



2SA1405/2SC3599

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=500MHz.
- High breakdown voltage: $V_{CE0} \geq 120V$.
- Small reverse transfer capacitance and excellent high-frequency characteristic
: $C_{re}=2.5pF$ (NPN), 3.8pF (PNP).
- Complementary pair with the 2SA1405/2SC3599.
- Adoption of FBET process.

() : 2SA1405

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-)120	V
Collector-to-Emitter Voltage	V_{CE0}		(-)120	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
		$T_c=25^\circ C$	8	W
Junction Temperature	T_j		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

Electrical Characteristics at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CB0}	$V_{CB}=(-)80V, I_E=0$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)2V, I_C=0$			(-)1.0	μA
DC Current Gain	h_{FE1}	$V_{CB}=(-)10V, I_C=(-)50mA$	40*		320*	
	h_{FE2}	$V_{CE}=(-)10V, I_C=250mA$	20			
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)50mA$		500		MHz

* : The 2SA1405/2SC3599 are classified by 50mA h_{FE} as follows :

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Rank	C	D	E	F
h_{FE}	40 to 80	60 to 120	100 to 200	160 to 320

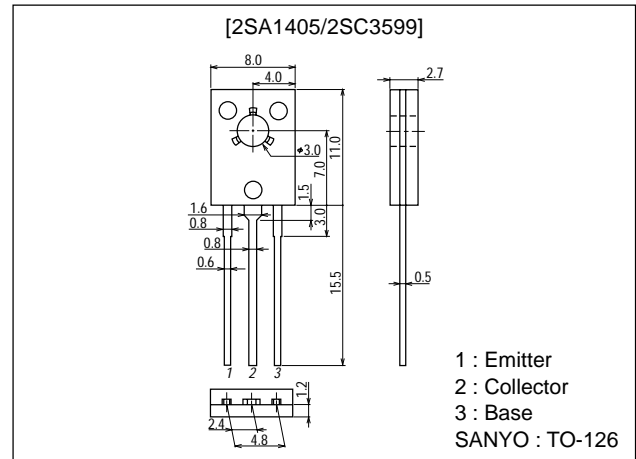
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Package Dimensions

unit:mm

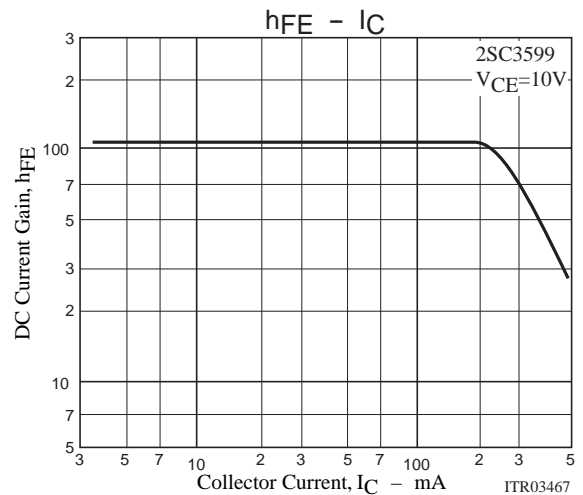
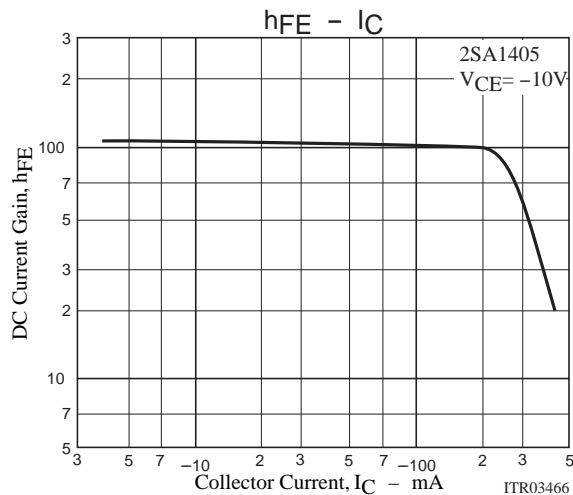
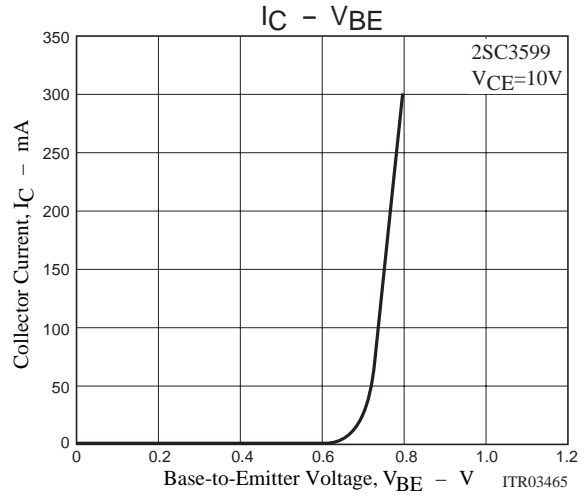
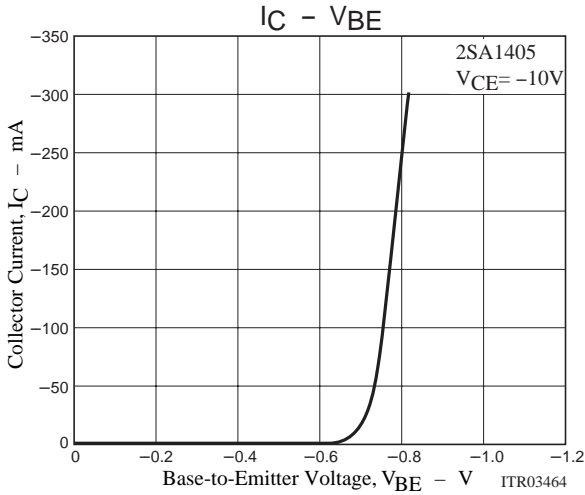
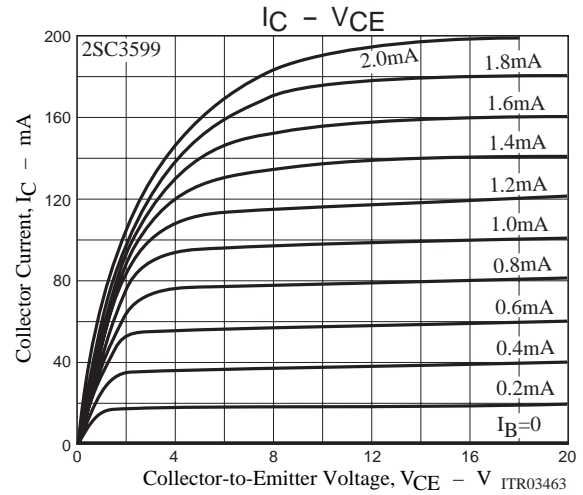
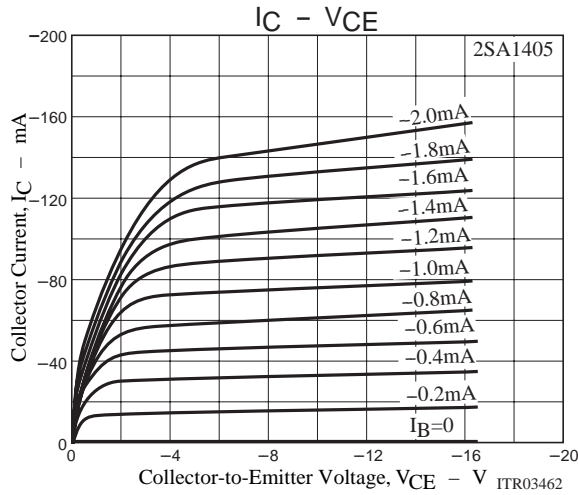
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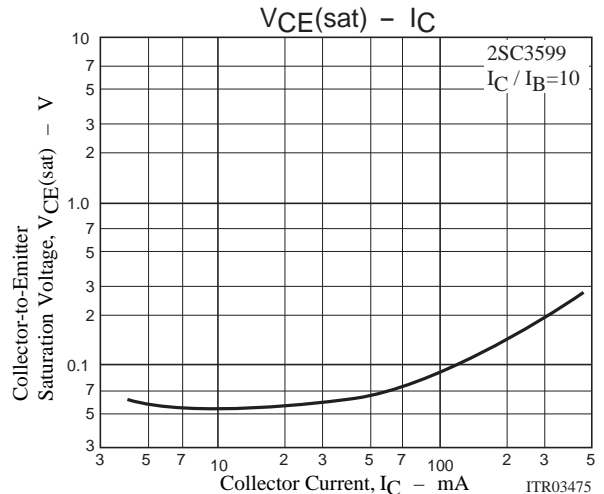
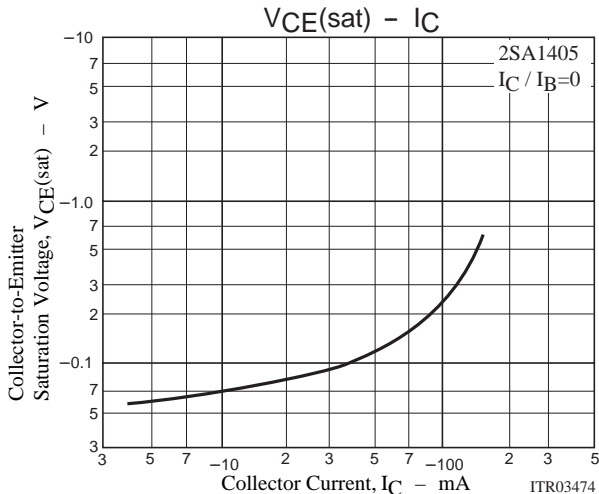
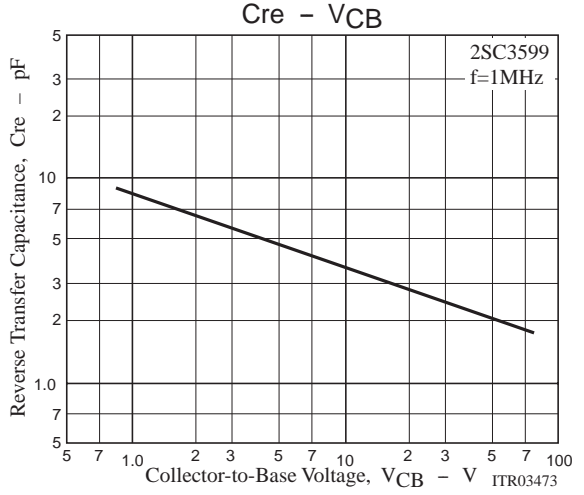
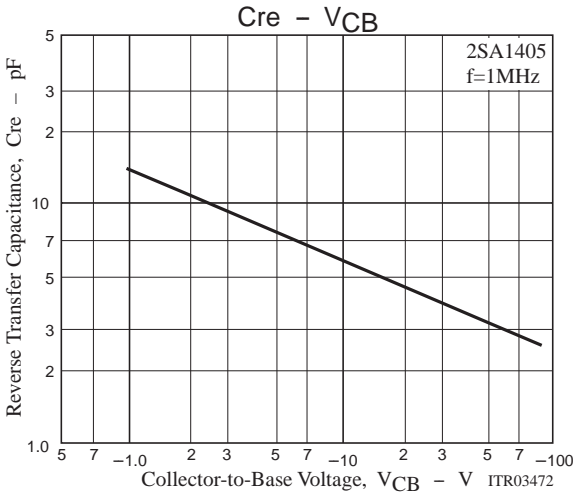
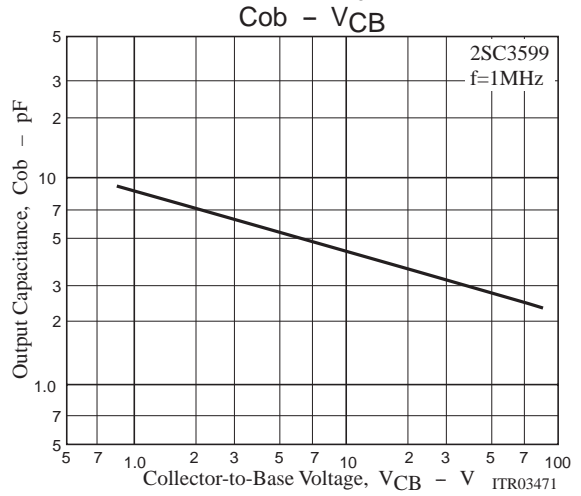
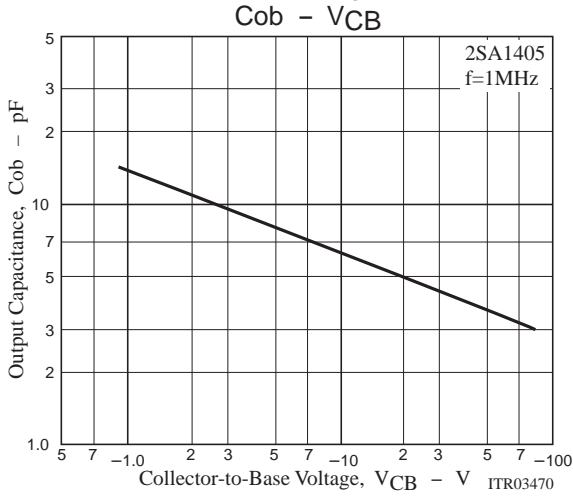
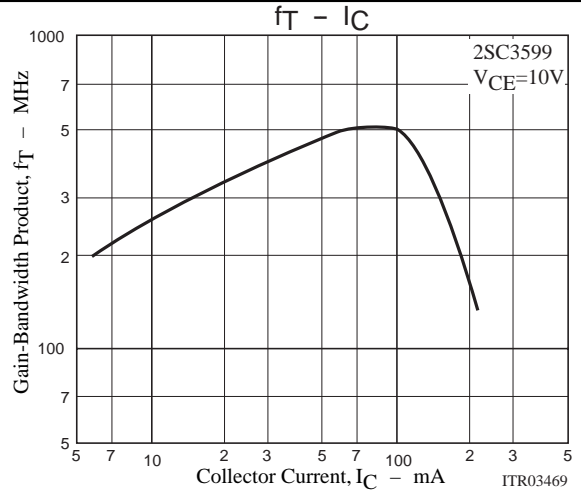
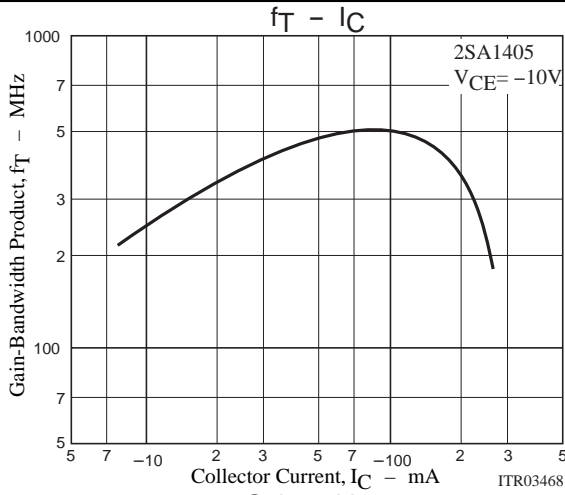
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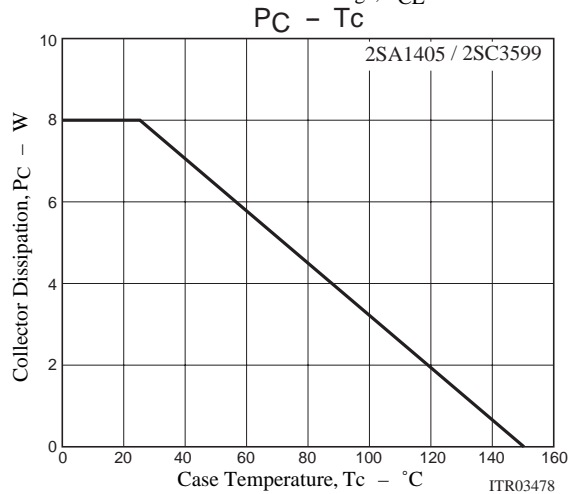
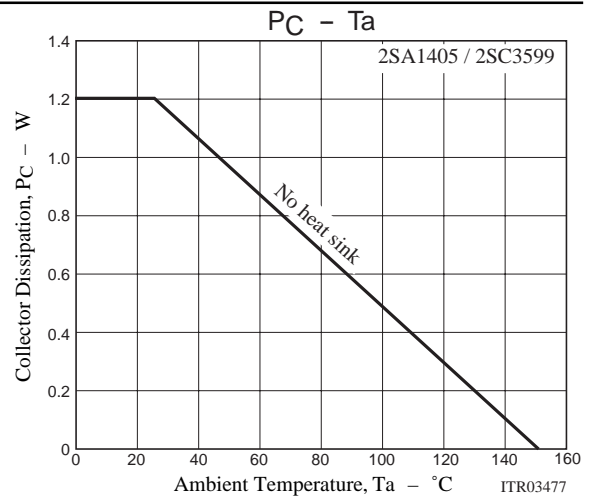
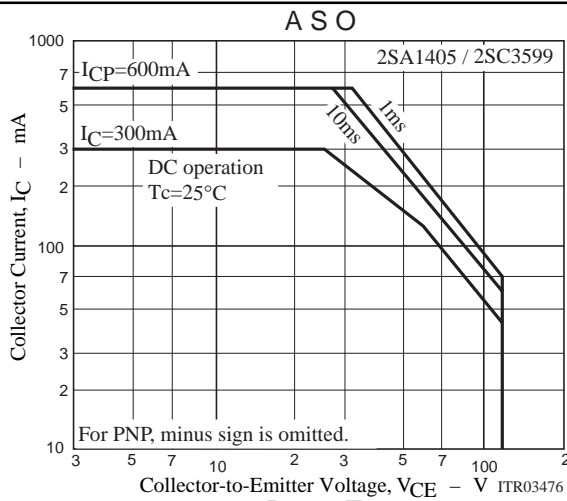
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)70mA, I_B=(-)7mA$			0.6	V
					(-)0.8	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)70mA, I_B=(-)7mA$			(-)1.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-)120			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)120			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)100\mu A, I_C=0$	(-)4			V
Output Capacitance	C_{ob}	$V_{CB}(-)30V, f=1MHz$		2.9		pF
				(4.3)		pF
Reverse Transfer Capacitance	C_{re}	$V_{CB}(-)30V, f=1MHz$		2.5		pF
				(3.8)		pF



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