



## 2SA1402/2SC3596

### Ultrahigh-Definition CRT Display Video Output Applications

#### Applications

- Ultrahigh-definition CRT display.
- Video output.
- Color TV chroma output.
- Wide-band amp.

#### Features

- High  $f_T$ :  $f_T$  typ=700MHz.
- Small reverse transfer capacitance and excellent high-frequency characteristic  
:  $C_{re}$ =1.8pF (NPN), 2.3pF (PNP).
- Complementary pair with the 2SA1402/2SC3596.
- Adoption of FBET process.

( ) : 2SA1402

#### Specifications

##### Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-)80	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)60	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)4	V
Collector Current	$I_C$		(-)300	mA
Collector Current (Pulse)	$I_{CP}$		(-)600	mA
Collector Dissipation	$P_C$		1.2	W
		$T_c=25^\circ\text{C}$	8	W
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

##### Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)60\text{V}$ , $I_E=0$			(-)0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)2\text{V}$ , $I_C=0$			(-)0.1	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=(-)10\text{V}$ , $I_C=(-)50\text{mA}$	40*		320*	
	$h_{FE2}$	$V_{CE}=(-)10\text{V}$ , $I_C=(-)250\text{mA}$	20			
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)10\text{V}$ , $I_C=(-)100\text{mA}$		700		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)100\text{mA}$ , $I_B=(-)10\text{mA}$			0.6	V
					(-)0.8	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)100\text{mA}$ , $I_B=(-)10\text{mA}$			(-)1.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}$ , $I_E=0$	(-)80			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}$ , $R_{BE}=\infty$	(-)60			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)100\mu\text{A}$ , $I_C=0$	(-)4			V
Output Capacitance	$C_{ob}$	$V_{CB}=(-)30\text{V}$ , $f=1\text{MHz}$		2.3		pF
				(3.0)		pF
Reverse Transfer Capacitance	$C_{re}$	$V_{CB}=(-)30\text{V}$ , $f=1\text{MHz}$		1.8		pF
				(2.3)		pF

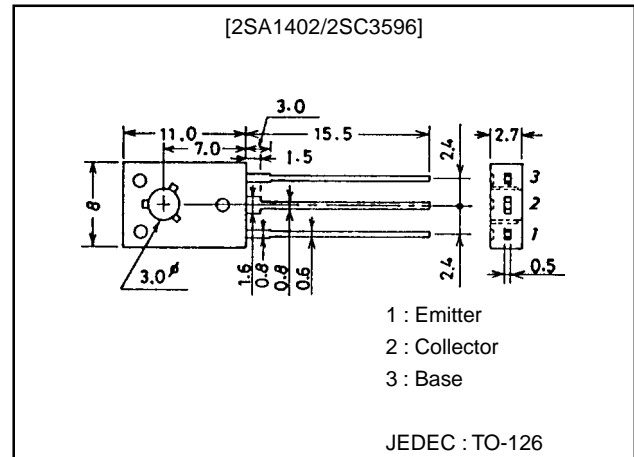
\* : The 2SA1402/2SC3596 are classified by 50mA  $h_{FE}$  as follows :

40	C	80	60	D	120	100	E	200	160	F	320
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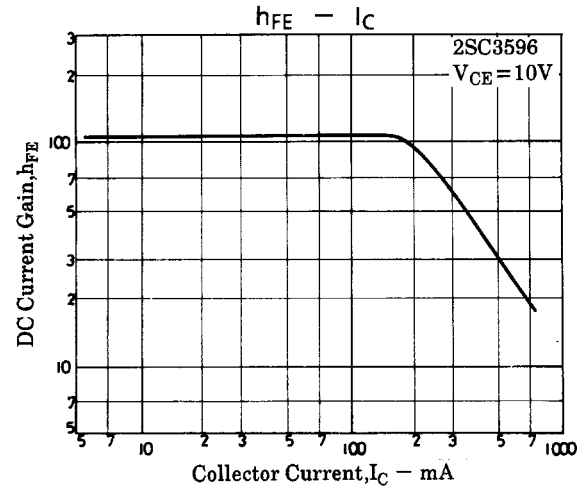
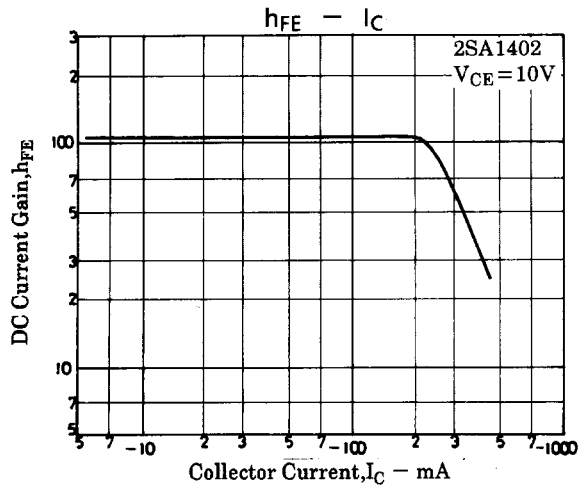
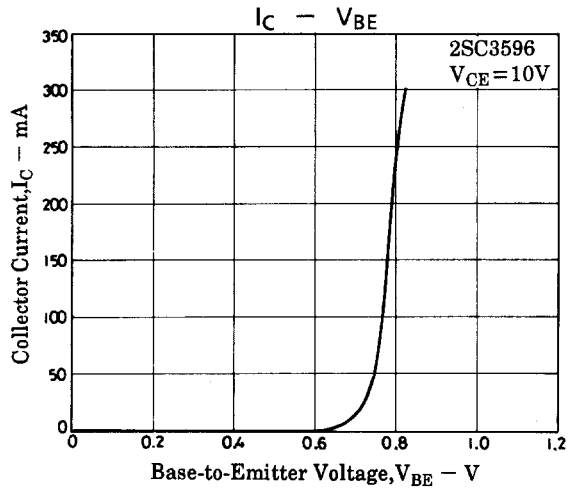
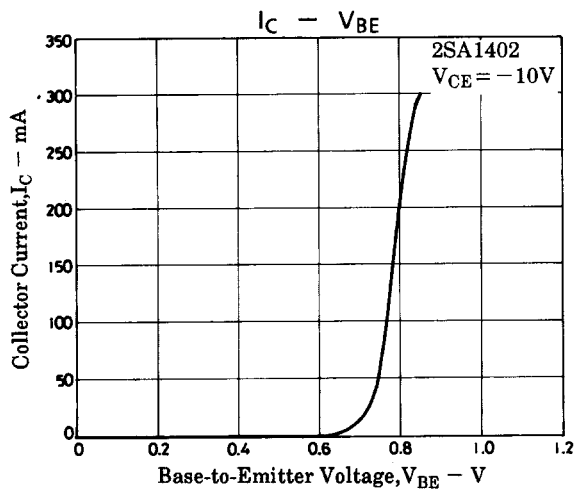
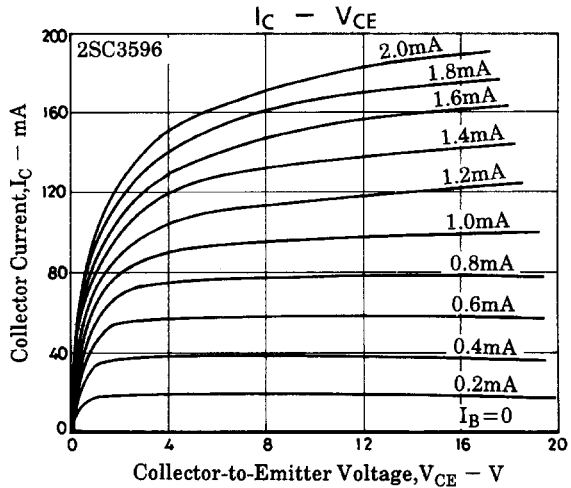
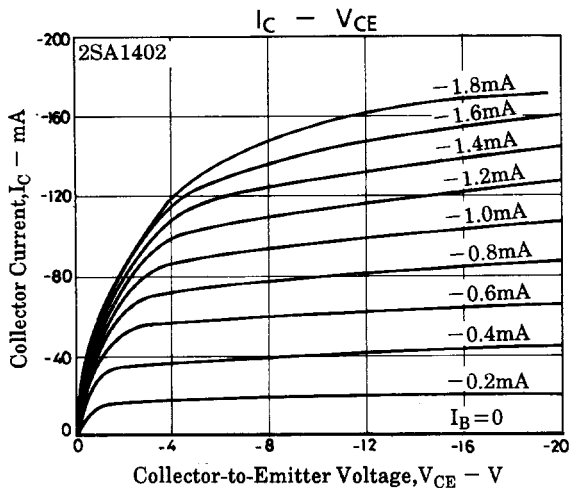
#### Package Dimensions

unit:mm

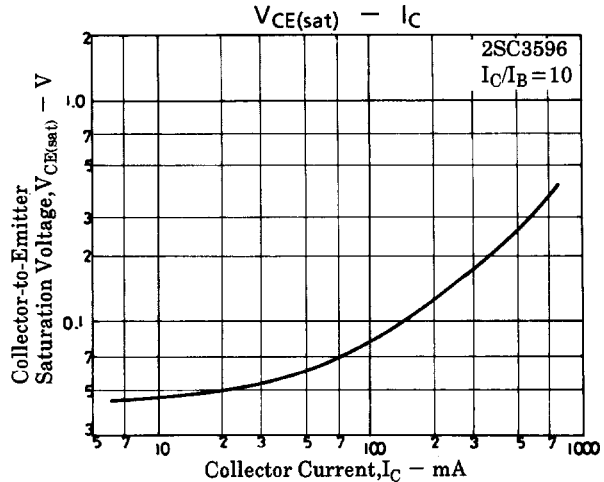
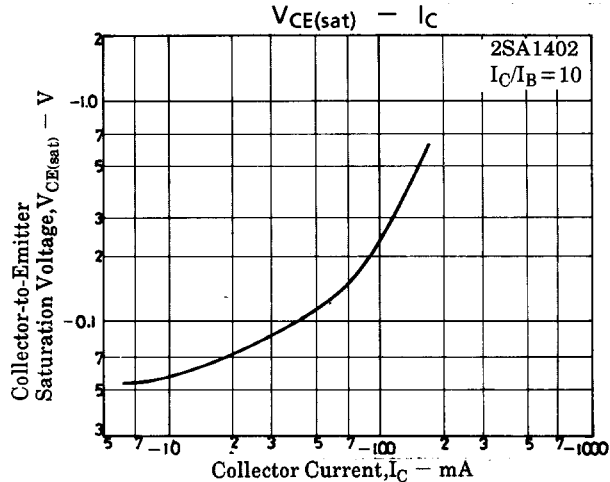
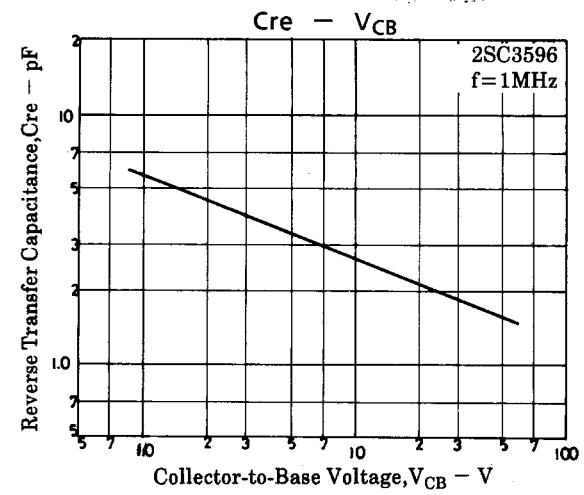
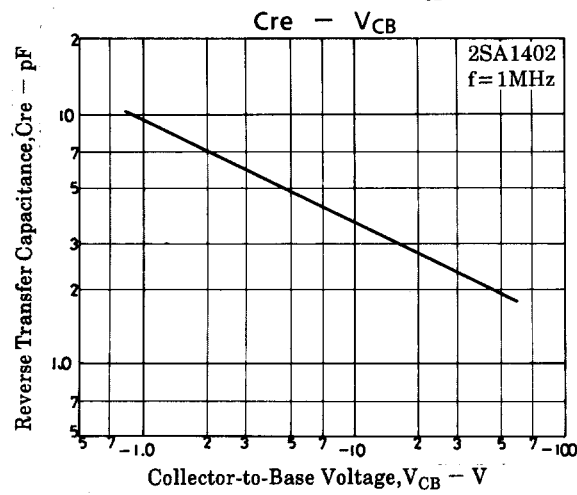
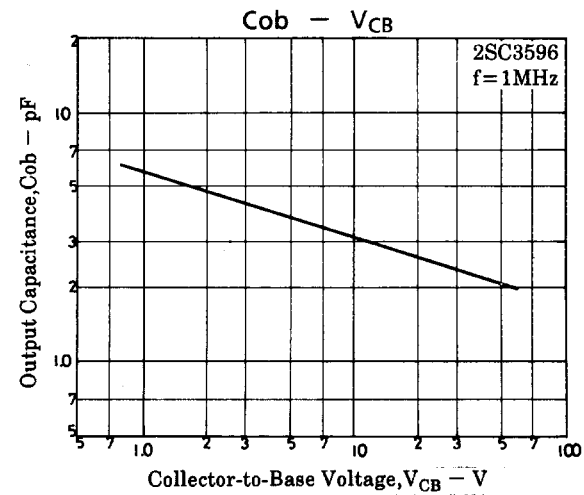
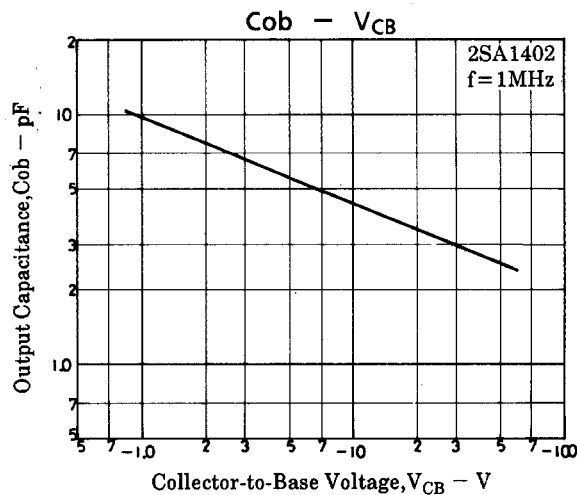
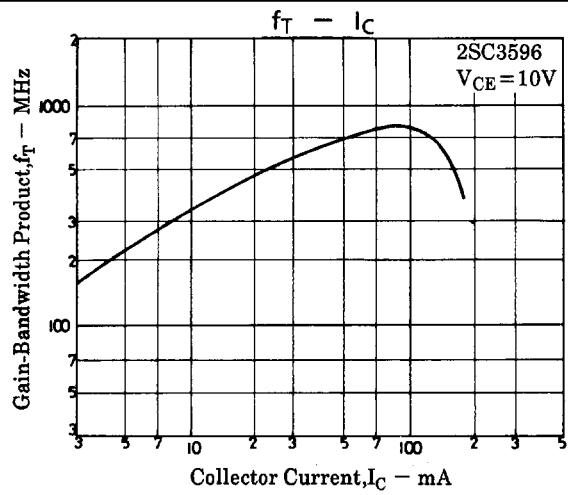
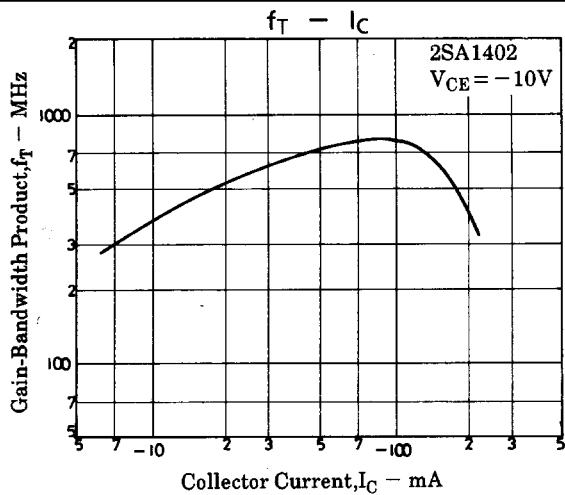
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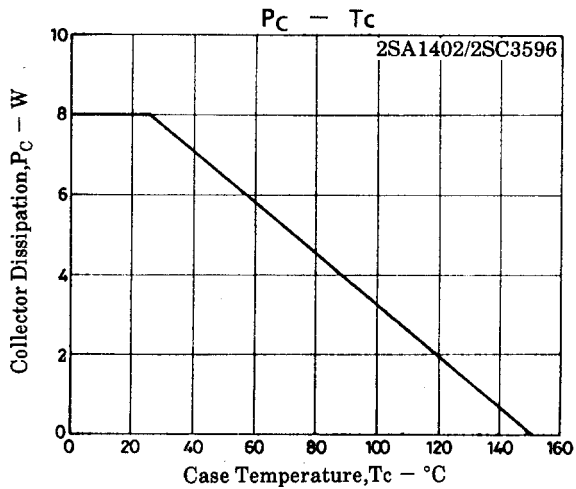
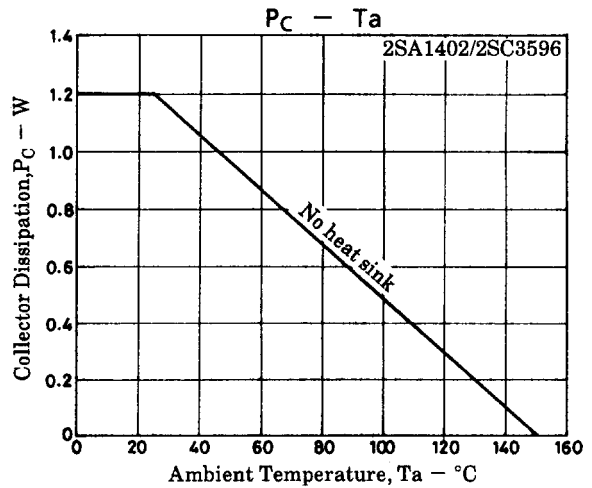
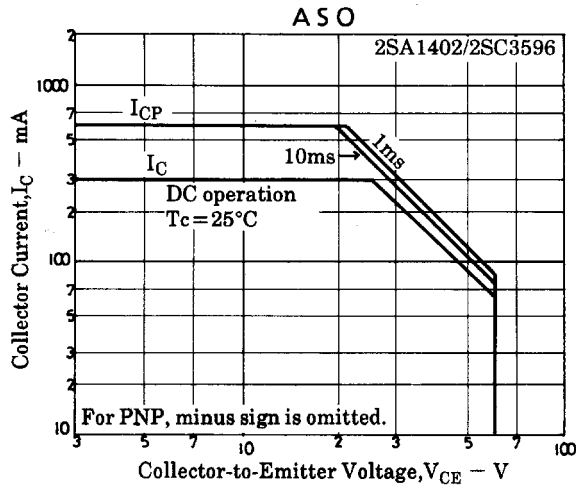
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