Ordering number:ENN1763B

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1404/2SC3598

Ultrahigh-Definition CRT Display Video Output Applications

Applictions

- 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}≥120V.
- Small reverse transfer capacitance and excellent high-frequency characteristic
  : Cre=1.6pF (NPN), 2.1pF (PNP).
- Complementary pair with the 2SA1404/2SC3598.
- Adoption of FBET process.

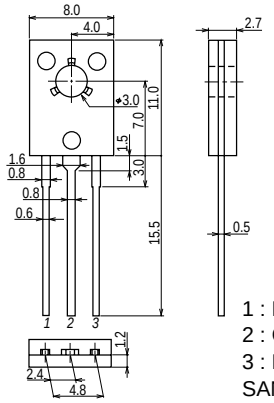
( ) : 2SA1404

Package Dimensions

unit:mm

2009B

[2SA1404/2SC3598]



1 : Emitter
2 : Collector
3 : Base
SANYO : TO-126

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	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		(–)200	mA
Collector Current (Pulse)	I_{CP}		(–)400	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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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			(–)0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=(–)10V, I_C=(–)10mA	40*		320*	
	$h_{FE}2$	V_{CE}=(–)10V, I_C=(–)150mA	20			
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)50mA		500		MHz

* : The 2SA1404/2SC3598 are classified by 10mA h_{FE} as follows :

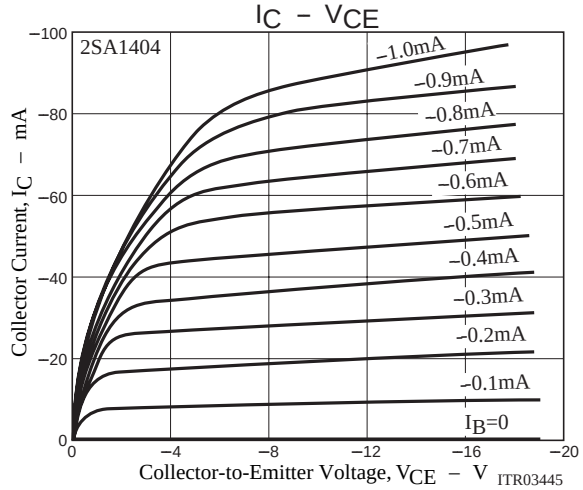
Continued on next page.

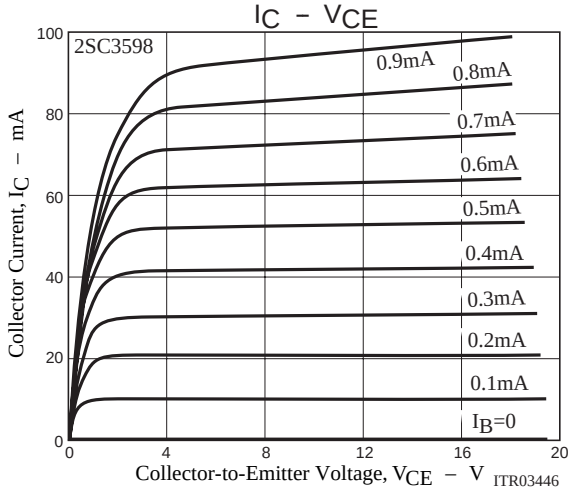
Rank	C	D	E	F
h_{FE}	40 to 80	60 to 120	100 to 200	160 to 320

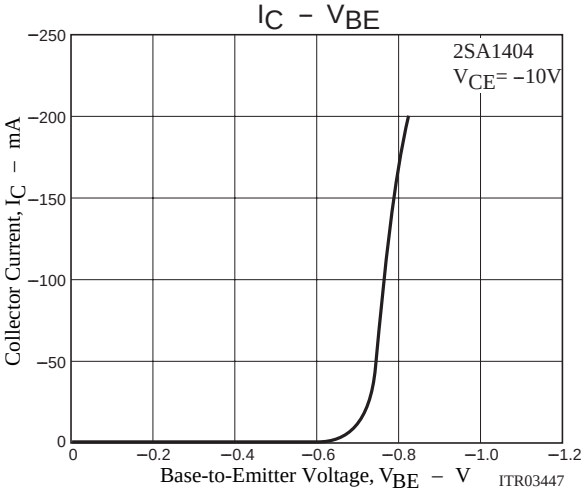
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

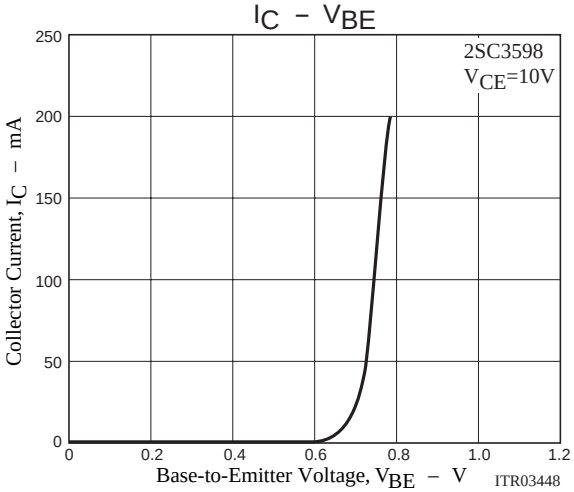
Continued from preceding page.

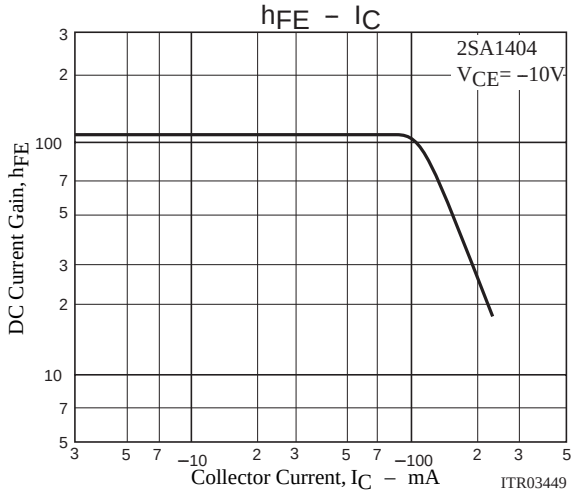
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)50mA, I_B=(–)5mA			0.6	V
					(–0.8)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)50mA, I_B=(–)5mA			(–)1.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)120			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)120			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		2.0		pF
				(2.7)		pF
Reverse Transfer Capacitance	C_{re}	V_{CB}=(–)30V, f=1MHz		1.6		pF
				(2.1)		pF

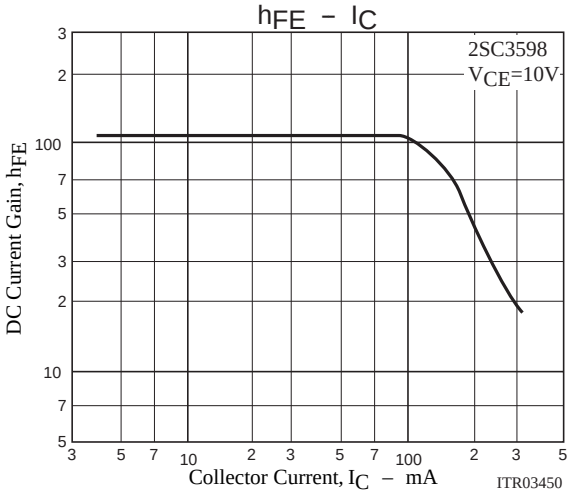


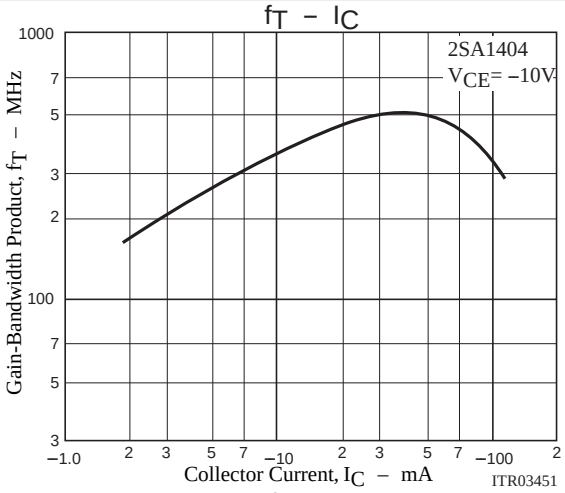


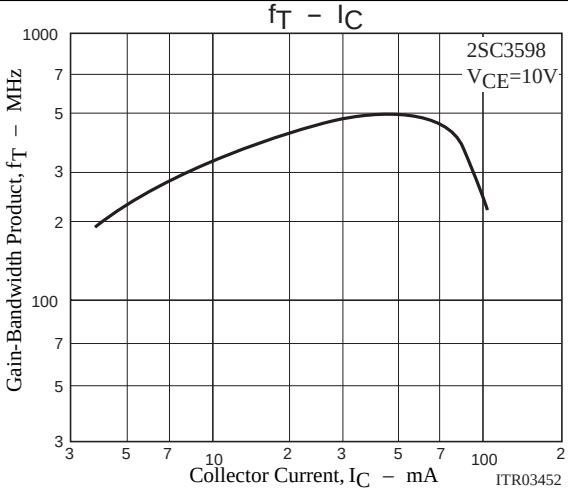


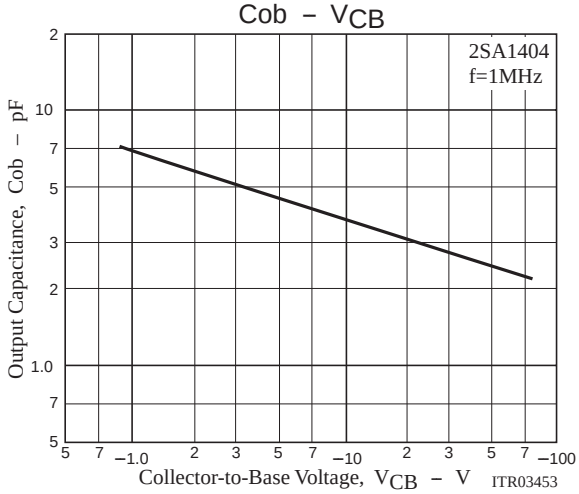


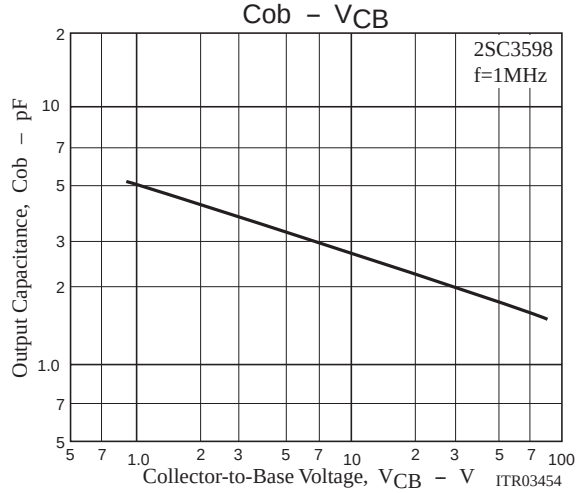


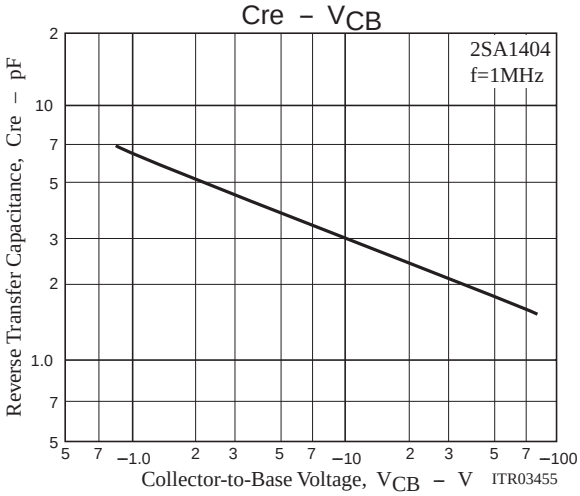


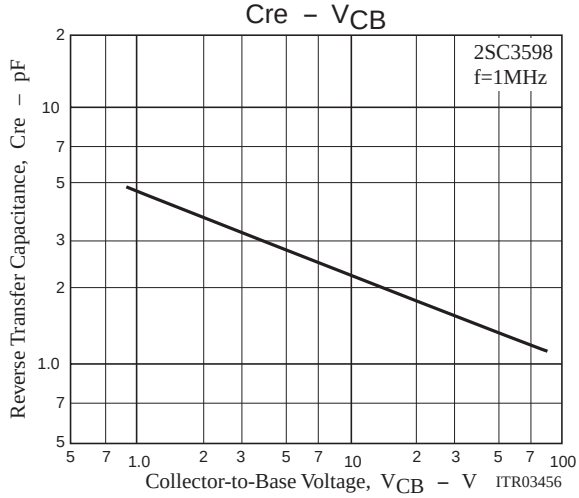

fT – IC
2SA1404
VCE= –10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR03451

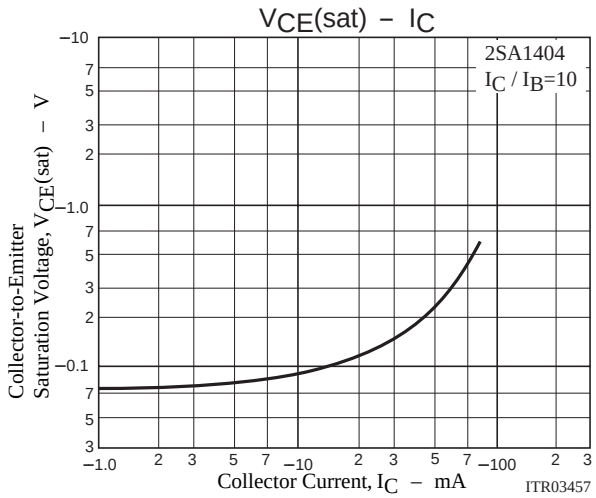

fT – IC
2SC3598
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR03452

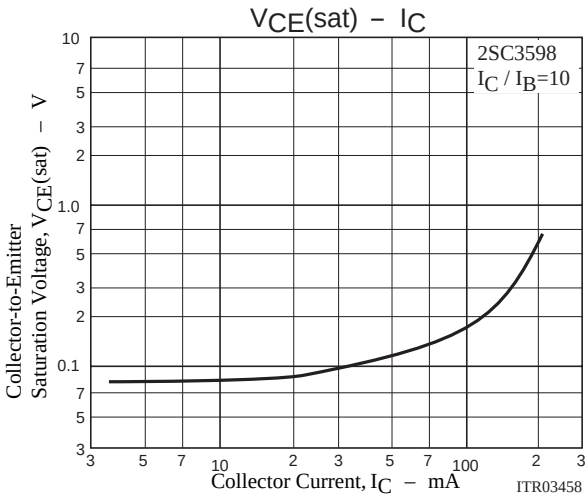

Cob – VCB
2SA1404
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR03453


Cob – VCB
2SC3598
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR03454


Cre – VCB
2SA1404
f=1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V
ITR03455


Cre – VCB
2SC3598
f=1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V
ITR03456


VCE(sat) – IC
2SA1404
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
ITR03457


VCE(sat) – IC
2SC3598
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
ITR03458