Ordering number:EN1426B

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1381/2SC3503

High-Definition CRT Display, Video Output Applications

Features

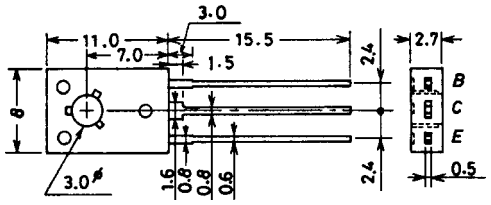
- High breakdown voltage : V_{CEO}≥300V.
- Small reverse transfer capacitance and excellent high frequency characteristic
  : C_{re}=1.8 pF (NPN), 2.3pF (PNP), V_{CB}=30V.
- Adoption of MBIT process.

Package Dimensions

unit:mm

2009A

[2SA1381/2SC3503]



JEDEC : TO-126

B : Base
C : Collector
E : Emitter

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)300	V
Collector-to-Emitter Voltage	V_{CEO}		(–)300	V
Emitter-to-Base Voltage	V_{EBO}		(–)5	V
Collector Current	I_C		(–)100	mA
Collector Current (Pulse)	I_{CP}		(–)200	mA
Collector Dissipation	P_C		1.2	W
		Tc=25˚C	7	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

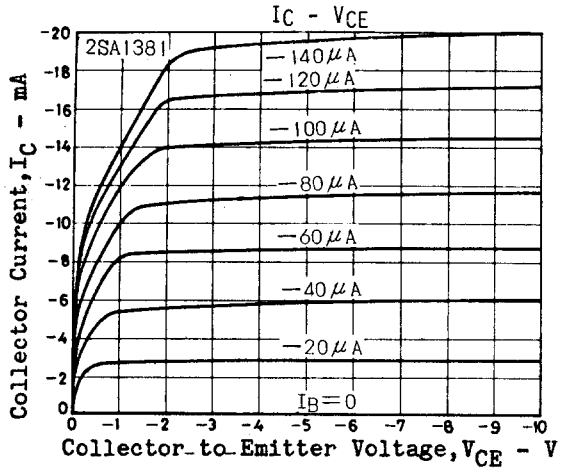
Electrical Characteristics at Ta = 25˚C

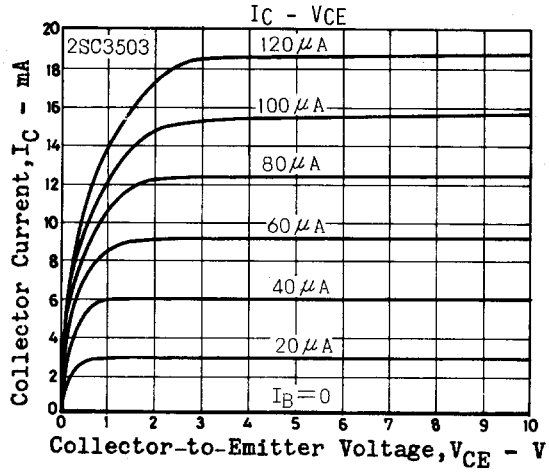
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)200V, I_E=0			(–)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)0.1	μA
DC Current Gain	h_{FE}	V_{CE}=(–)10V, I_C=(–)10mA	40*		320*	
Gain-Bandwidth Product	f_T	V_{CE}=(–)30V, I_C=(–)10mA		150		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)30V, f=1MHz		2.6		pF
				(3.1)		pF
Reverse Transfer Capacitance	C_{re}	V_{CB}=(–)30V, f=1MHz		1.8		pF
				(2.3)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)20mA, I_B=(–)2mA			(–)0.6	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)20mA, I_B=(–)2mA			(–)1.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)300			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)300			V
Base-to-Emitter Breakdown Votage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0	(–)5			V

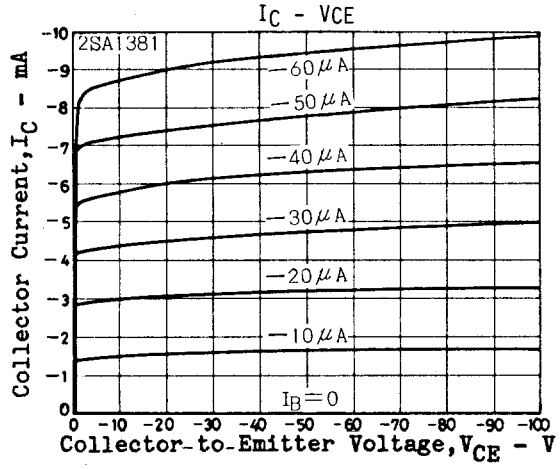
* : The 2SA1381/2SC3503 are classified by 10mA h_{FE} as follows :

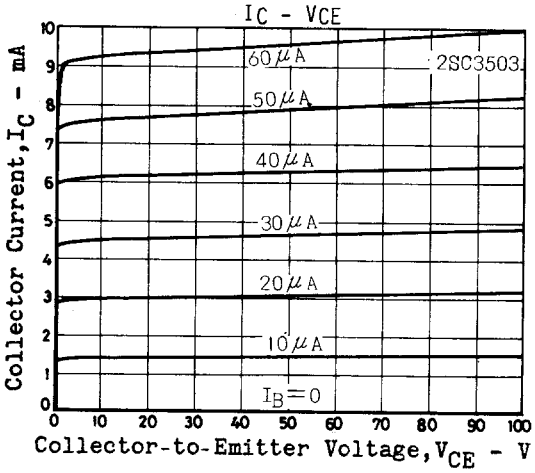
40	C	80	60	D	120	100	E	200	160	F	320

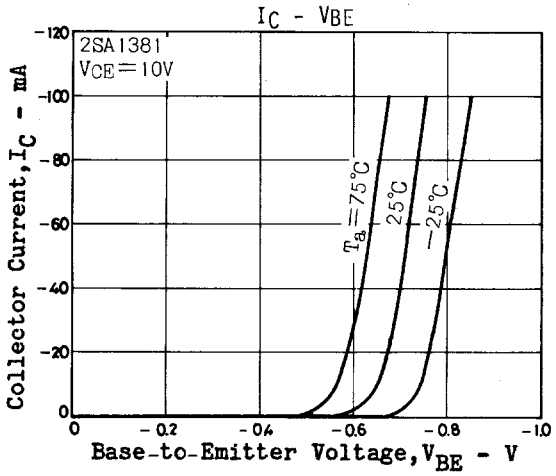
SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

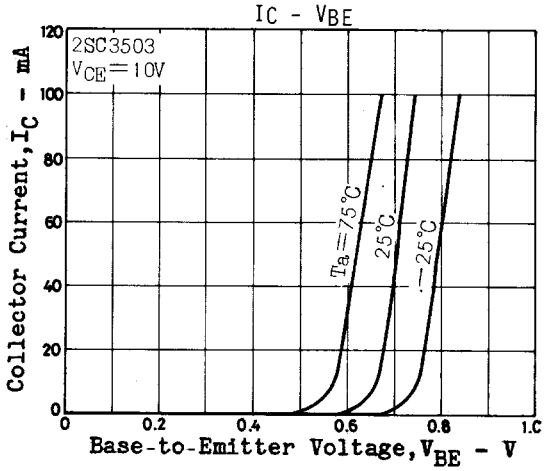

IC - VCE
2SA1381
−140μA
−120μA
−100μA
−80μA
−60μA
−40μA
−20μA
IB=0
Collector Current, IC - mA
Collector-to-Emitter Voltage, VCE - V

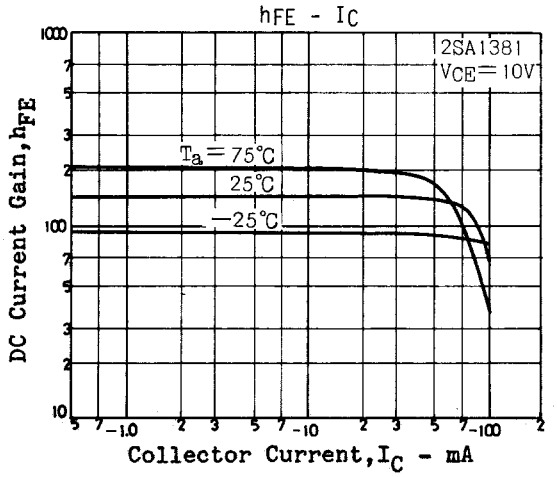

IC - VCE
2SC3503
120μA
100μA
80μA
60μA
40μA
20μA
IB=0
Collector Current, IC - mA
Collector-to-Emitter Voltage, VCE - V

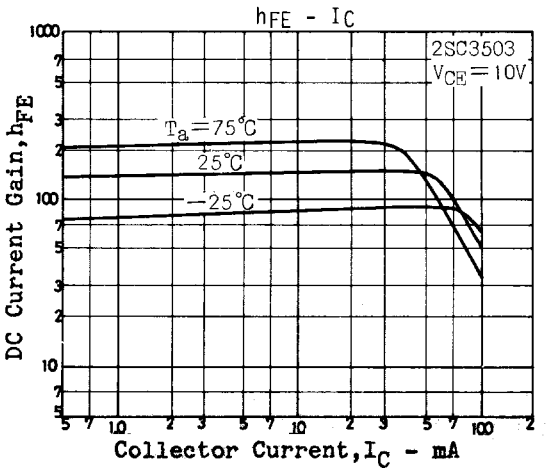

IC - VCE
2SA1381
−60μA
−50μA
−40μA
−30μA
−20μA
−10μA
IB=0
Collector Current, IC - mA
Collector-to-Emitter Voltage, VCE - V

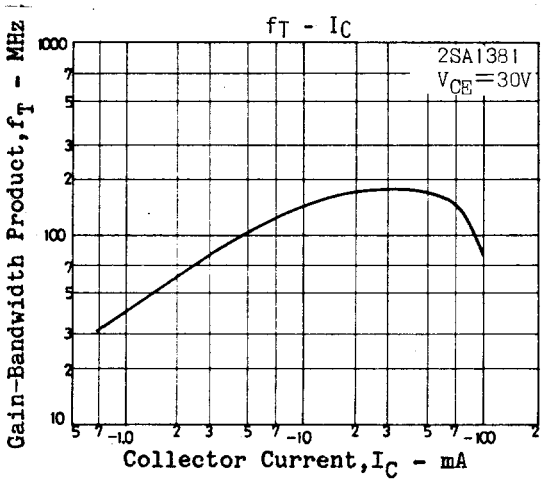

IC - VCE
2SC3503
60μA
50μA
40μA
30μA
20μA
10μA
IB=0
Collector Current, IC - mA
Collector-to-Emitter Voltage, VCE - V

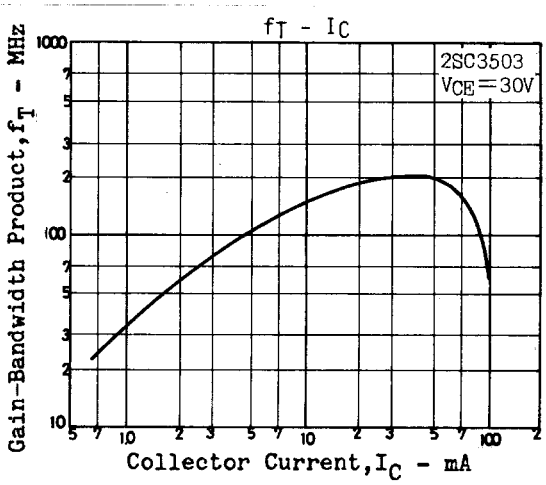

IC - VBE
2SA1381
VCE=10V
Ta=75°C
25°C
−25°C
Collector Current, IC - mA
Base-to-Emitter Voltage, VBE - V

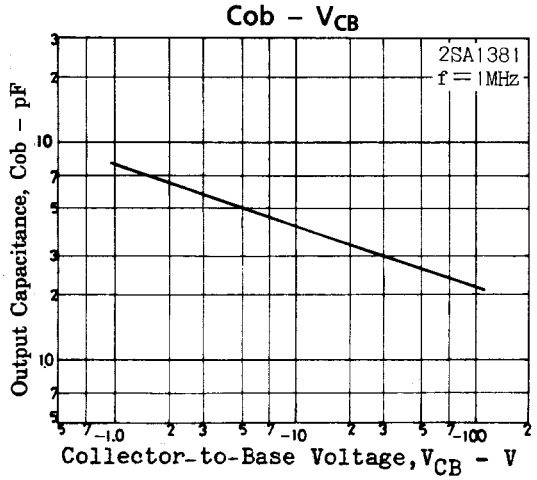

IC - VBE
2SC3503
VCE=10V
Ta=75°C
25°C
−25°C
Collector Current, IC - mA
Base-to-Emitter Voltage, VBE - V

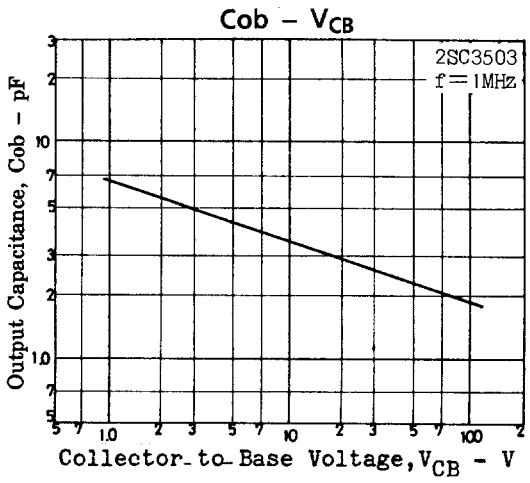

hFE - IC
2SA1381
VCE=10V
Ta=75°C
25°C
−25°C
DC Current Gain, hFE
Collector Current, IC - mA

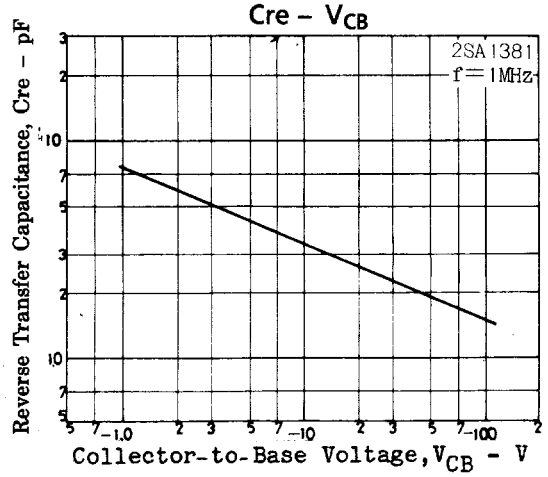

hFE - IC
2SC3503
VCE=10V
Ta=75°C
25°C
−25°C
DC Current Gain, hFE
Collector Current, IC - mA

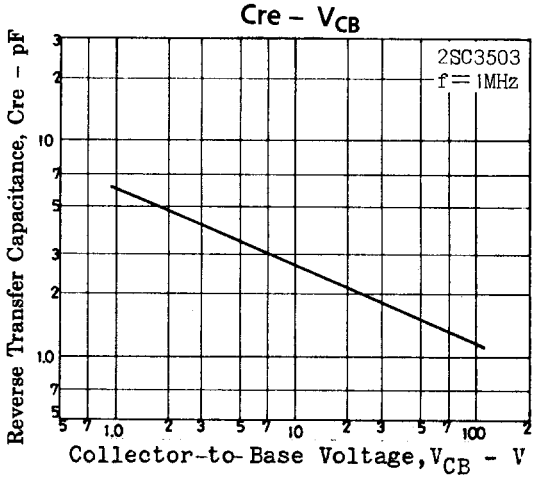

fT - IC
2SA1381
VCE=30V
Gain-Bandwidth Product, fT - MHz
Collector Current, IC - mA

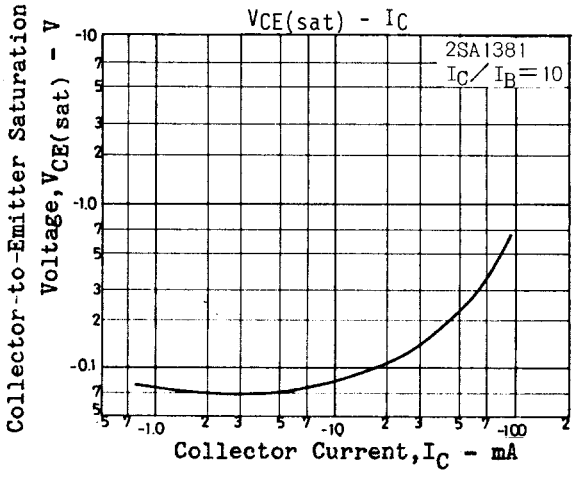

fT - IC
2SC3503
VCE=30V
Gain-Bandwidth Product, fT - MHz
Collector Current, IC - mA

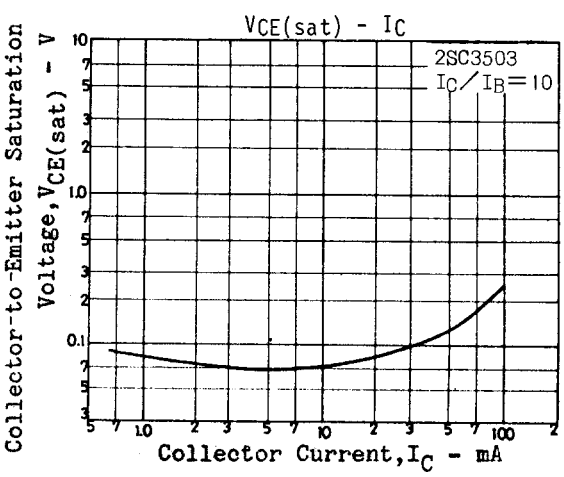

Cob - VCB
2SA1381
f=1MHz
Output Capacitance, Cob - pF
Collector-to-Base Voltage, VCB - V

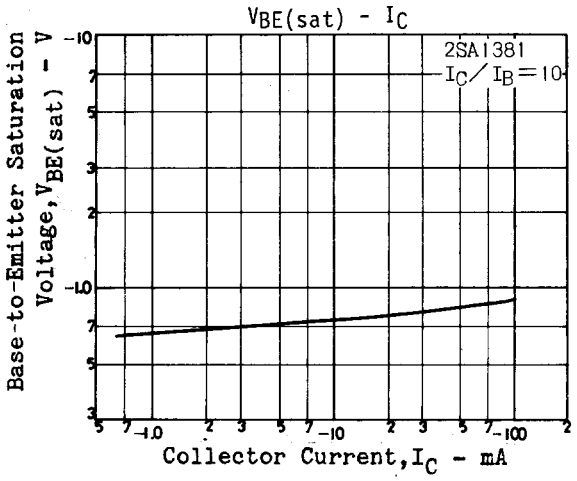

Cob - VCB
2SC3503
f=1MHz
Output Capacitance, Cob - pF
Collector-to-Base Voltage, VCB - V

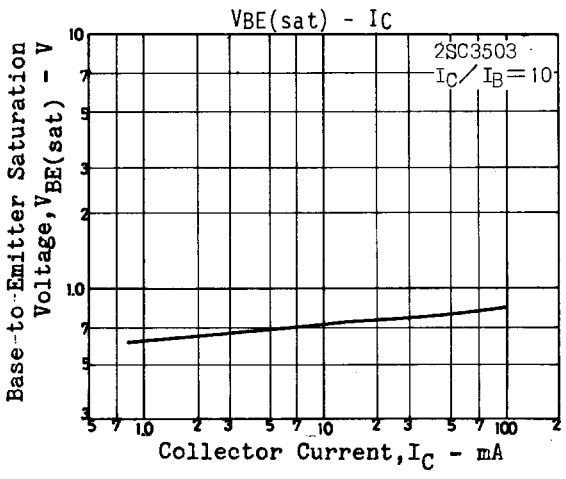

Cre - VCB
2SA1381
f=1MHz
Reverse Transfer Capacitance, Cre - pF
Collector-to-Base Voltage, VCB - V

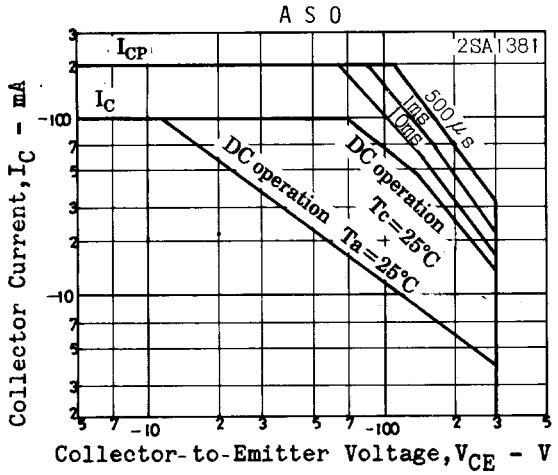

Cre - VCB
2SC3503
f=1MHz
Reverse Transfer Capacitance, Cre - pF
Collector-to-Base Voltage, VCB - V

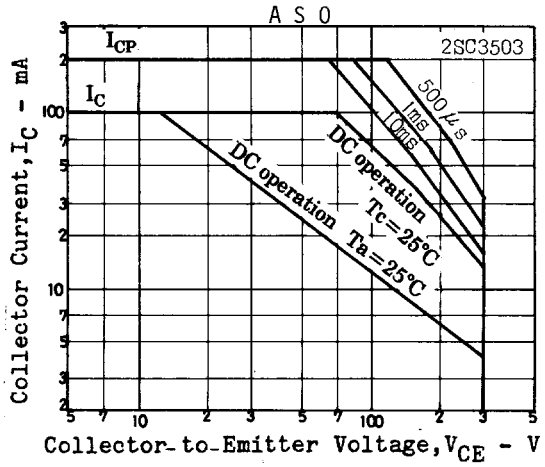

VCE(sat) - IC
2SA1381
IC/IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) - V
Collector Current, IC - mA

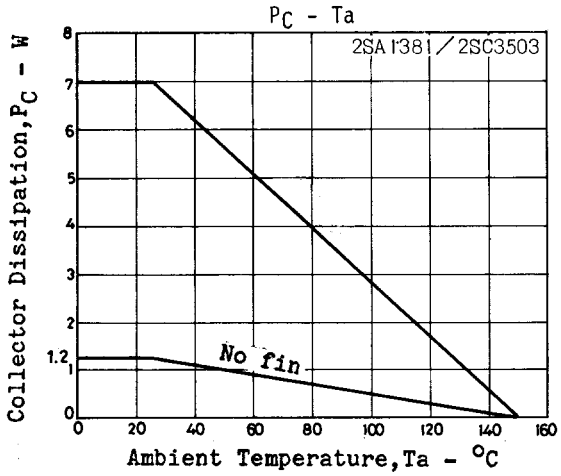

VCE(sat) - IC
2SC3503
IC/IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) - V
Collector Current, IC - mA











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