Ordering number: EN1764B

SANYO

No.1764B

2SA1405/2SC3599

PNP/NPN Epitaxial Planar Silicon Transistors

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 : $V_{CEO} \geqq 120V$.
- Small reverse transfer capacitance and excellent high-frequency characteristic : Cre = 2.5pF(NPN), 3.8pF(PNP)
- Complementary pair with the 2SA1405/2SC3599.
- Adoption of FBET process.

( ) : 2SA1405

Absolute Maximum Ratings at Ta = 25°C

				unit
Collector-to-Base Voltage	V_{CBO}		(−)120	V
Collector-to-Emitter Voltage	V_{CEO}		(−)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
		Tc = 25°C	8	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta = 25°C

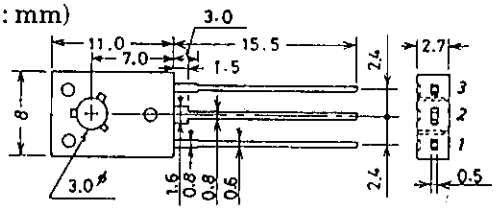
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB} = (−)80V, I_E = 0			(−)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = (−)2V, I_C = 0			(−)1.0	μA
DC Current Gain	$h_{FE}(1)$	V_{CE} = (−)10V, I_C = (−)50mA	40※		320※	
	$h_{FE}(2)$	V_{CE} = (−)10V, I_C = (−)250mA	20			
Gain Bandwidth Product	f_T	V_{CE} = (−)10V, I_C = (−)50mA		500		MHz
C-E Saturation Voltage	$V_{CE(sat)}$	I_C = (−)70mA, I_B = (−)7mA			0.6 (−0.8)	V

Continued on next page.

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

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

Package Dimensions 2009B
(unit : mm)



1 : Emitter
2 : Collector
3 : Base

JEDEC : TO126

SANYO Electric Co.,Ltd. Semiconductor Business Headquarters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

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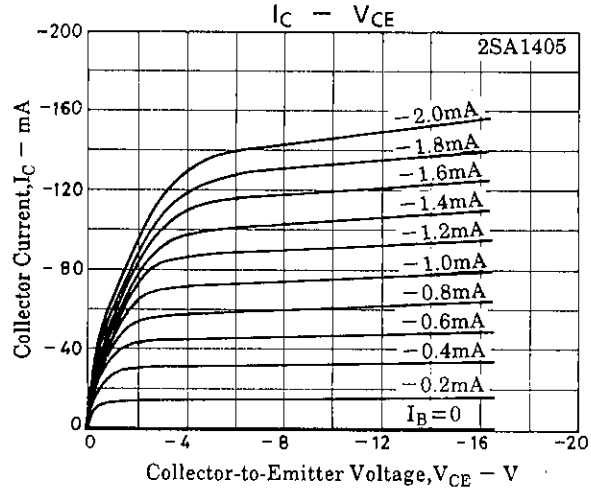
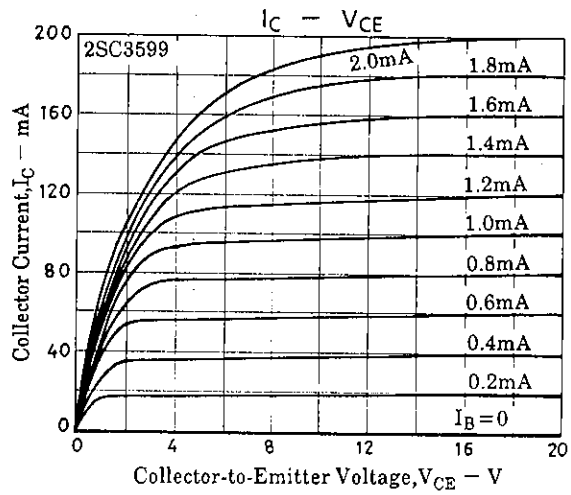
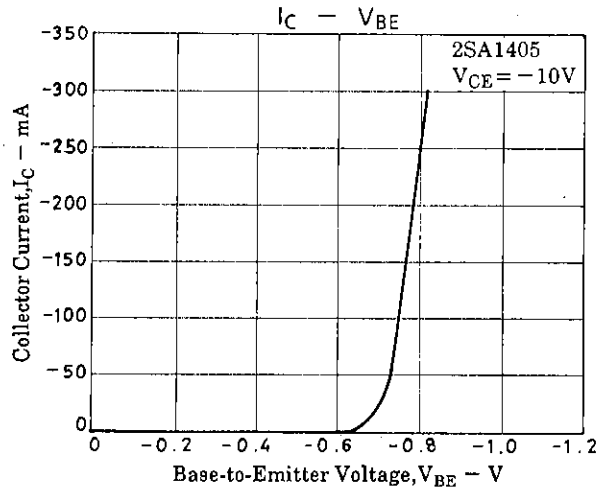
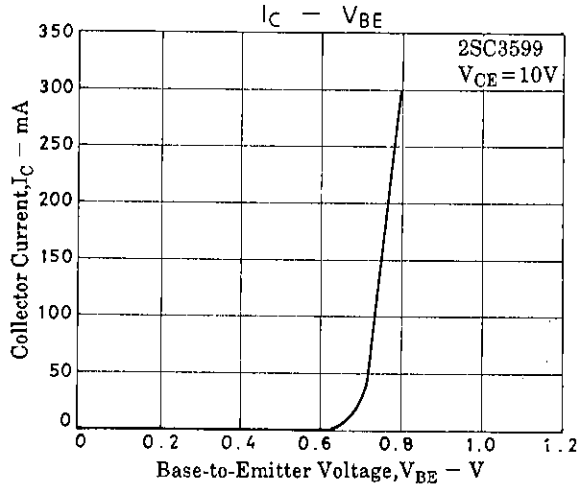
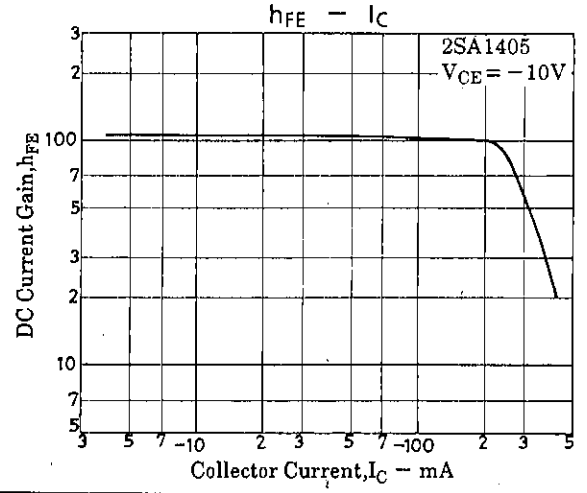
			min	typ	max	unit
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)70mA, I_B=(-)7mA$			(−)1.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(−)120			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(−)120			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)100\mu A, I_C=0$	(−)4			V
Output Capacitance	Cob	$V_{CB}=(-)30V, f=1MHz$		2.9		pF
				(4.3)		pF
Reverse Transfer Capacitance	Cre	$V_{CB}=(-)30V, f=1MHz$		2.5		pF
				(3.8)		pF

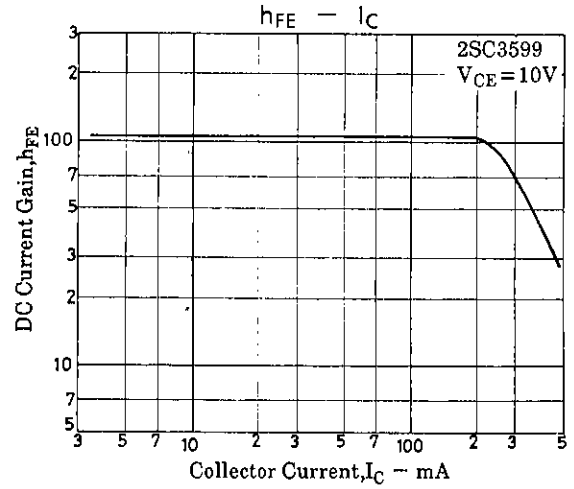


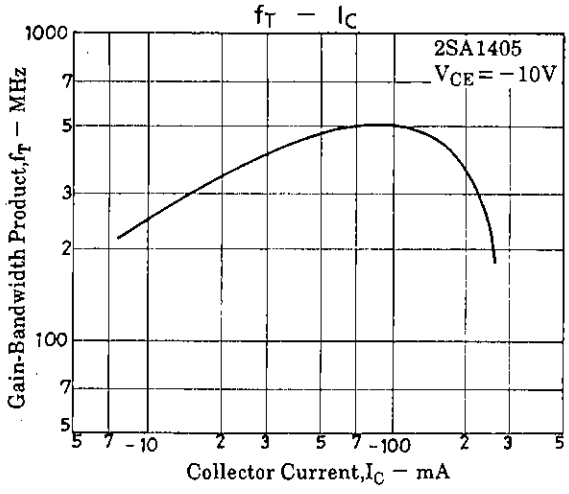


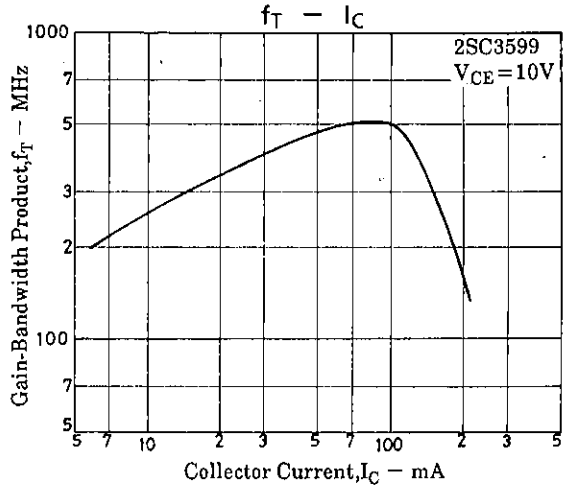


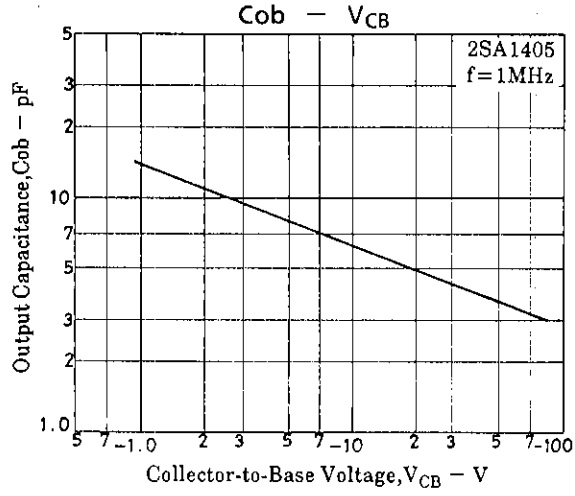


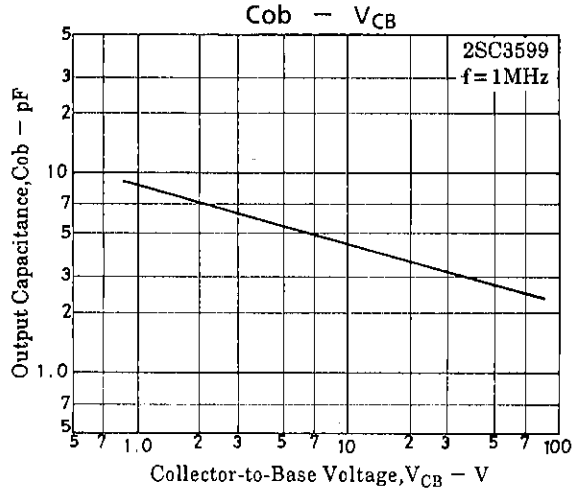


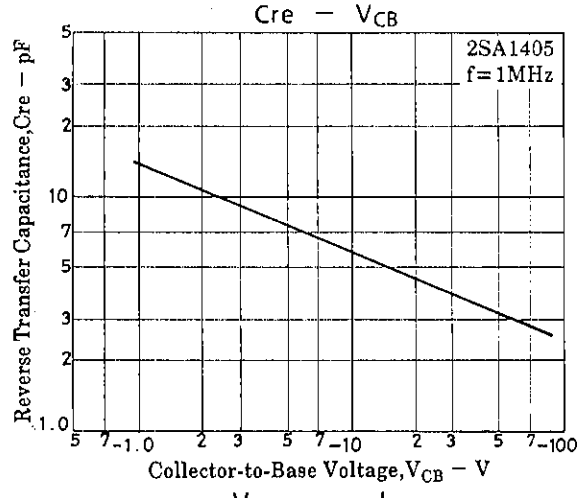


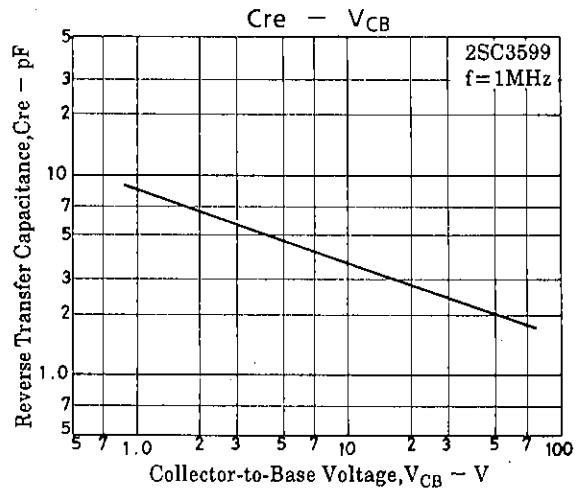

f_T – I_C
2SA1405
V_{CE} = –10V
Gain-Bandwidth Product, f_T – MHz
Collector Current, I_C – mA

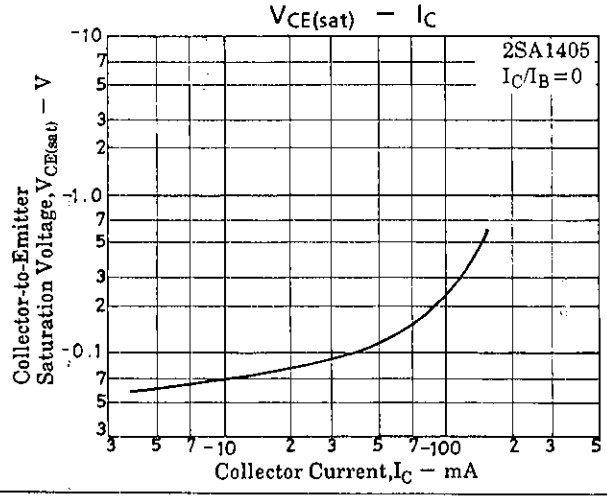

f_T – I_C
2SC3599
V_{CE} = 10V
Gain-Bandwidth Product, f_T – MHz
Collector Current, I_C – mA

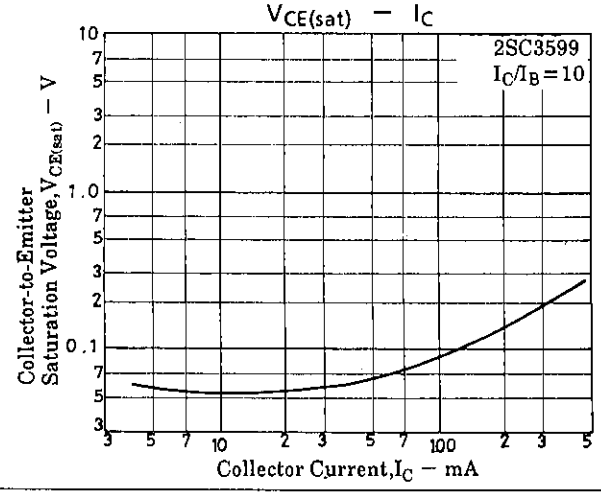

Cob – V_{CB}
2SA1405
f = 1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, V_{CB} – V


Cob – V_{CB}
2SC3599
f = 1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, V_{CB} – V


Cre – V_{CB}
2SA1405
f = 1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, V_{CB} – V


Cre – V_{CB}
2SC3599
f = 1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, V_{CB} – V


$V_{CE(sat)}$ – I_C
2SA1405
I_C/I_B = 0
Collector-to-Emitter Saturation Voltage, $V_{CE(sat)}$ – V
Collector Current, I_C – mA


$V_{CE(sat)}$ – I_C
2SC3599
I_C/I_B = 10
Collector-to-Emitter Saturation Voltage, $V_{CE(sat)}$ – V
Collector Current, I_C – mA