



# 2SA1507/2SC3902

## 160V/1.5A Switching Applications

### Applications

- Color TV audio output, converters, inverters.

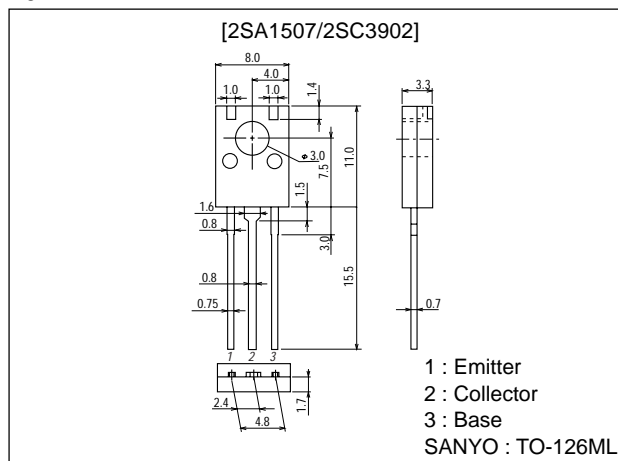
### Features

- 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.

### Package Dimensions

unit:mm

2042B



( ) : 2SA1507

### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		(-)180	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		(-)160	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		(-)6	V
Collector Current	I <sub>C</sub>		(-)1.5	A
Peak Collector Current	I <sub>CP</sub>		(-)2.5	A
Collector Dissipation	P <sub>C</sub>		1.5	W
		T <sub>C</sub> =25°C	10	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>CB0</sub>	V <sub>CB</sub> =(-)120V, I <sub>E</sub> =0			(-)0.1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0			(-)0.1	μA
DC Current Gain	h <sub>FE1</sub>	V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)10mA	100*		400*	
	h <sub>FE2</sub>	V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)10mA	90			
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =(-)10V, I <sub>C</sub> =(-)50mA		120		MHz

\* ; The 2SA1507/2SC3902 are classified by 100mA h<sub>FE</sub> as follows :

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Rank	R	S	T
h <sub>FE</sub>	100 to 200	140 to 280	200 to 400

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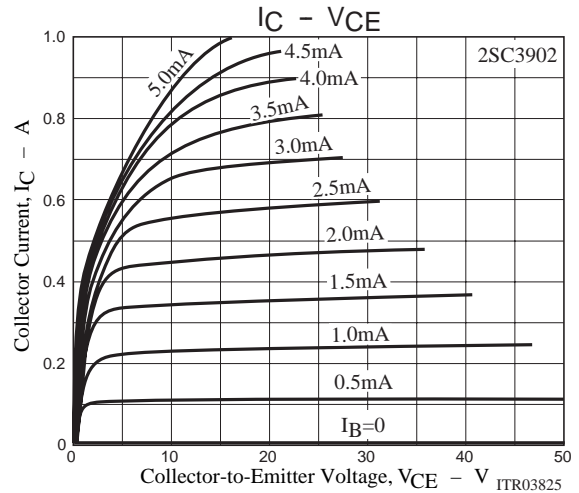
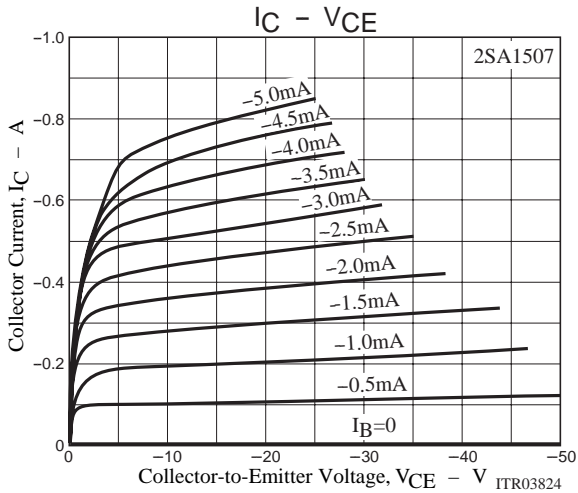
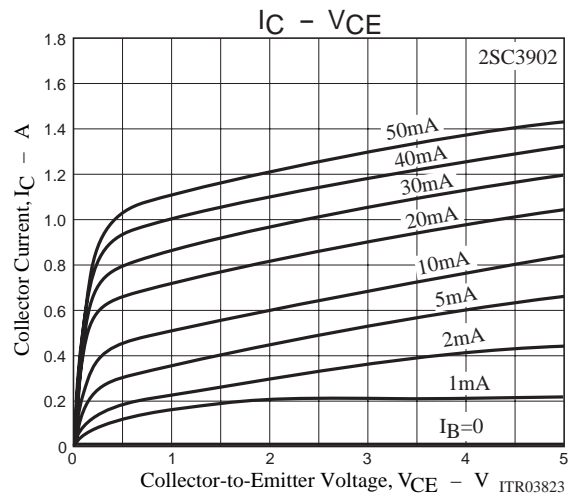
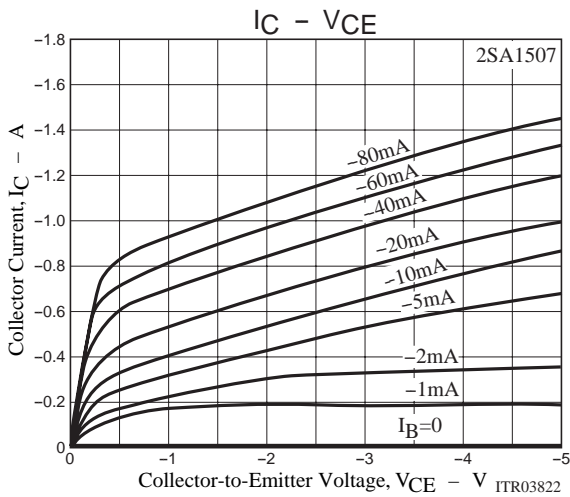
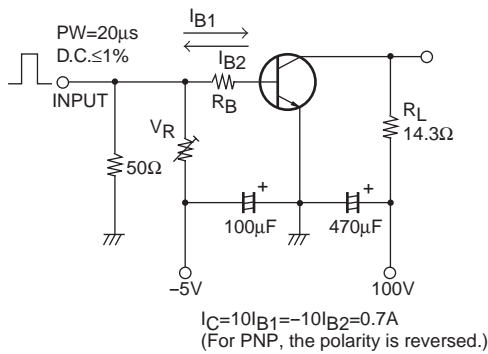
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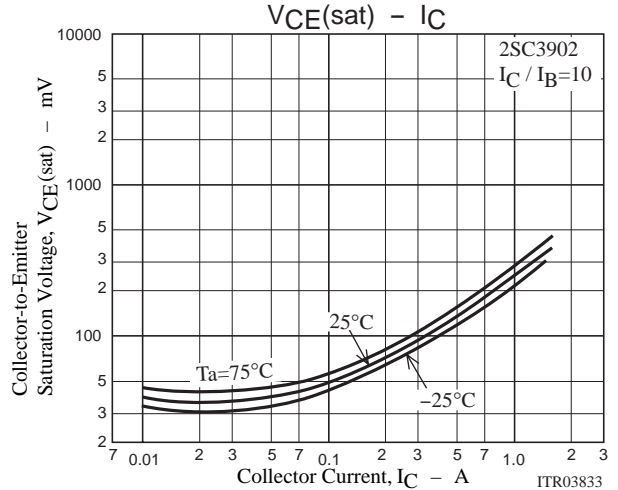
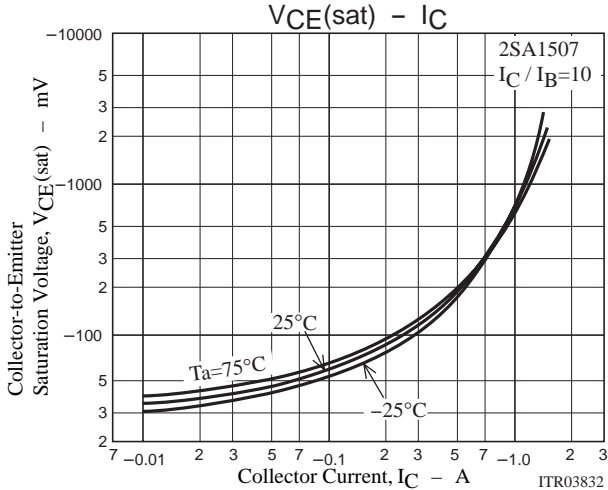
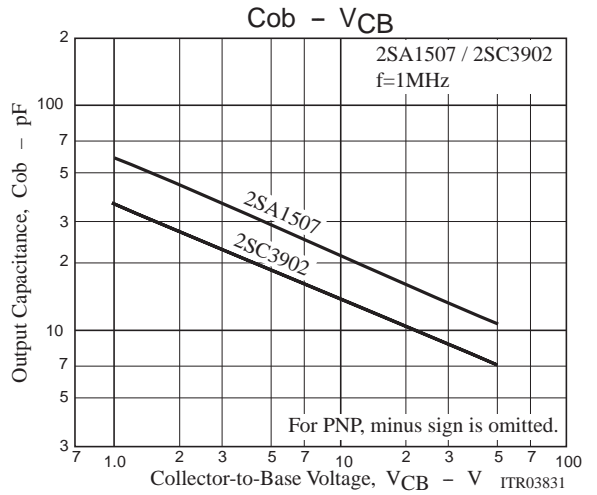
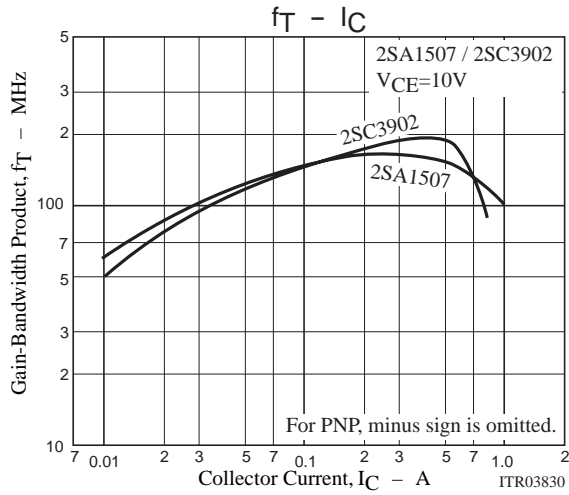
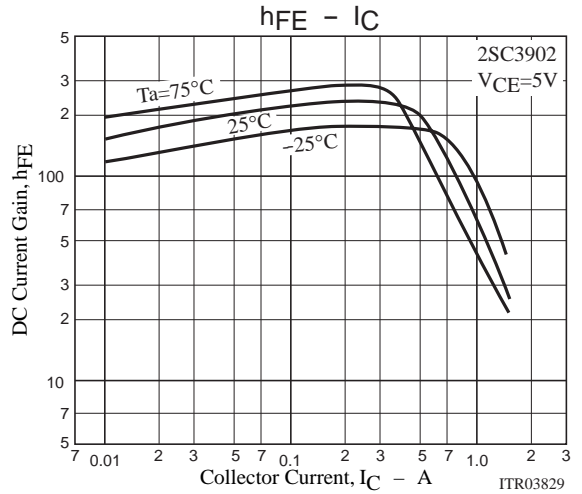
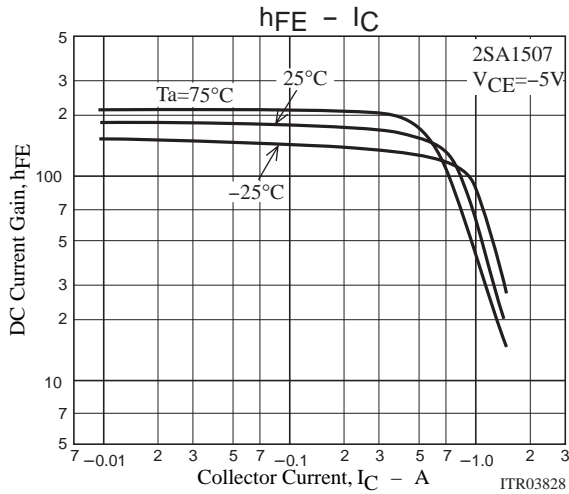
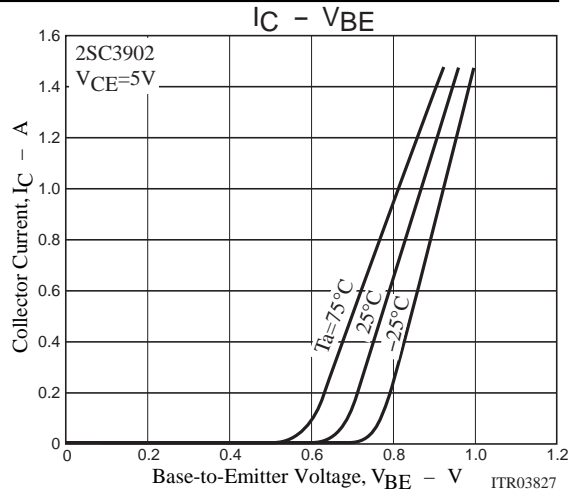
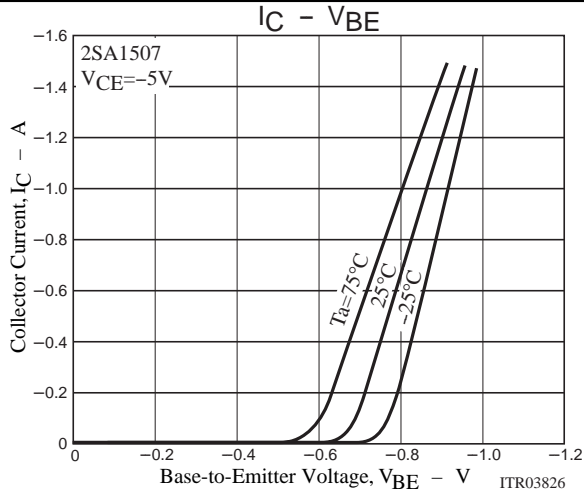
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	$C_{ob}$	$V_{CB}=(-)10V, f=1MHz$		(22)		pF
				14		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)500mA, I_B=(-)50mA$		(-0.2)	(-0.5)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)500mA, I_B=(-)50mA$		0.13	0.45	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-)	180		V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)	160		V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-)	6		V
Turn-ON Time	$t_{on}$	See specified Test Circuit		0.04		$\mu s$
Storage Time	$t_{stg}$	See specified Test Circuit		(0.7)		$\mu s$
				1.2		$\mu s$
Fall Time	$t_f$	See specified Test Circuit		(0.04)		$\mu s$
				0.08		$\mu s$

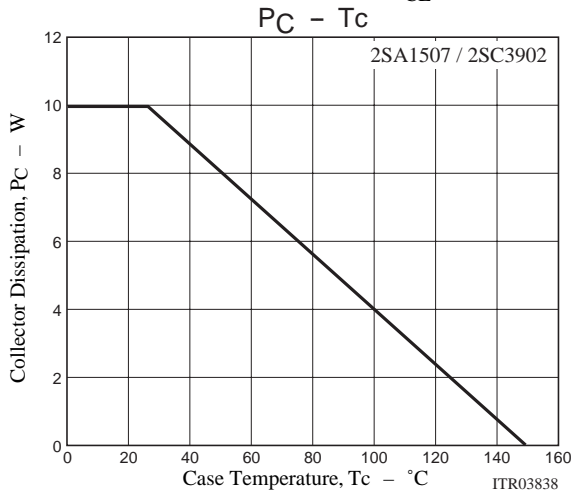
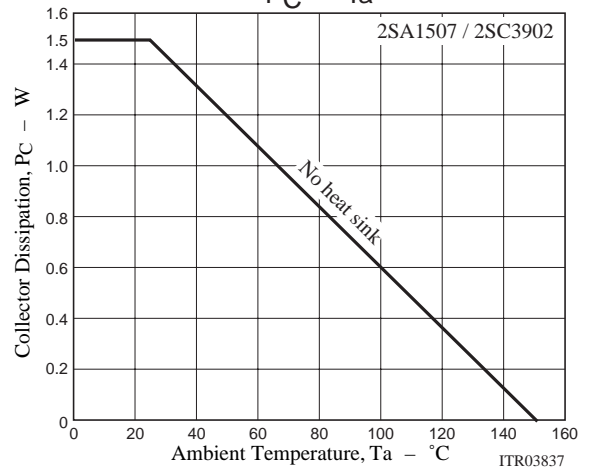
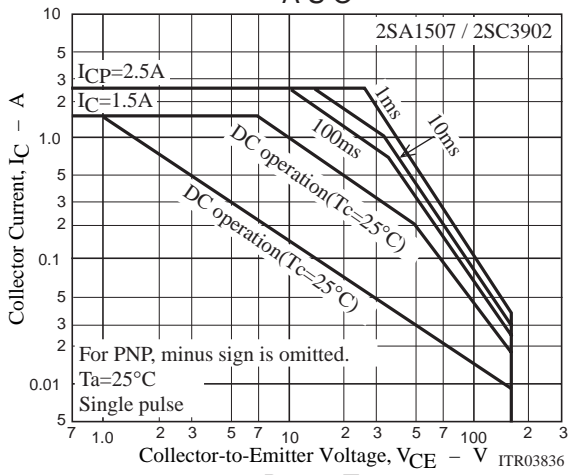
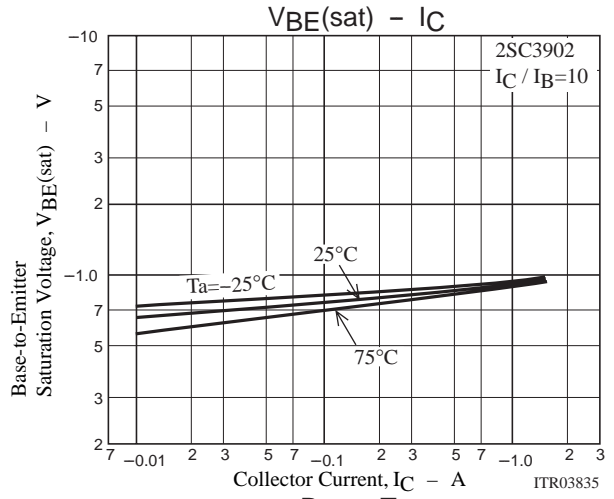
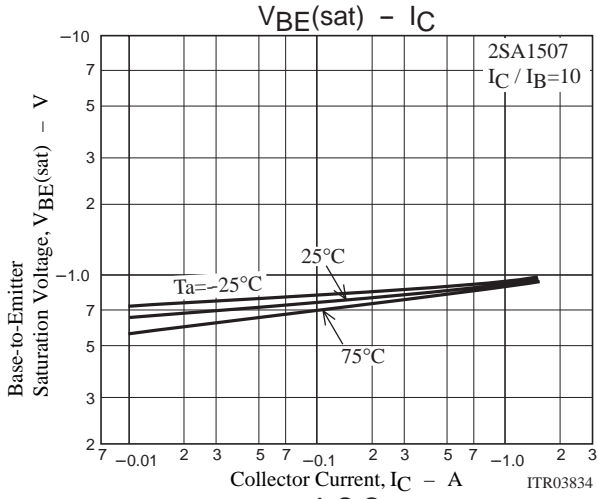
## Switching Time Test Circuit



# 2SA1507/2SC3902



# 2SA1507/2SC3902



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