



SANYO Semiconductors

DATA SHEET

2SA1507 / 2SC3902 — PNP / NPN Epitaxial Planar Silicon Transistors

160V / 1.5A Switching Applications

Applications

- Color TV audio output, converters, inverters.

Features

- High breakdown voltage.
- Large current capacity.
- Adoption of FBET and MBIT process.
- The plastic-covered heat sink eliminates the need for an insulator when mounting the 2SA1507/2SC3902.

Specifications () : 2SA1507

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		(-)180	V
Collector-to-Emitter Voltage	V _{CEO}		(-)160	V
Emitter-to-Base Voltage	V _{EBO}		(-)6	V
Collector Current	I _C		(-)1.5	A
Collector Current (Pulse)	I _{CP}		(-)2.5	A
Collector Dissipation	P _C		1.5	W
		T _c =25°C	10	W
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CBO}	V _{CB} =(-)120V, I _E =0A			(-)1.0	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} =(-)4V, I _C =0A			(-)1.0	μA

Continued on next page.

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2SA1507 / 2SC3902

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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	hFE1	$V_{CE}=(-)5V, I_C=(-)100mA$	100*		400*	
	hFE2	$V_{CE}=(-)5V, I_C=(-)10mA$	90			
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)50mA$		120		MHz
Output Capacitance	Cob	$V_{CB}=(-)10V, f=1MHz$		(22)14		pF
Collector-to-Emitter Saturation Voltage	$V_{CE}(sat)$	$I_C=(-)500mA, I_B=(-)50mA$		(-0.2)0.13	(-0.5)0.45	V
Base-to-Emitter Saturation Voltage	$V_{BE}(sat)$	$I_C=(-)500mA, I_B=(-)50mA$		(-0.85)	(-1.2)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0A$	(-180)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-160)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0A$	(-6)			V
Turn-On Time	t_{on}	See specified Test Circuit.		(0.7)0.04		μs
Storage Time	t_{stg}	See specified Test Circuit.		(0.7)1.2		μs
Fall Time	t_f	See specified Test Circuit.		(0.04)0.08		μs

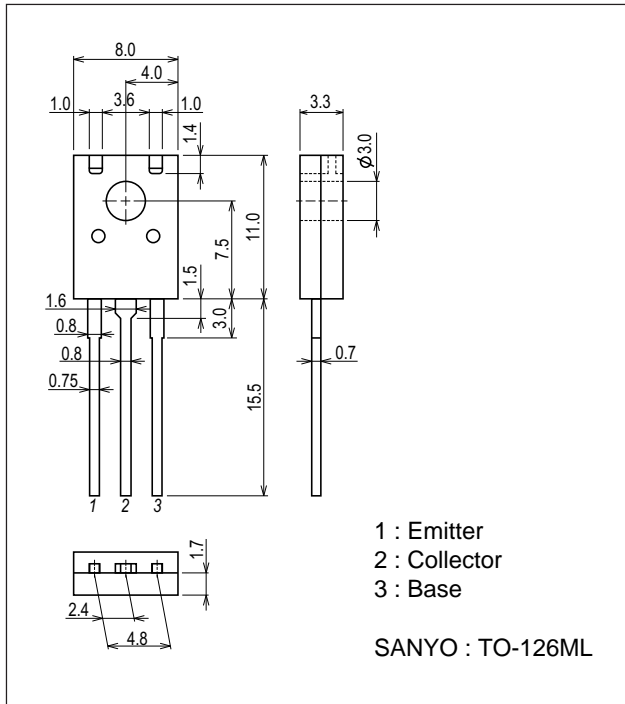
*: The 2SA1507 / 2SC3902 are classified by 100mA hFE as follows:

Rank	R	S	T
hFE	100 to 200	140 to 280	200 to 400

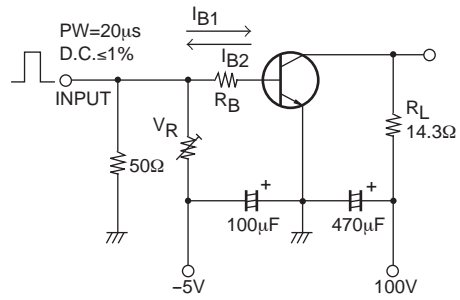
Package Dimensions

unit : mm (typ)

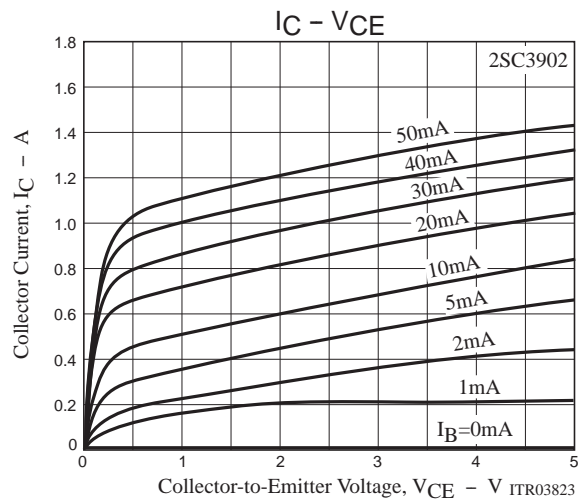
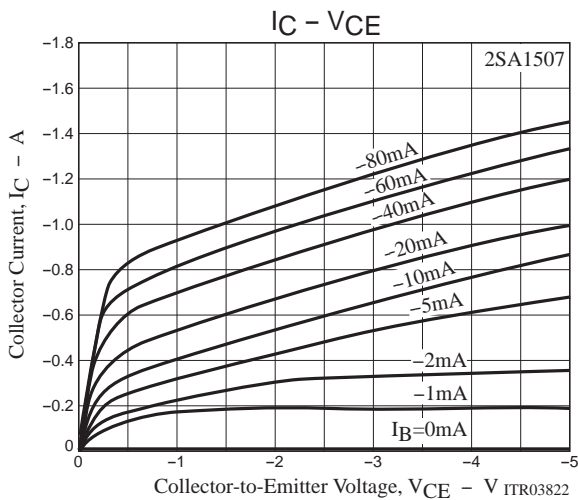
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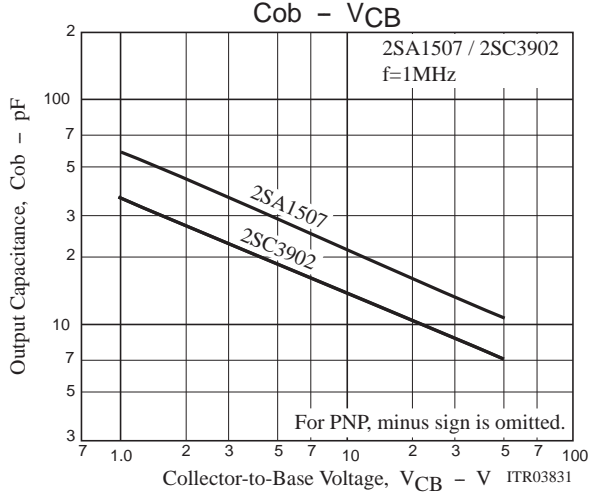
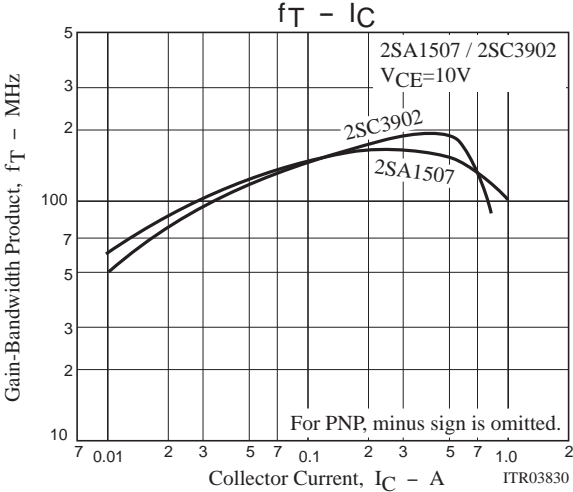
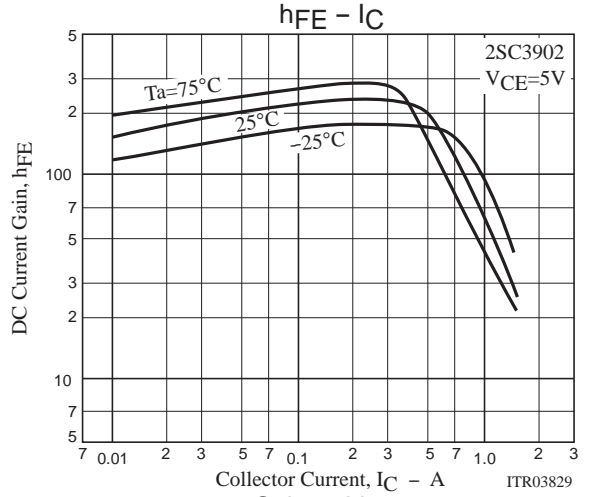
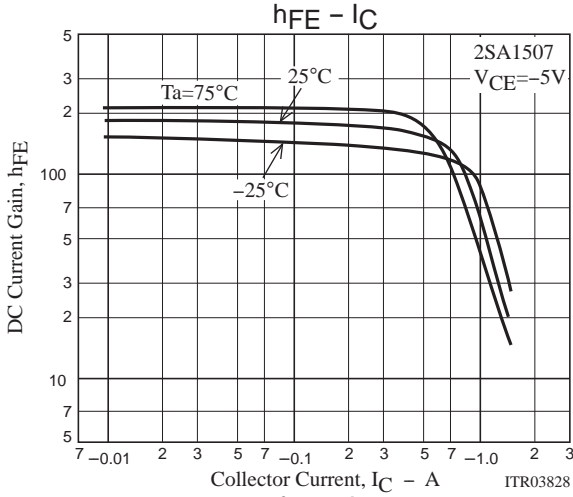
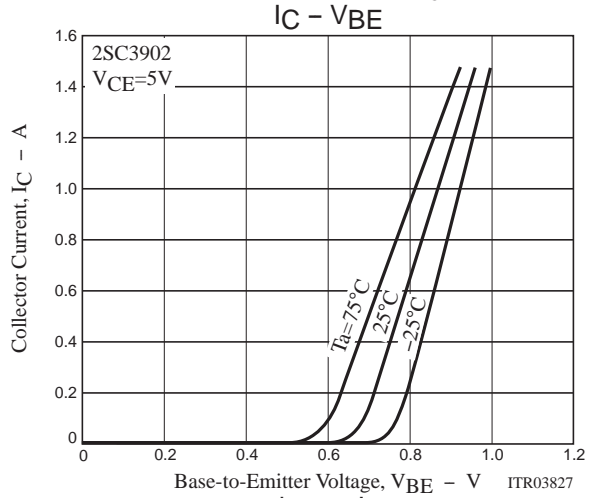
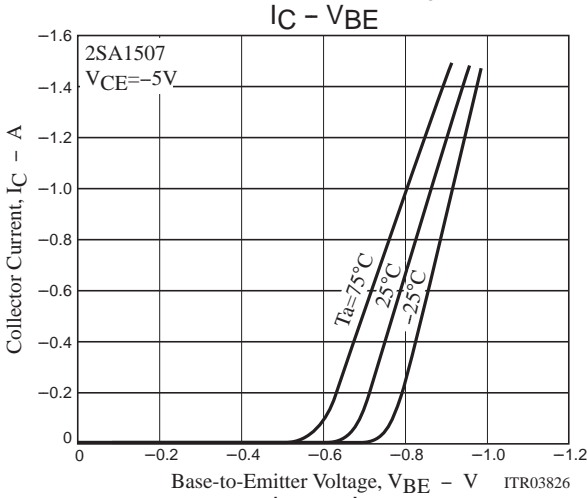
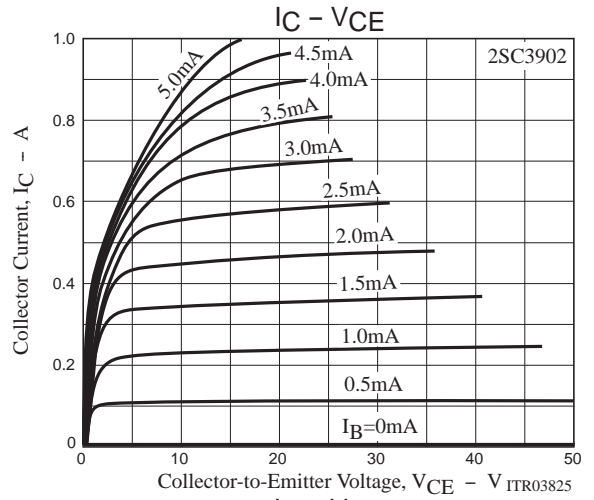
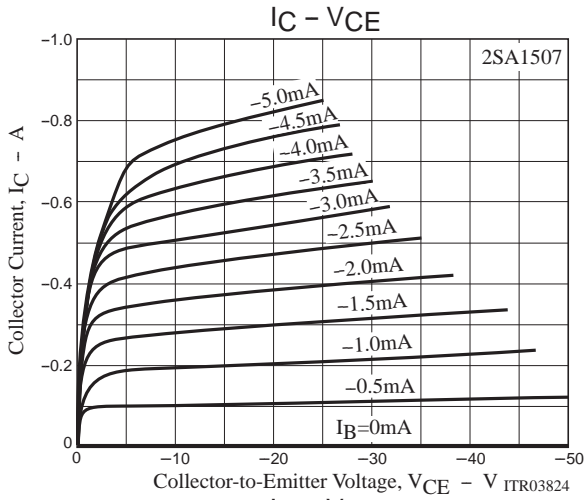
Switching Time Test Circuit



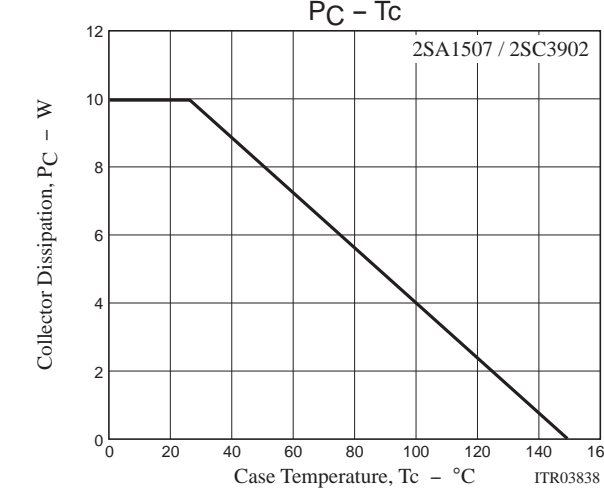
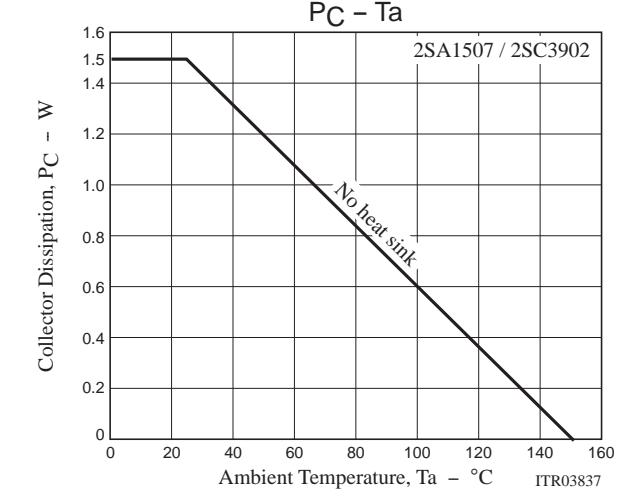
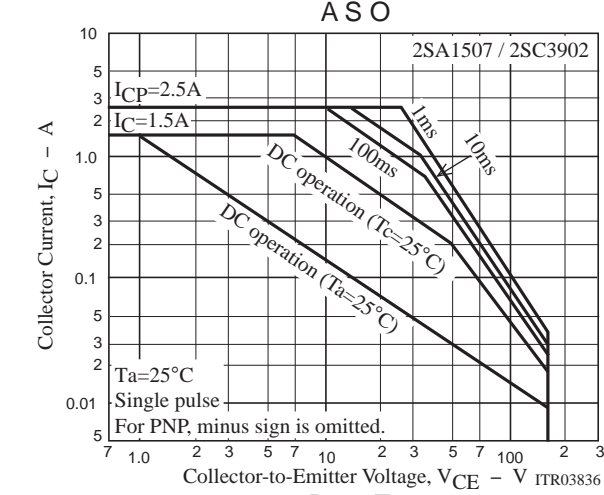
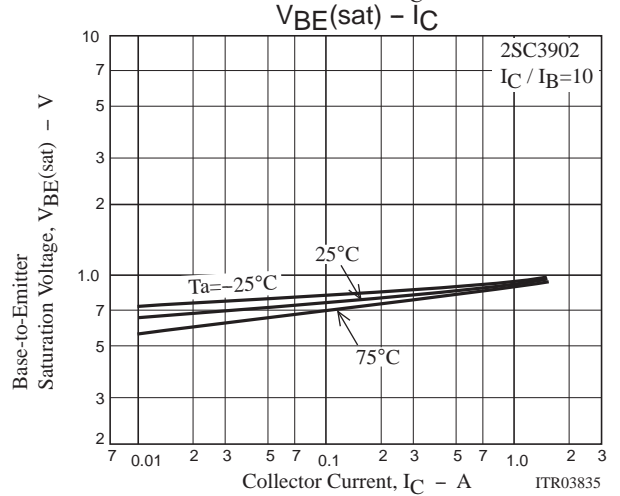
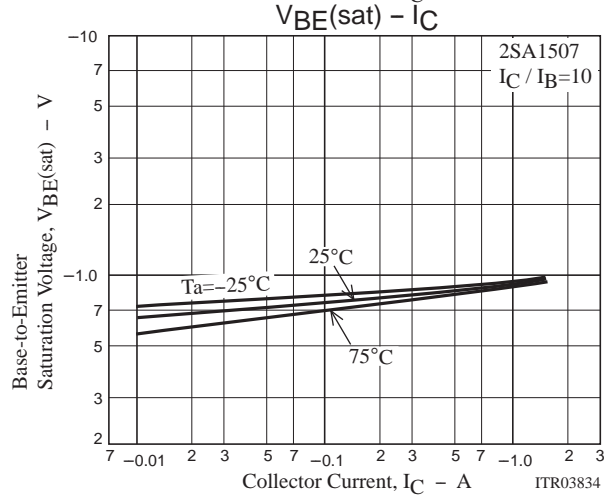
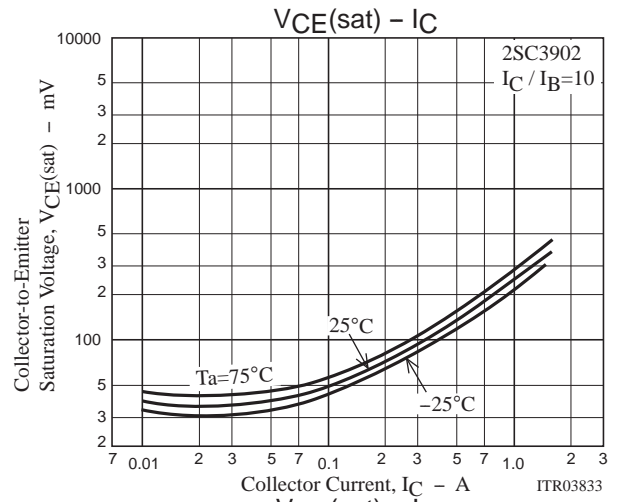
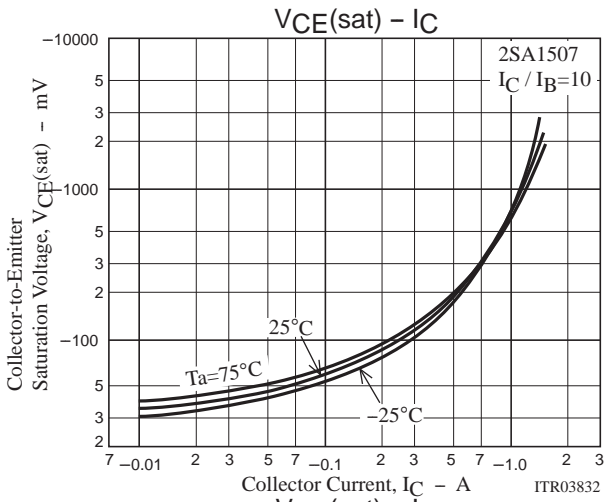
$I_C = 10I_{B1} = -10I_{B2} = 0.7A$
(For PNP, the polarity is reversed.)



2SA1507 / 2SC3902



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