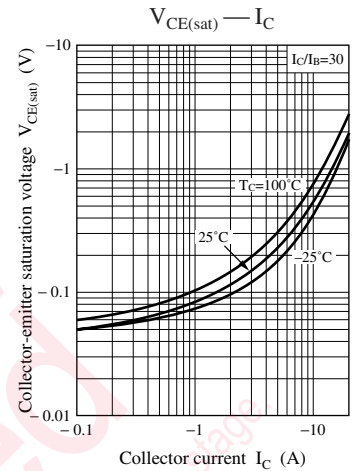
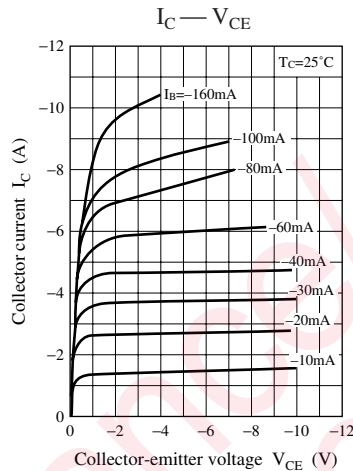
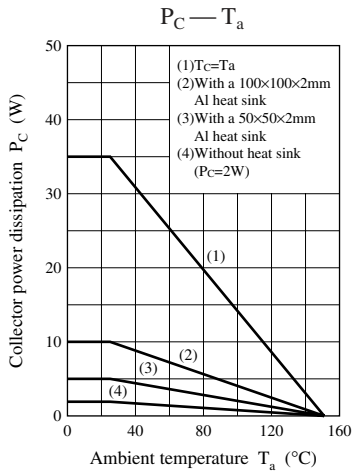
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

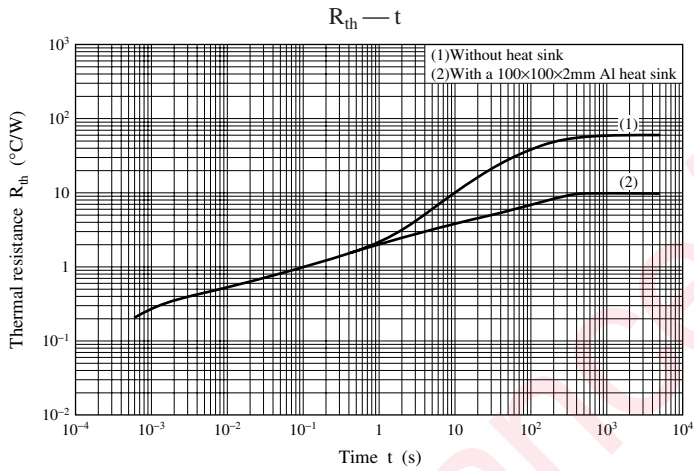
2. \*: Rank classification

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.







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