Ordering number:ENN1762B

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1403/2SC3597

Ultrahigh-Definition CRT Display Video Output Applications

Applications

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

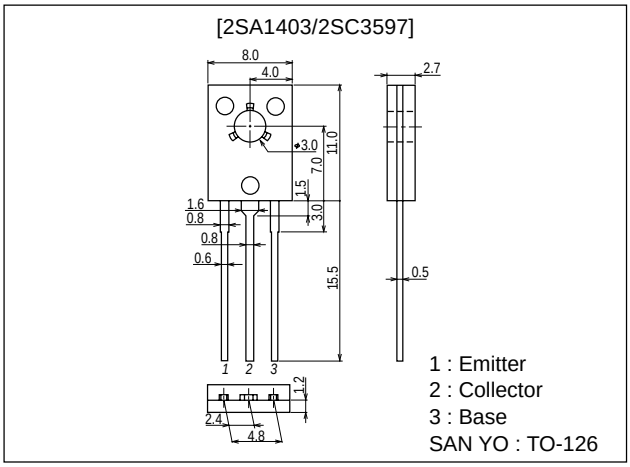
Features

- High f_T : f_T typ=800MHz.
- Small reverse transfer capacitance and excellent high-frequency characteristic
  : C_{re}=2.9pF (NPN), 4.6pF (PNP).
- Complementary pair with the 2SA1403/2SC3597.
- Adoption of FBET procss.

Package Dimensions

unit:mm

2009B



( ) : 2SA1403

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)80	V
Collector-to-Emitter Voltage	V_{CEO}		(–)60	V
Emitter-to-Base Voltage	V_{EBO}		(–)4	V
Collector Current	I_C		(–)500	mA
Collector Current (Pulse)	I_{CP}		(–)1	A
Collector Dissipation	P_C		1.2	W
		Tc=25˚C	10	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)60V, I_E=0			(–)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)2V, I_C=0			(–)0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=(–)10V, I_C=(–)50mA	40*		320*	
	$h_{FE}2$	V_{CE}=(–)10V, I_C=(–)400mA	20			
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)100mA		800		MHz

* : The 2SA1403/2SC3597 are classified by 50mA h_{FE} as follows :

Continued on next page.

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

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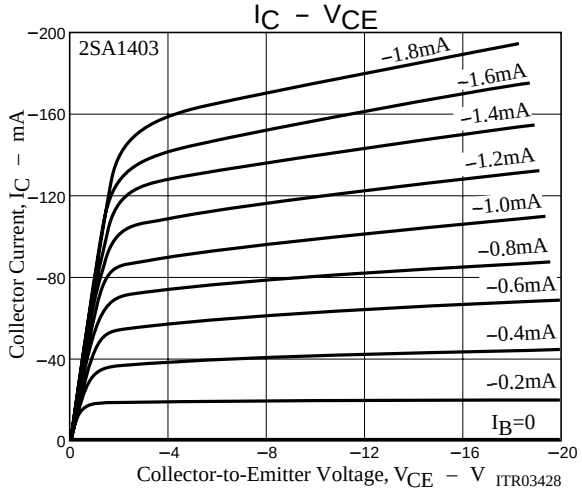
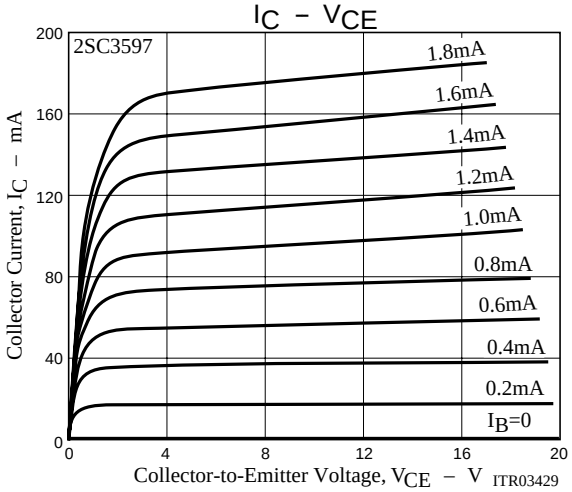
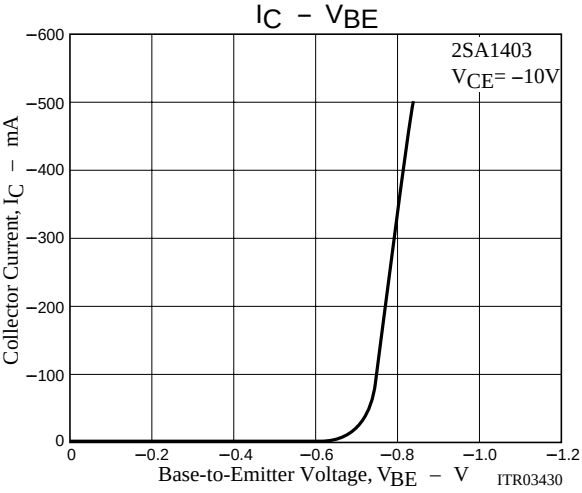
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

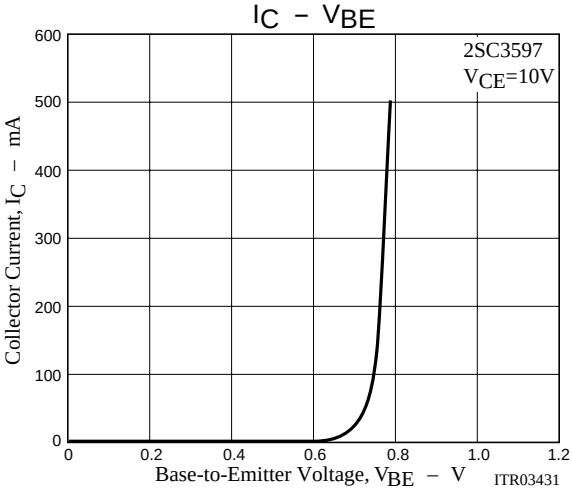
Continued from preceding page.

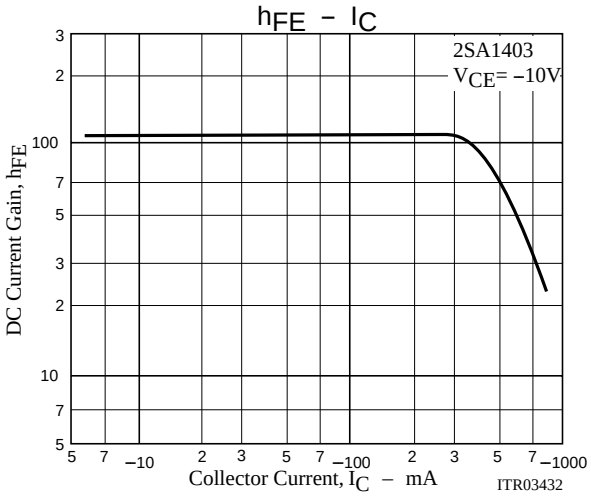
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)100mA, I_B=(–)10mA			0.6	V
					(–0.8)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)100mA, I_B=(–)10mA			(–)1.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)80			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)60			V
Emitter-to-Base Breakdown Votage	$V_{(BR)EBO}$	I_E=(–)100μA, I_C=0	(–)4			V
Output Capacitance	C_{ob}	V_{CB}=(–)30V, f=1MHz		3.4		pF
				(5.2)		pF
Reverse Transfer Capacitance	C_{re}	V_{CB}=(–)30V, f=1MHz		2.9		pF
				(4.6)		pF

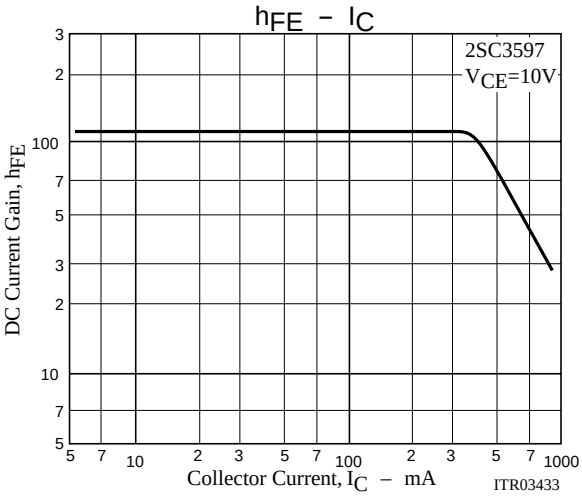


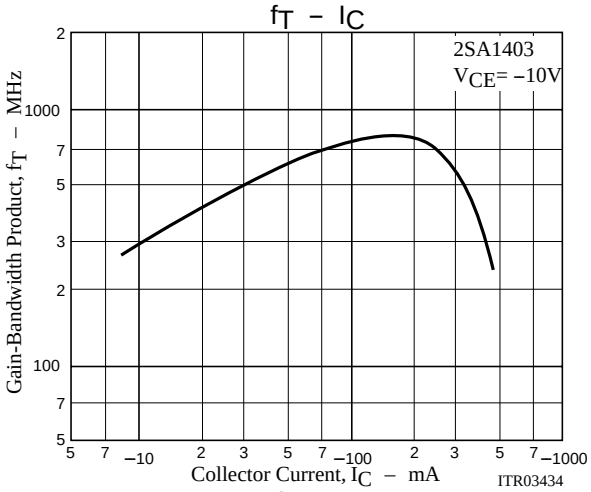


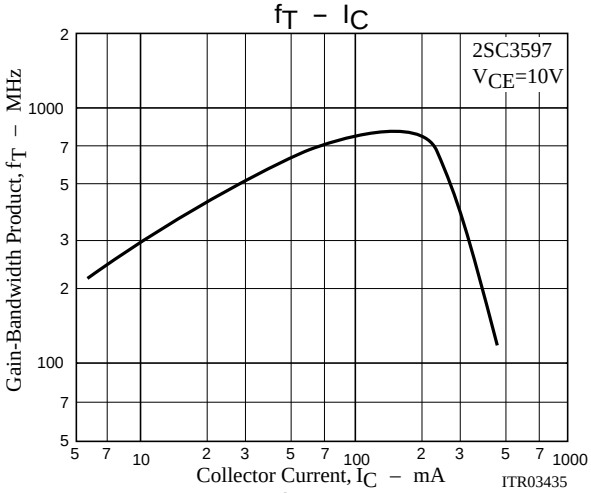


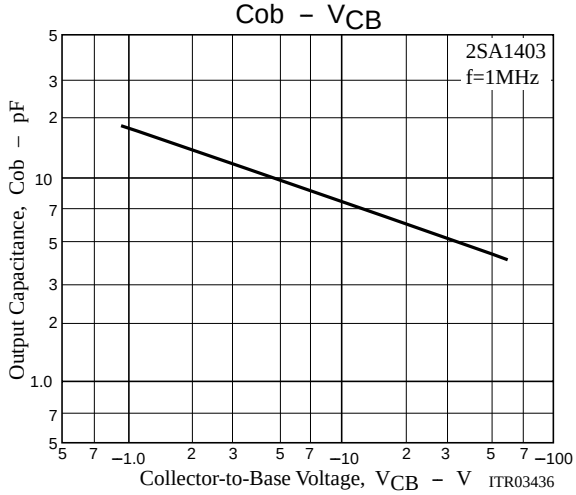


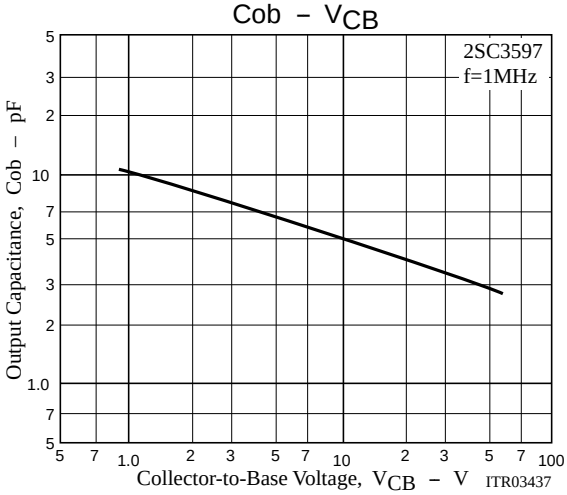


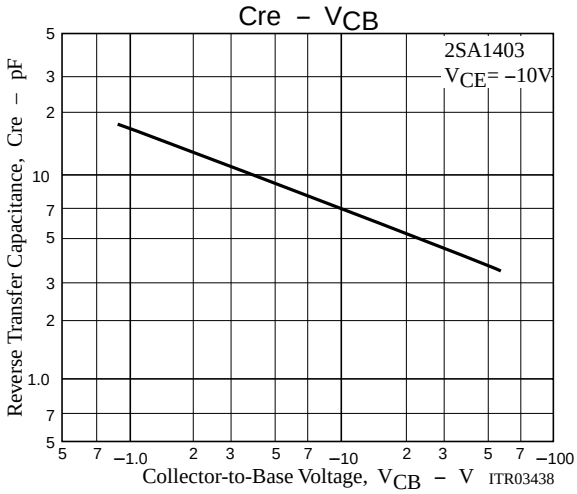


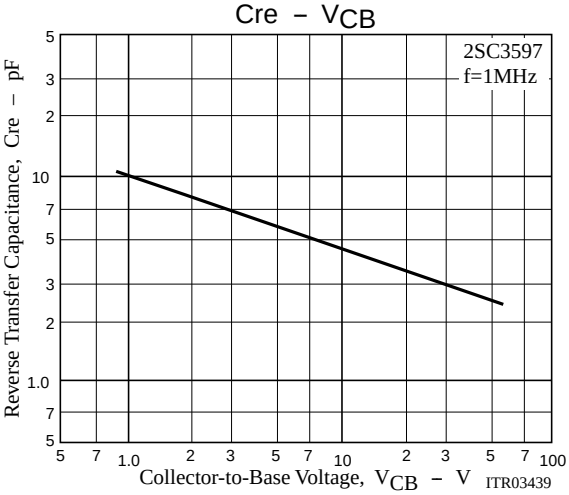

fT – IC
2SA1403
VCE= –10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR03434

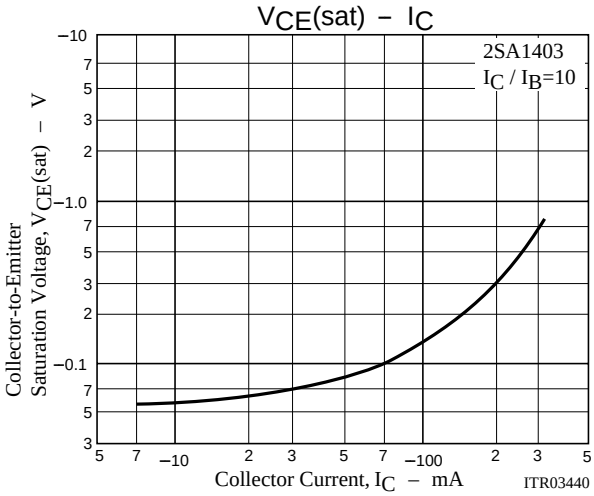

fT – IC
2SC3597
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR03435

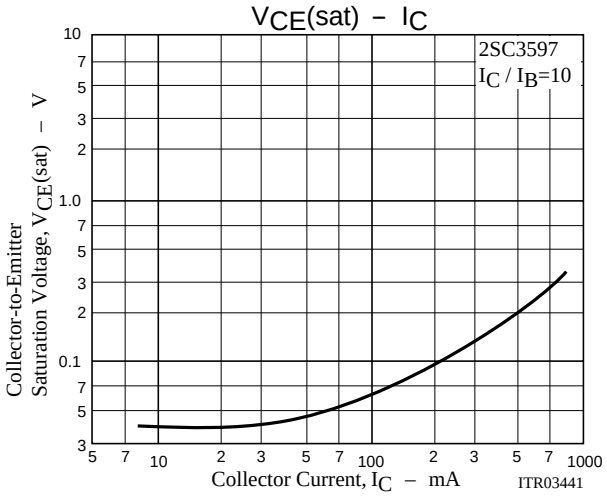

Cob – VCB
2SA1403
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR03436


Cob – VCB
2SC3597
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR03437


Cre – VCB
2SA1403
VCE= –10V
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V
ITR03438


Cre – VCB
2SC3597
f=1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V
ITR03439


VCE(sat) – IC
2SA1403
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
ITR03440


VCE(sat) – IC
2SC3597
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
ITR03441