Ordering number:EN2440A

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1541/2SC3956

High-Definition CRT Display Video Output Applications

Applications

· High-definition CRT display video output, wide-band amplifier.

Features

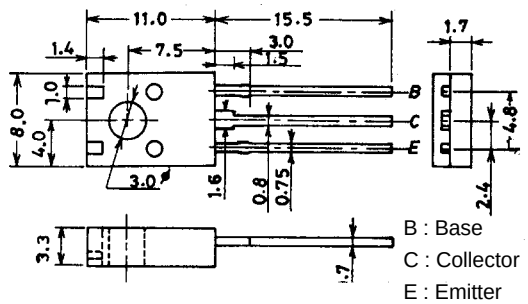
· High gain-bandwidth product : f_T=300MHz.
· High breakdown voltage : V_{CEO}=200Vmin.
· Small reverse transfer capacitance and excellent high frequency characteristics : C_{re}=2.2pF/NPN, 2.7pF/PNP.
· Complementary PNP and NPN types.
· Adoption of FBET process.
· Micaless type : TO-126 plastic package.

Package Dimensions

unit:mm

2042A

[2SA1541/2SC3956]



B : Base
C : Collector
E : Emitter

SANYO : TO-126ML

( ) : 2SA1541

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)200	V
Collector-to-Emitter Voltage	V_{CEO}		(–)200	V
Emitter-to-Base Voltage	V_{EBO}		(–)3	V
Collector Current	I_C		(–)200	mA
Peak Collector Current	I_{CP}		(–)300	mA
Collector Dissipation	P_C		1.3	W
		Tc=25˚C	7	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

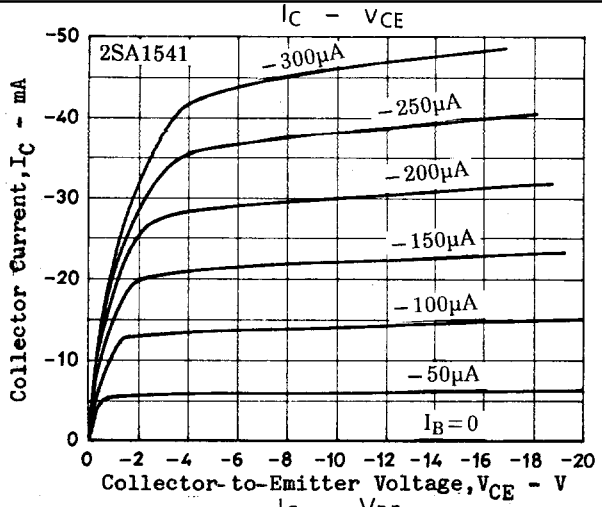
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)150V, I_E=0			(–)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)2V, I_C=0			(–)1.0	μA
DC Current Gain	$h_{FE}1$	V_{CE}=(–)10V, I_C=(–)10mA	40*		320*	
	$h_{FE}2$	V_{CE}=(–)10V, I_C=(–)100mA	20			
Gain-Bandwidth Product	f_T	V_{CE}=(–)30V, I_C=(–)50mA		300		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)30V, f=1MHz		2.7		pF
				(3.2)		pF
Reverse Transfer Capacitance	C_{re}	V_{CB}=(–)30V, f=1MHz		2.2		pF
				(2.7)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)30mA, I_B=(–)3mA			(–)1.0	V
Emitter-to-Base Saturation Voltage	$V_{BE(sat)}$	I_C=(–)30mA, I_B=(–)3mA			(–)1.0	V

*$h_{FE}1$: The 2SA1541/2SC3956 are classified by 10mA h_{FE} as follows :

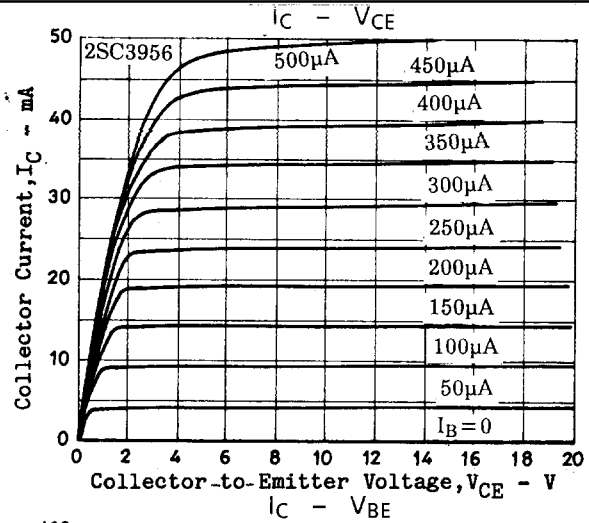
40 C 80	60 D 120	100 E 200	160 F 320

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

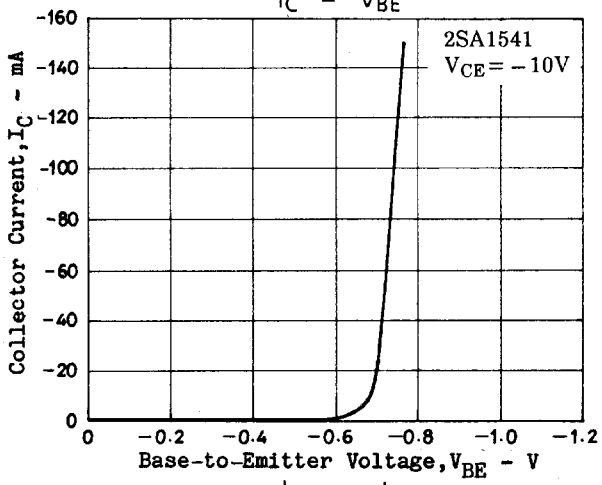
I_C – V_{CE}



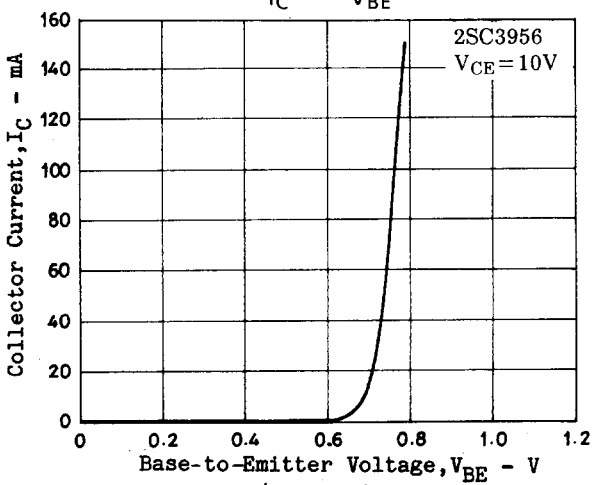
I_C – V_{CE}



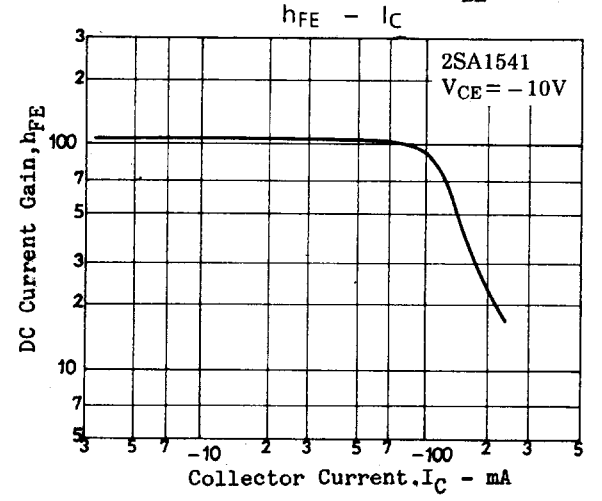
I_C – V_{BE}



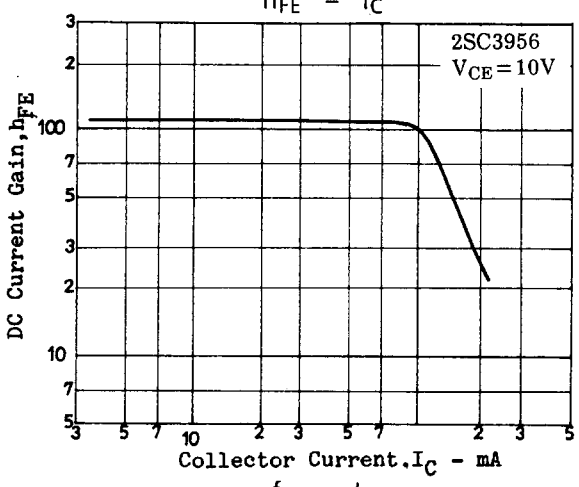
I_C – V_{BE}



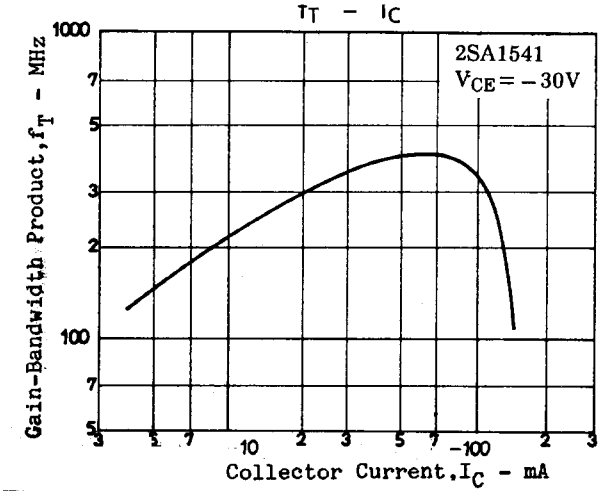
h_{FE} – I_C



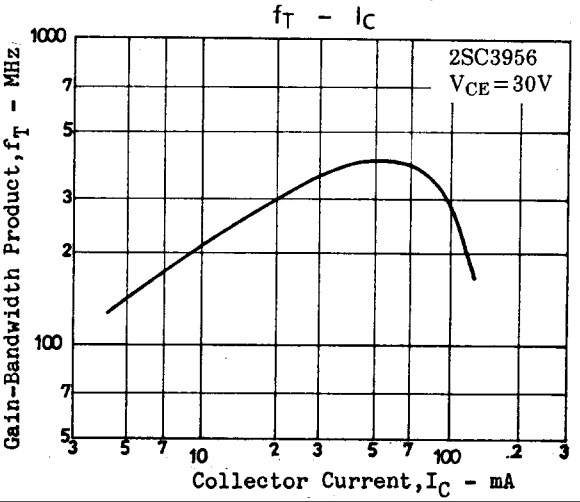
h_{FE} – I_C

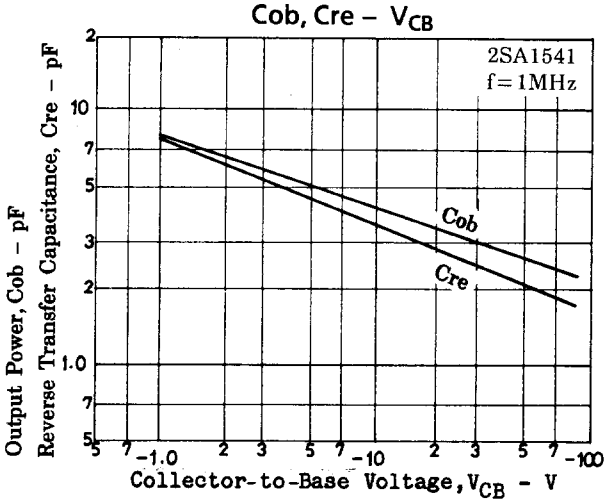


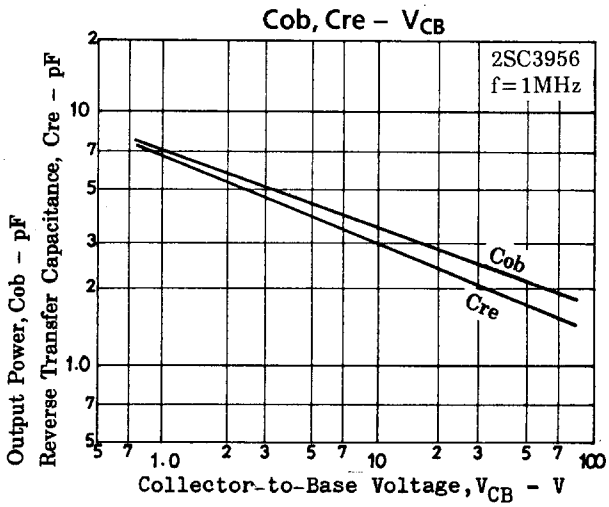
f_T – I_C

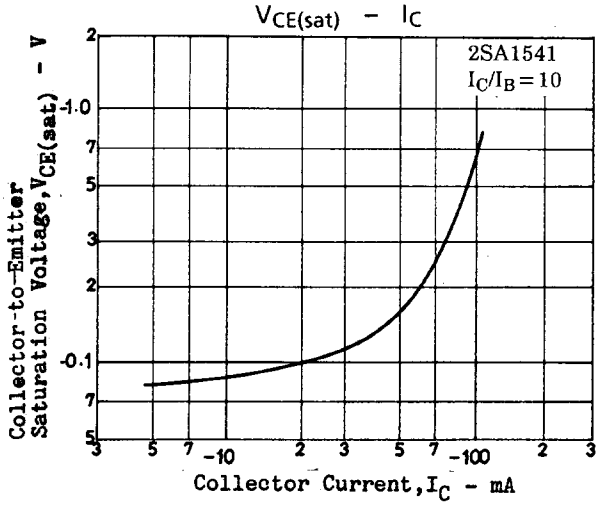


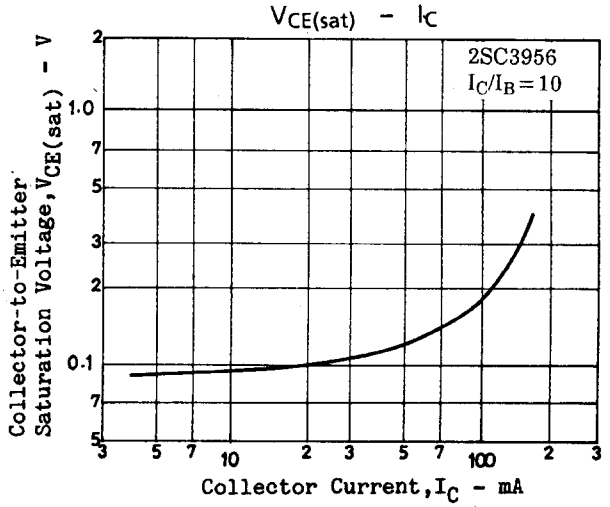
f_T – I_C

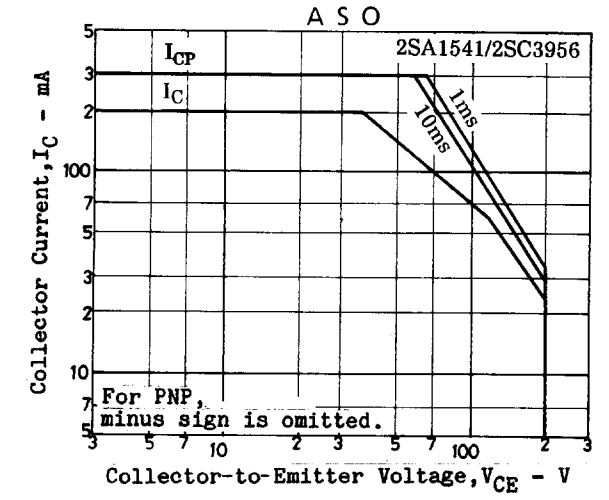


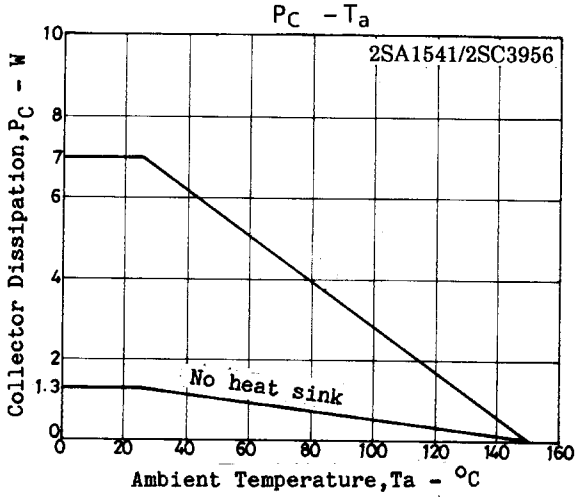

Cob, Cre – V_{CB}
2SA1541
f=1MHz
Cob
Cre
Output Power, Cob – pF
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, V_{CB} – V


Cob, Cre – V_{CB}
2SC3956
f=1MHz
Cob
Cre
Output Power, Cob – pF
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, V_{CB} – V


$V_{CE(sat)}$ – I_C
2SA1541
$I_C/I_B=10$
Collector-to-Emitter Saturation Voltage, $V_{CE(sat)}$ – V
Collector Current, I_C – mA


$V_{CE(sat)}$ – I_C
2SC3956
$I_C/I_B=10$
Collector-to-Emitter Saturation Voltage, $V_{CE(sat)}$ – V
Collector Current, I_C – mA


A S O
2SA1541/2SC3956
I_{CP}
I_C
1ms
10ms
For PNP, minus sign is omitted.
Collector Current, I_C – mA
Collector-to-Emitter Voltage, V_{CE} – V


P_C – T_a
2SA1541/2SC3956
No heat sink
Collector Dissipation, P_C – W
Ambient Temperature, Ta – °C