



SANYO Semiconductors

## DATA SHEET

# 2SB1449 / 2SD2198 — PNP / NPN Epitaxial Planar Silicon Transistors

## High-Current Switching Applications

### Features

- Surface mount type device making the following possible.
  - Reduction in the number of manufacturing processes for 2SB1449/2SD2198-applied equipment.
  - High density surface mount applications.
  - Small size of 2SB1449/2SD2198-applied equipment.
- Low collector-to-emitter saturation voltage.

### Specifications ( ) : 2SB1449

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		(-)60	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		(-)50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		(-)6	V
Collector Current	I <sub>C</sub>		(-)5	A
Collector Current (Pulse)	I <sub>CP</sub>		(-)9	A
Collector Dissipation	P <sub>C</sub>		1.65	W
		T <sub>c</sub> =25°C	30	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =(-)40V, I <sub>E</sub> =0A			(-)0.1	mA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0A			(-)0.1	mA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)1A	70*		280*	
	h <sub>FE2</sub>	V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)3A	30			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)1A		30		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =(-)10V, f=1MHz		(160)100		pF

Continued on next page.

\* : The 2SBB1449 / 2SD2198 are classified by 1A h<sub>FE</sub> as follows :

Rank	Q	R	S
h <sub>FE</sub>	70 to 140	100 to 200	140 to 280

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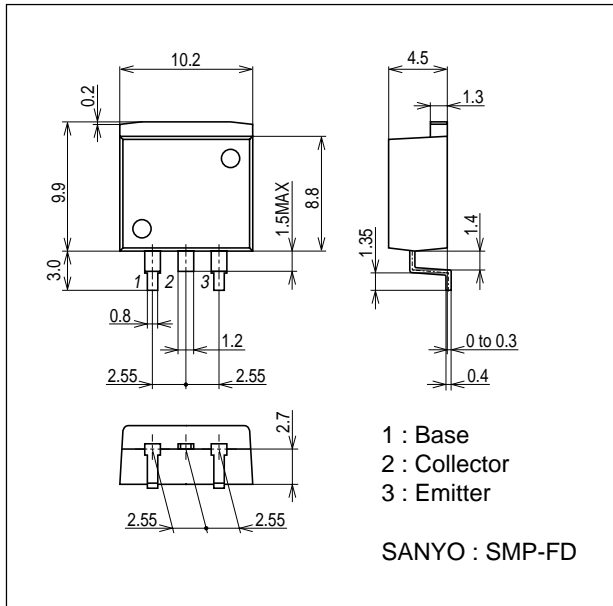
# 2SB1449 / 2SD2198

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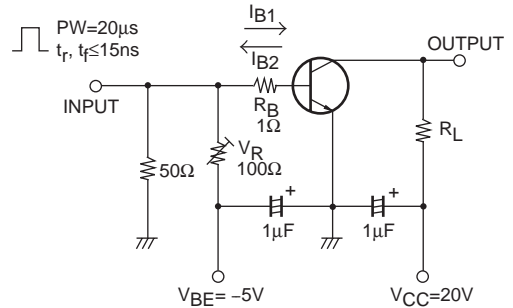
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)3A, I_B=(-)0.3A$			(-)0.4	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)1mA, I_E=0A$	(-)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)1mA, I_C=0A$	(-)6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		0.1		$\mu s$
Storage Time	$t_{stg}$	See specified Test Circuit.		(0.7)1.4		$\mu s$
Fall Time	$t_f$	See specified Test Circuit.		0.2		$\mu s$

## Package Dimensions

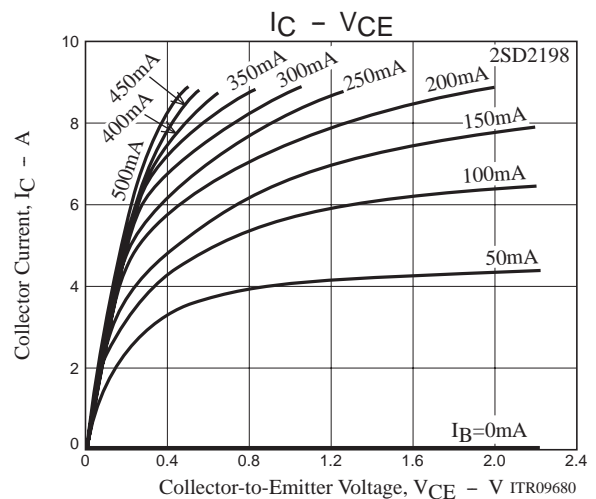
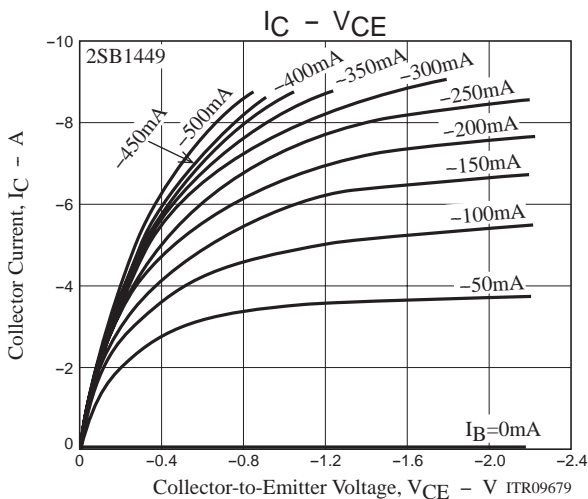
unit : mm (typ)  
7001-002



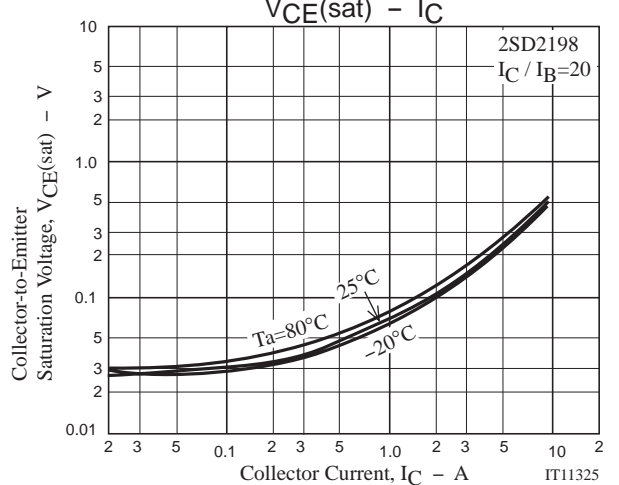
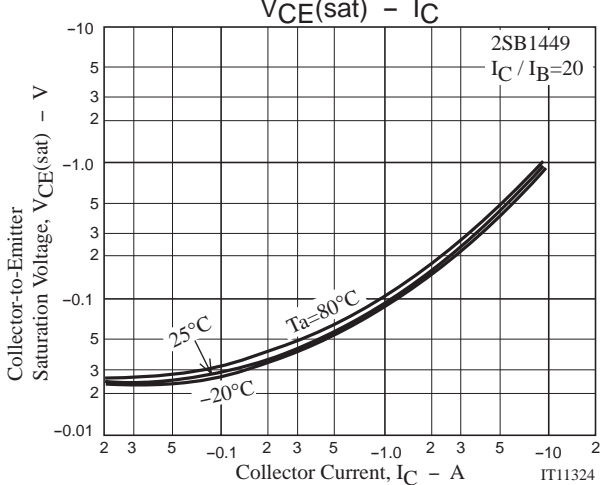
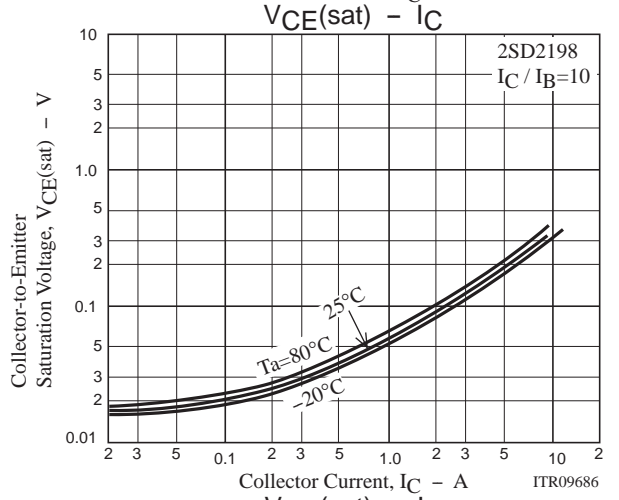
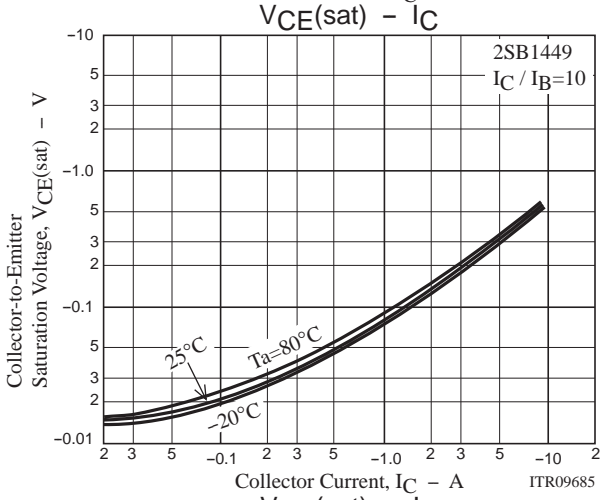
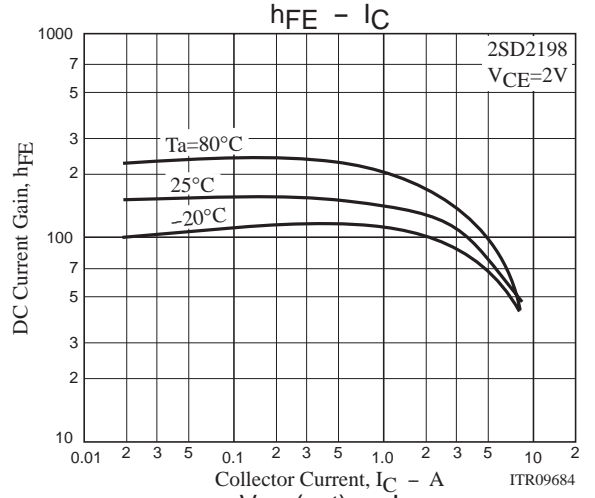
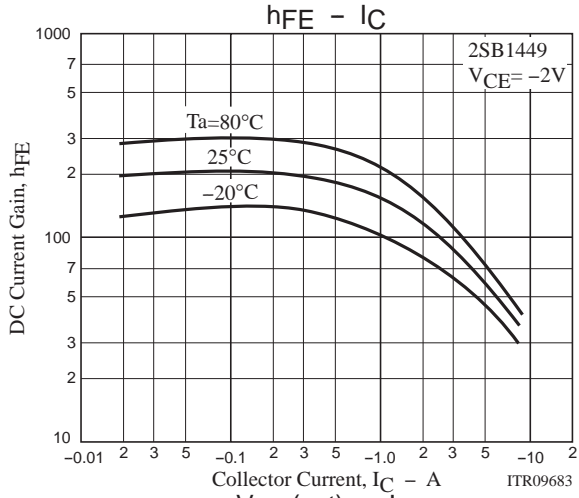
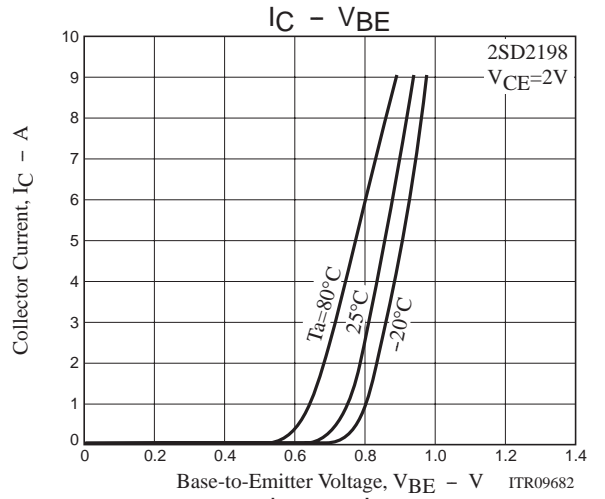
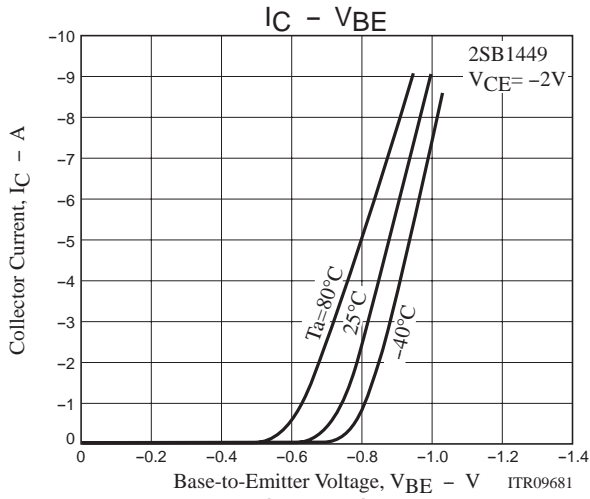
## Switching Time Test Circuit



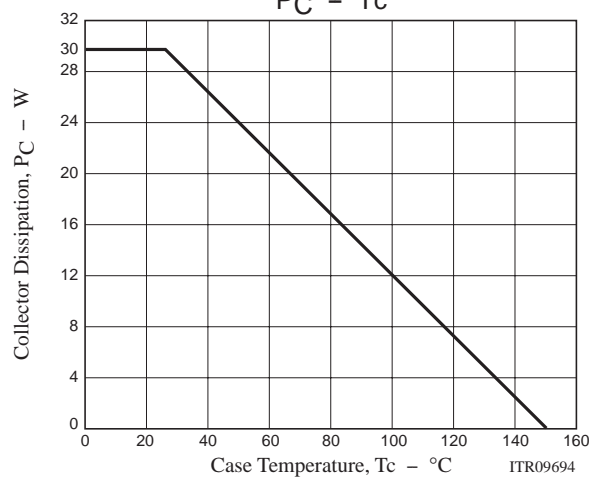
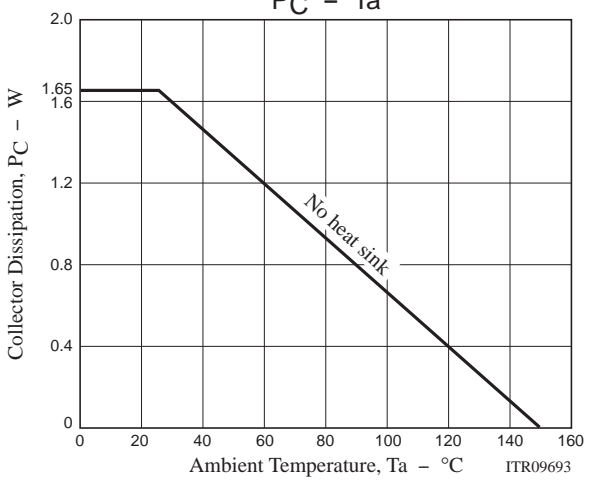
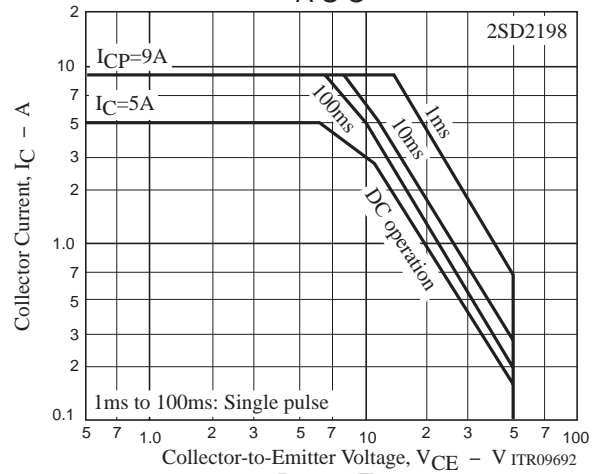
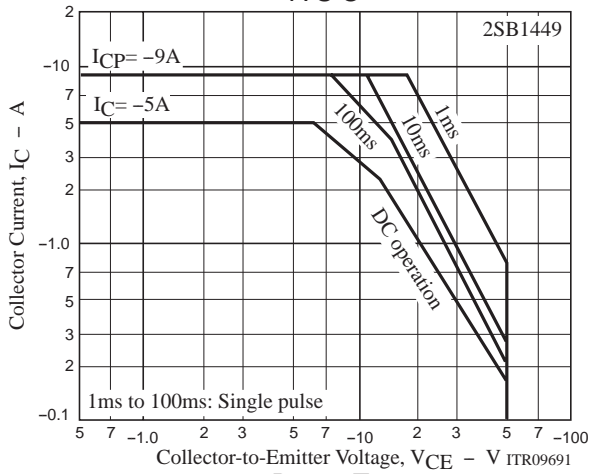
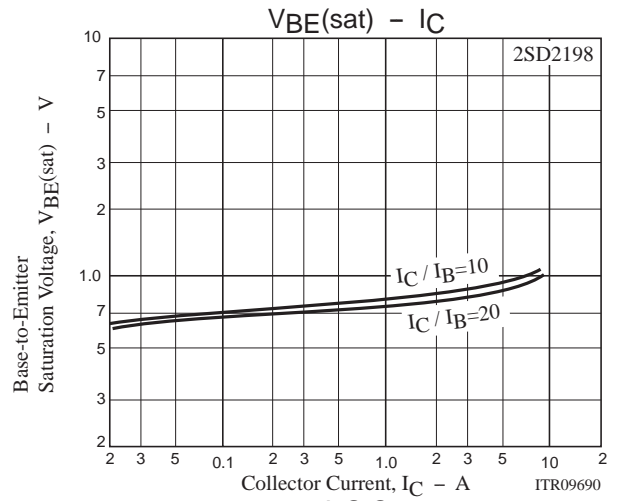
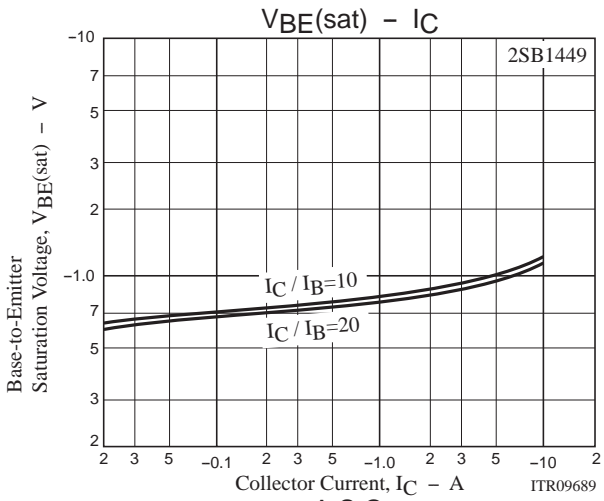
$10I_{B1} = -10I_{B2} = I_C = 2A$   
For PNP, the polarity is reversed.



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