

**2SA1507/2SC3902****160V/1.5A Switching Applications****Applications**

- Color TV audio output, converters, inverters.

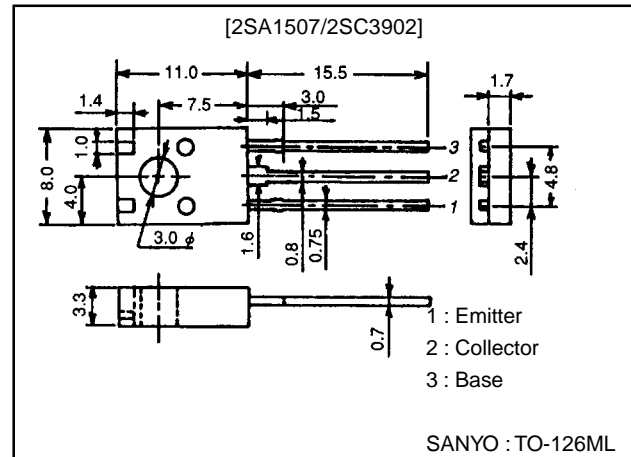
**Features**

- 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	$V_{CB0}$		(-)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
Peak Collector Current	$I_{CP}$		(-)2.5	A
Collector Dissipation	$P_C$	$T_c=25^\circ\text{C}$	1.5	W
			10	W
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-120\text{V}, I_E=0$			(-)0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-4\text{V}, I_C=0$			(-)0.1	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=-5\text{V}, I_C=-10\text{mA}$	100*		400*	
	$h_{FE2}$	$V_{CE}=-5\text{V}, I_C=-10\text{mA}$	90			
Gain-Bandwidth Product	$f_T$	$V_{CE}=-10\text{V}, I_C=-50\text{mA}$		120		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=-10\text{V}, f=1\text{MHz}$		(22)		pF
				14		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$		(-0.2)	(-0.5)	V
				0.13	0.45	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0$	(-)180			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, R_{BE}=\infty$	(-)160			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0$	(-)6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		0.04		$\mu\text{s}$
Storage Time	$t_{stg}$	See specified Test Circuit		(0.7)		$\mu\text{s}$
				1.2		$\mu\text{s}$
Fall Time	$t_f$	See specified Test Circuit		(0.04)		$\mu\text{s}$
				0.08		$\mu\text{s}$

**SANYO Electric Co., Ltd. Semiconductor Business Headquarters**

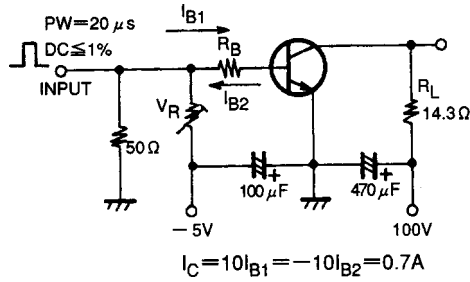
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# 2SA1507/2SC3902

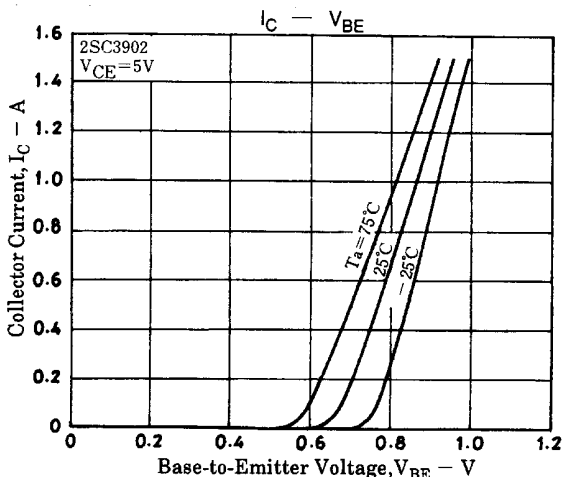
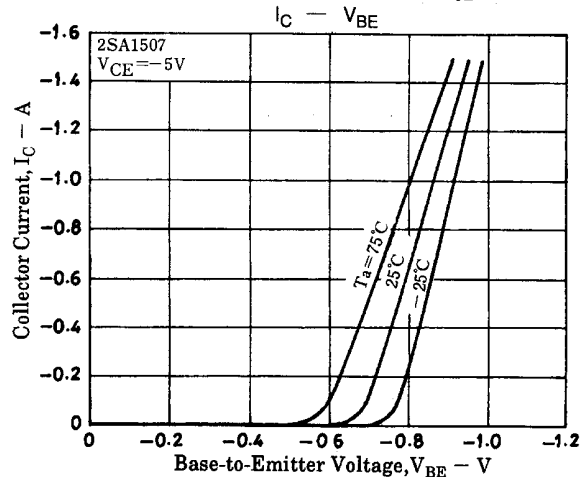
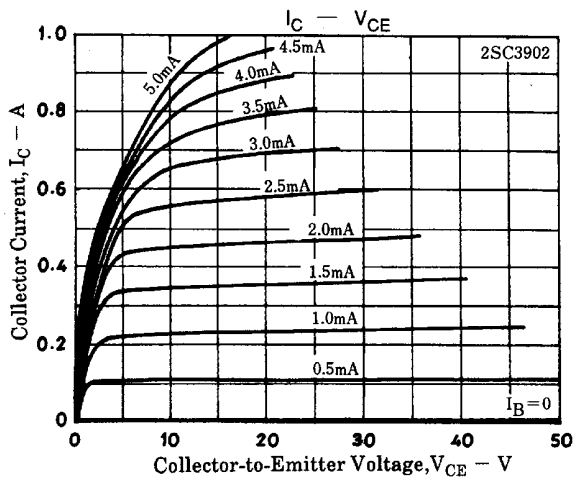
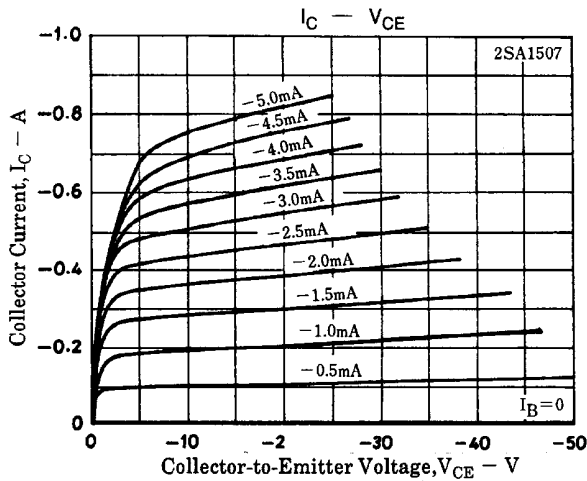
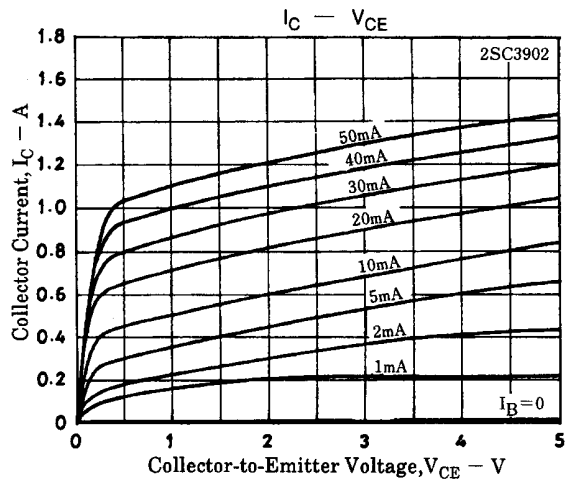
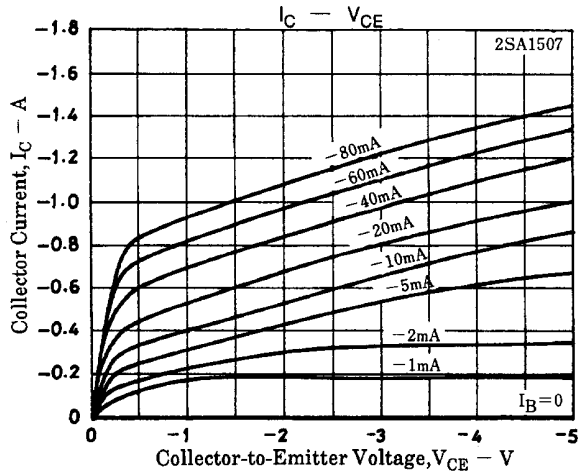
\* ; The 2SA1507/2SC3902 are classified by 100mA  $h_{FE}$  as follows :

100	R	200	140	S	280	200	T	400
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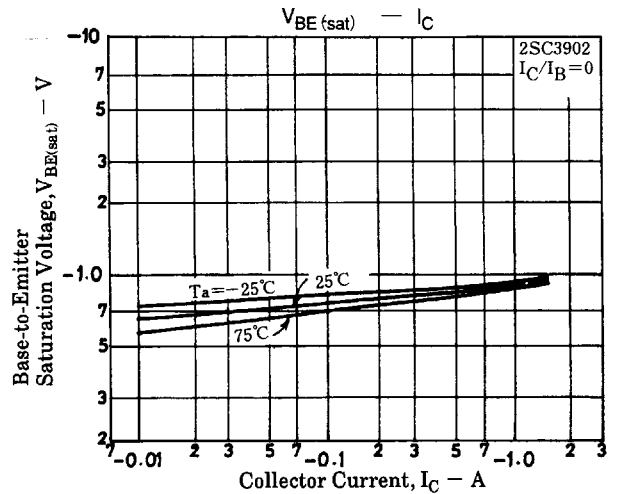
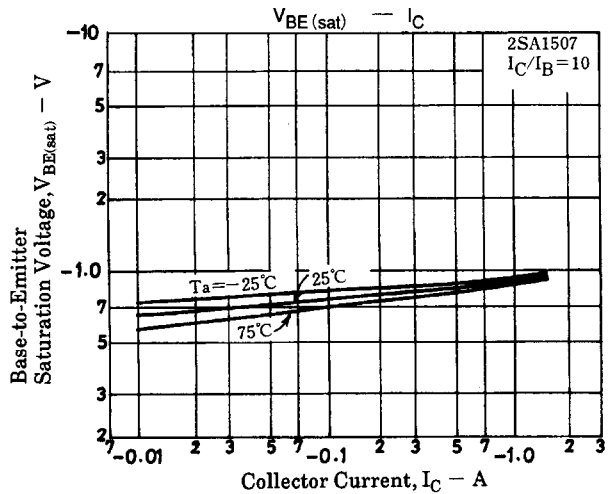
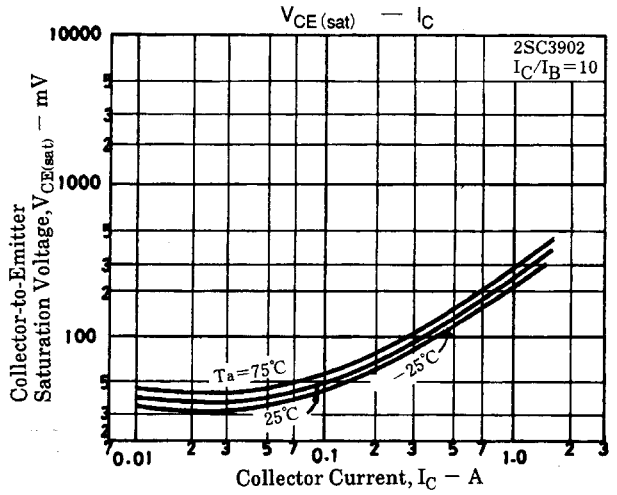
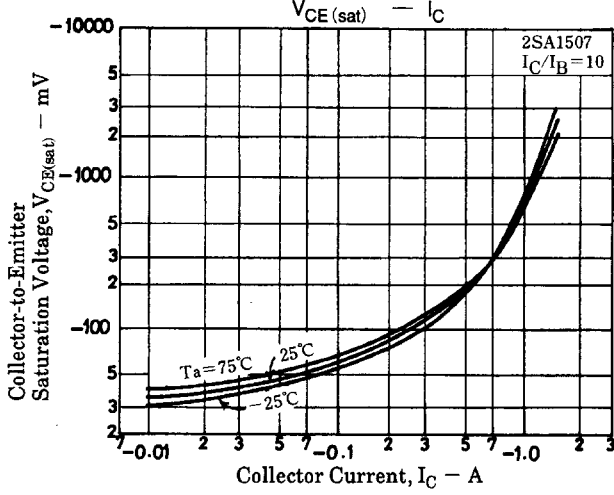
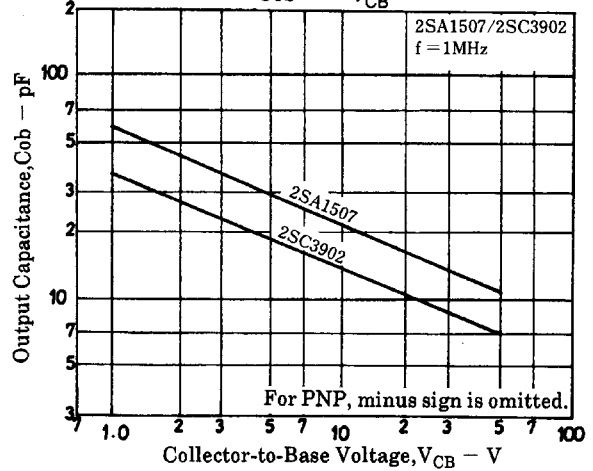
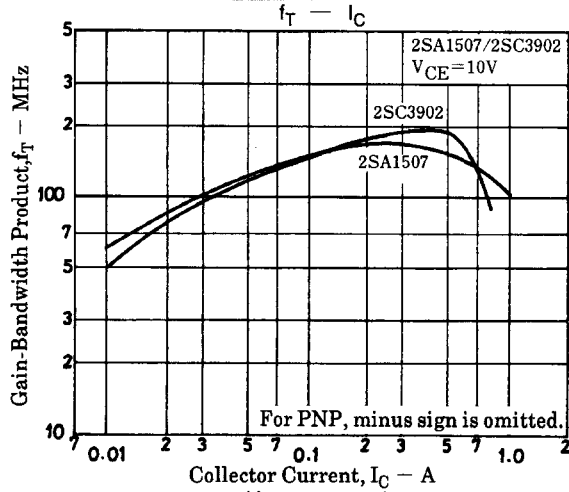
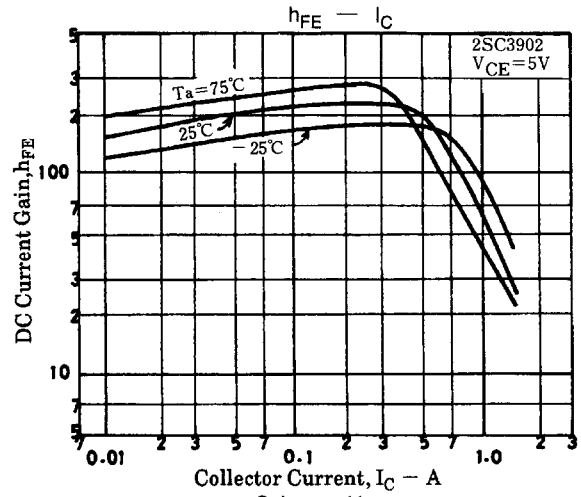
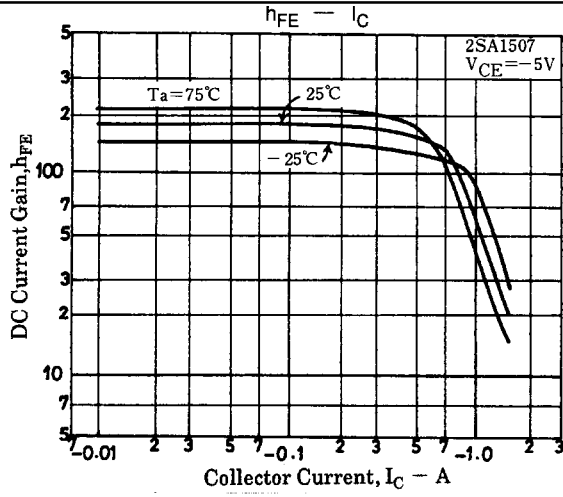
## Switching Time Test Circuit



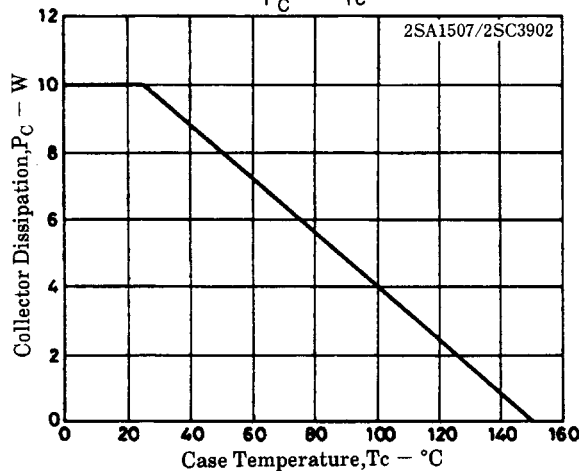
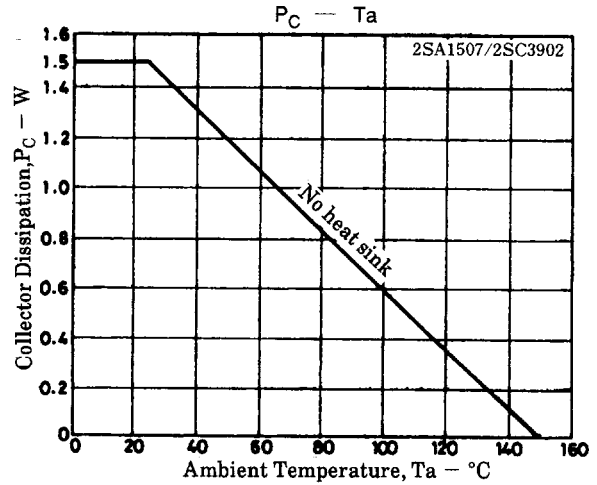
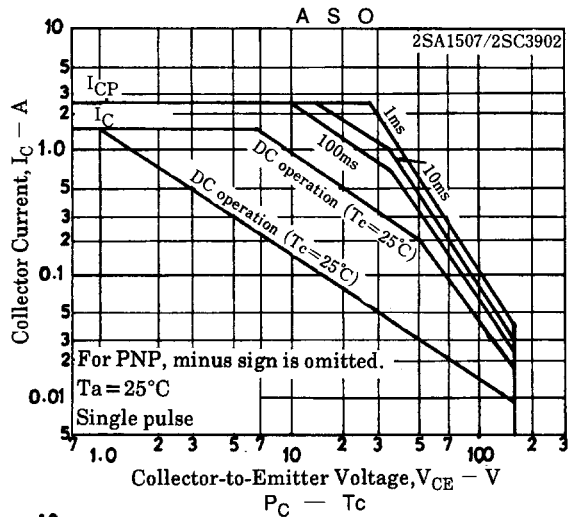
(For PNP, the polarity is reversed.)  
Unit (resistance :  $\Omega$ , capacitance : F)



# 2SA1507/2SC3902



## 2SA1507/2SC3902



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