



## 2SA1381/2SC3503

### High-Definition CRT Display, Video Output Applications

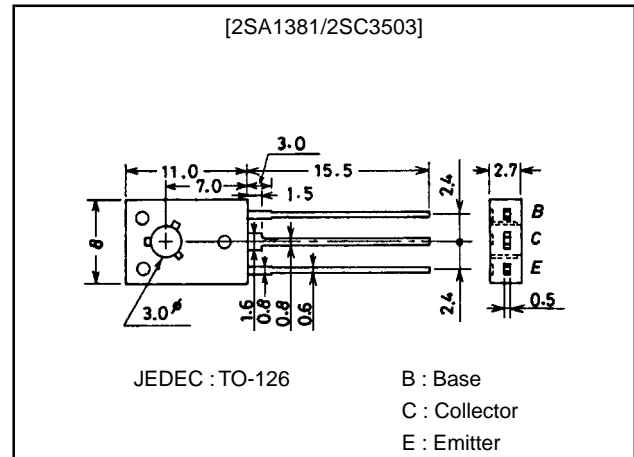
#### Features

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

#### Package Dimensions

unit:mm

2009A



#### Specifications

##### Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

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
		$T_c = 25^\circ\text{C}$	7	W
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

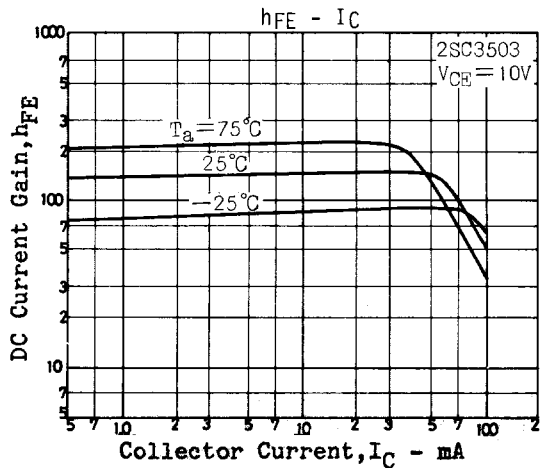
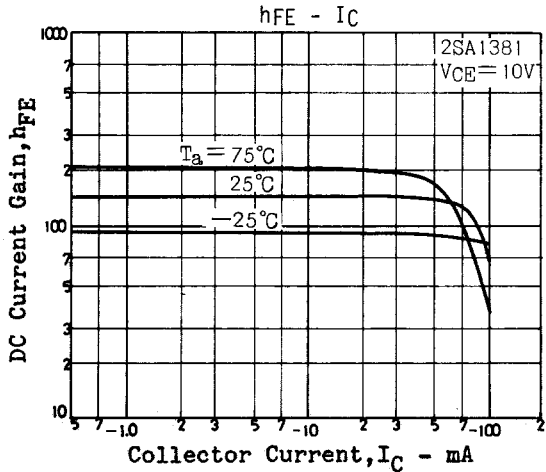
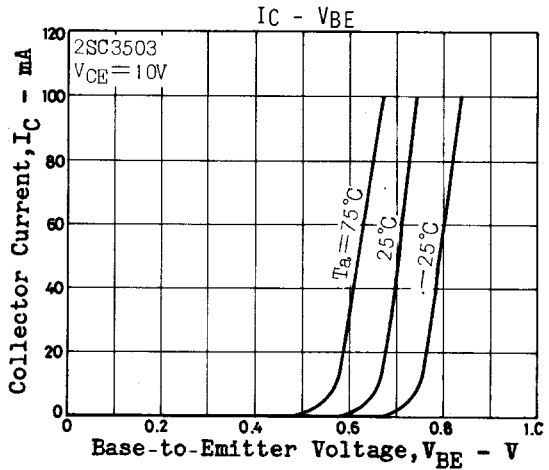
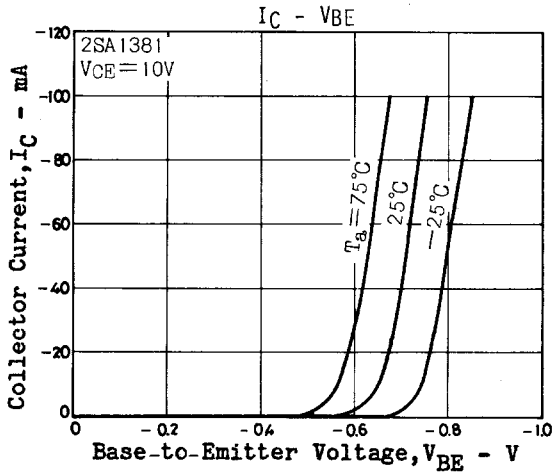
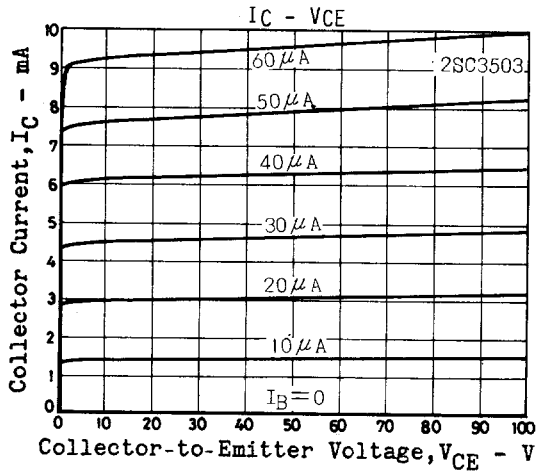
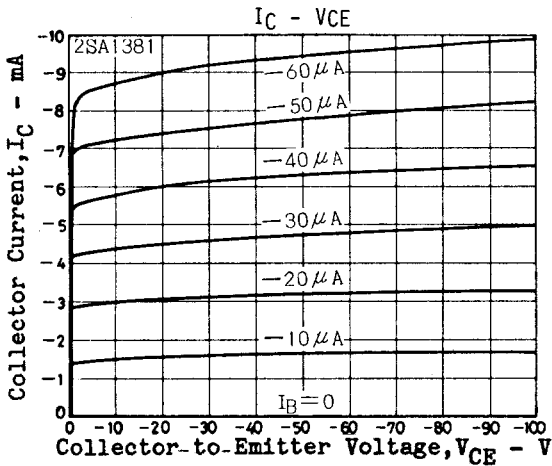
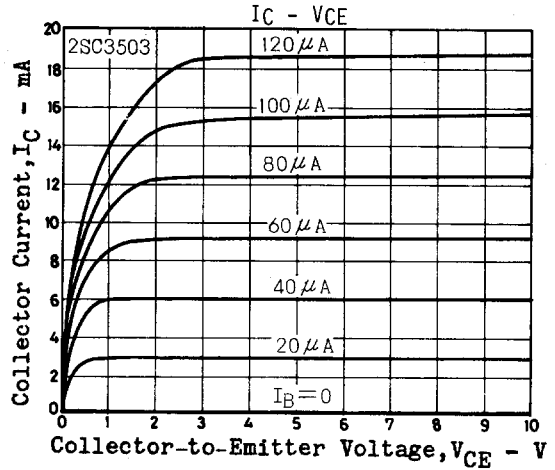
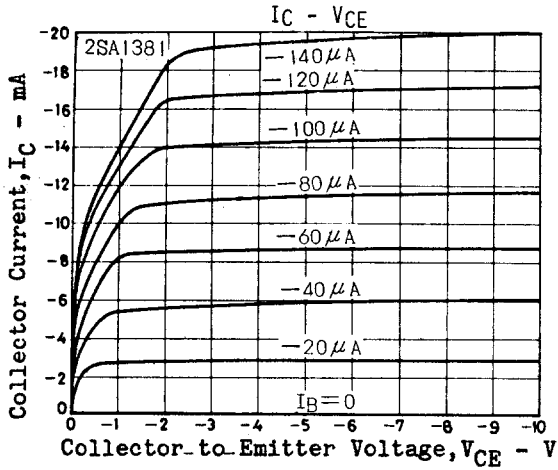
##### Electrical Characteristics at $T_a = 25^\circ\text{C}$

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

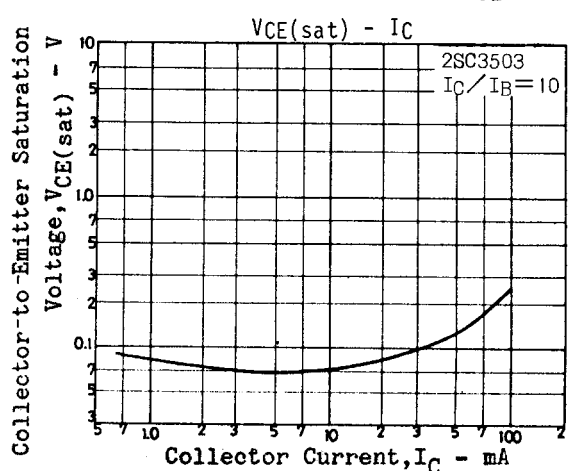
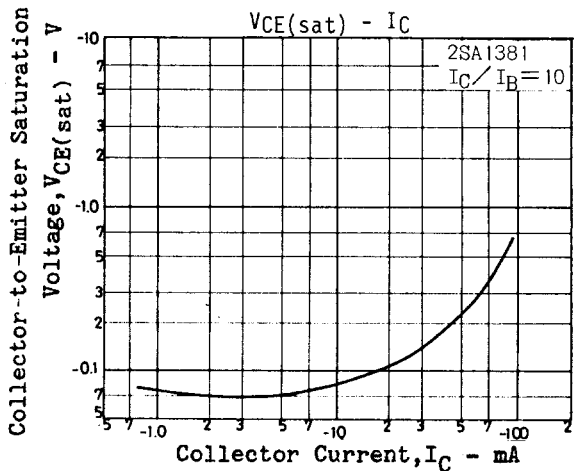
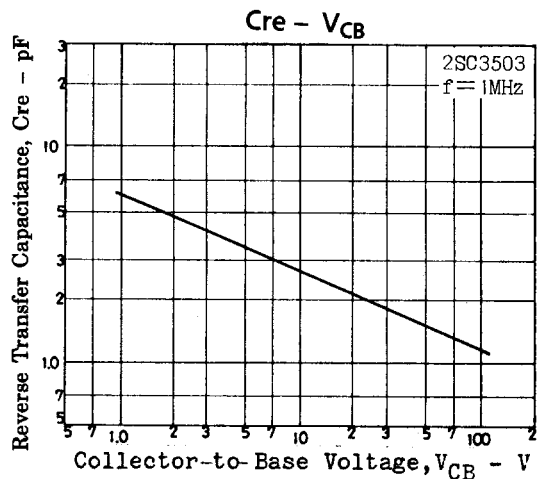
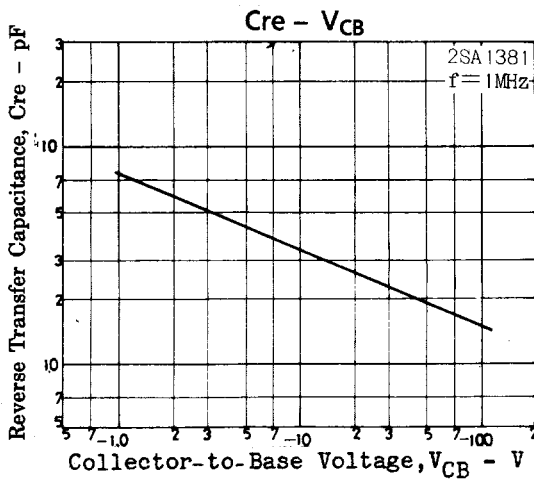
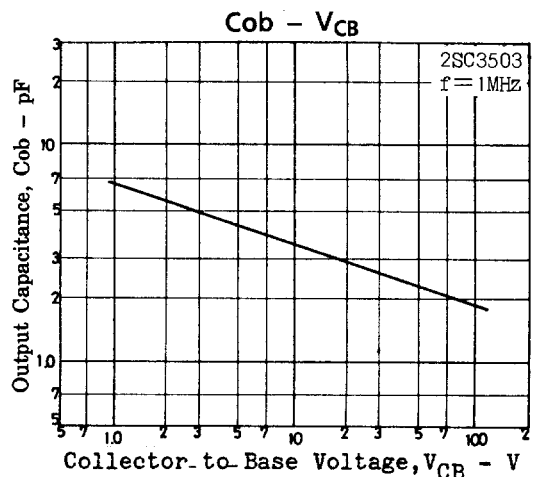
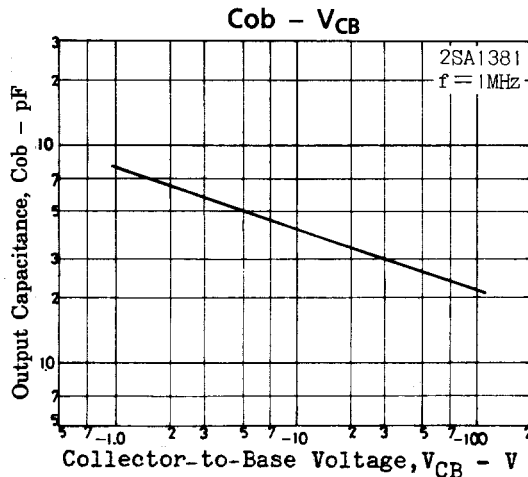
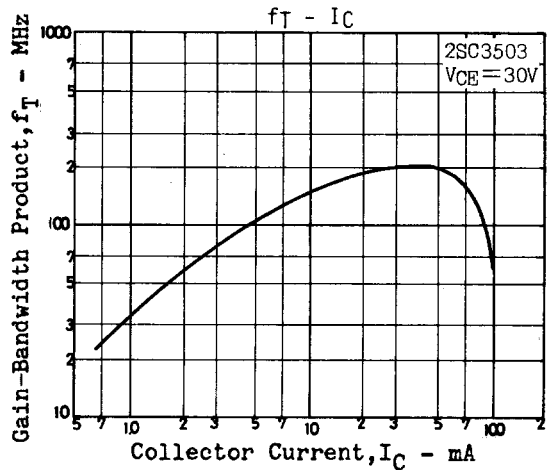
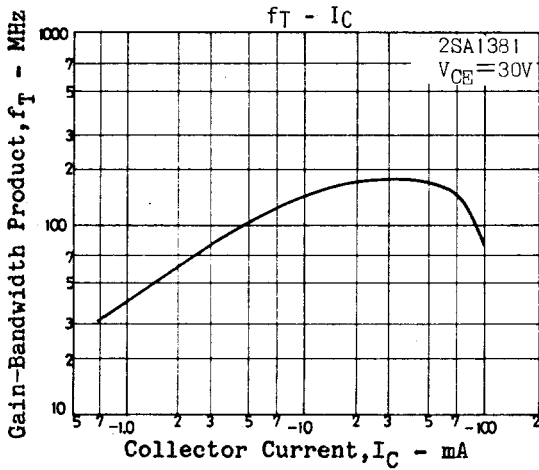
\* : The 2SA1381/2SC3503 are classified by  $10\text{mA } h_{FE}$  as follows :

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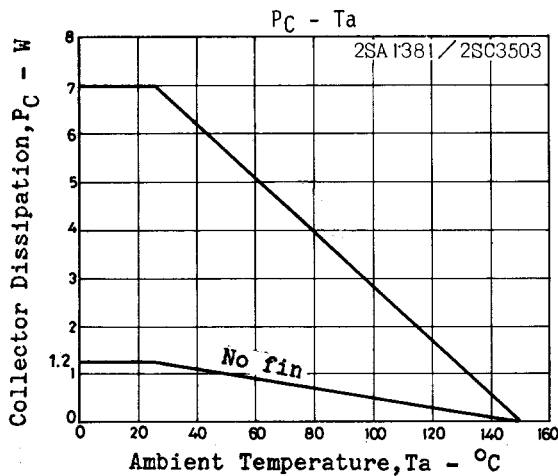
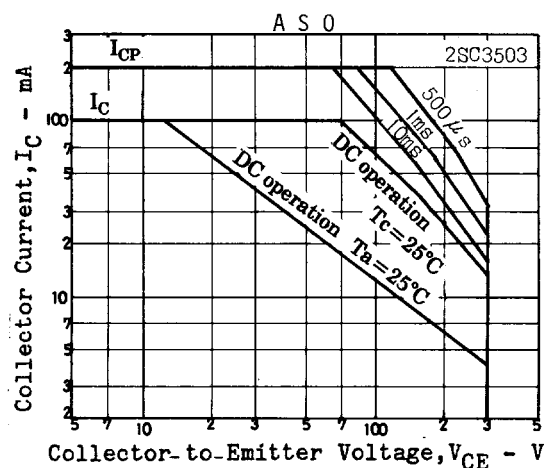
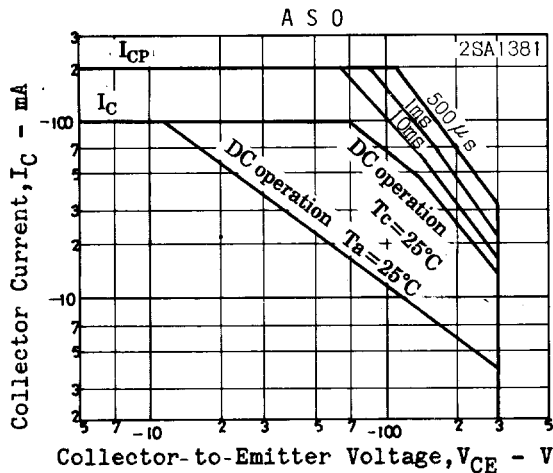
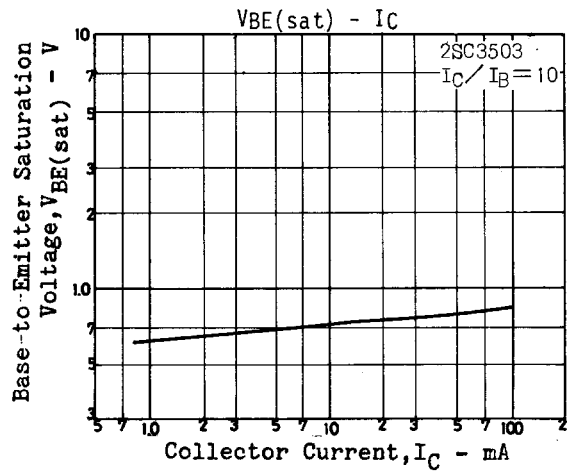
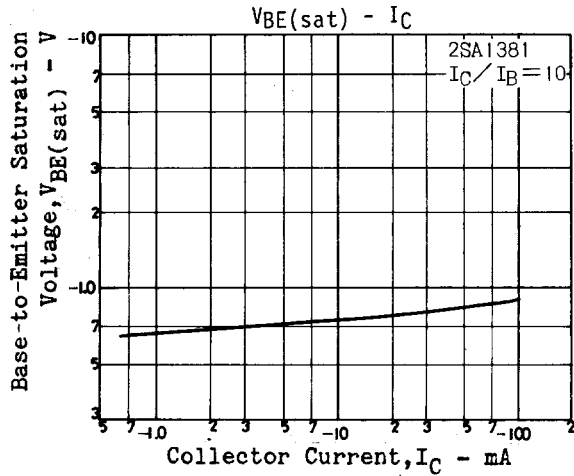
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