



## 2SA1381/2SC3503

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

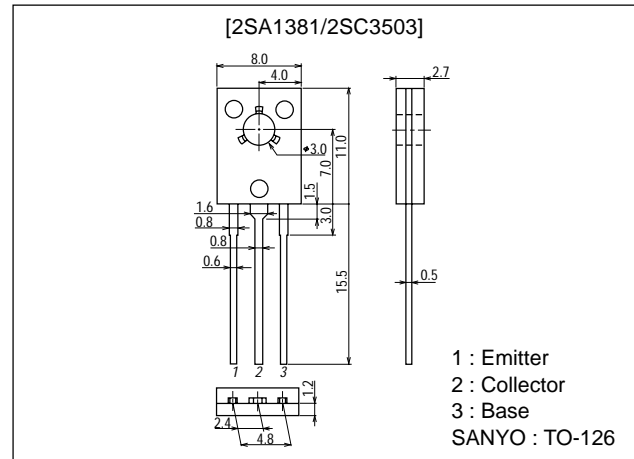
#### Features

- 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

2009B



() : 2SA1381

#### Specifications

Absolute Maximum Ratings at  $T_a = 25^\circ C$ 

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

Electrical Characteristics at  $T_a = 25^\circ C$ 

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)200V, I_E = 0$			(-)0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4V, I_C = 0$			(-)0.1	$\mu A$
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

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

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

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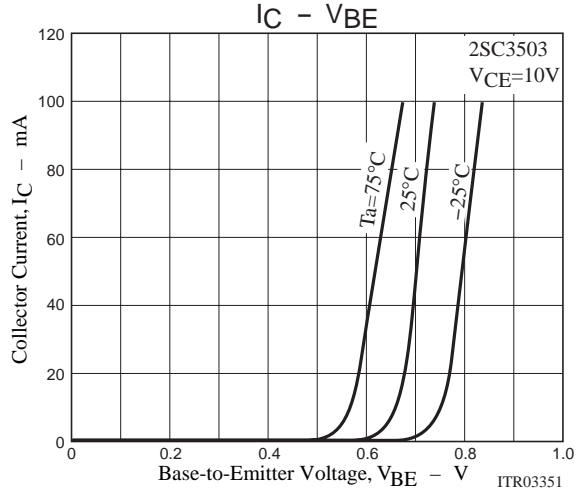
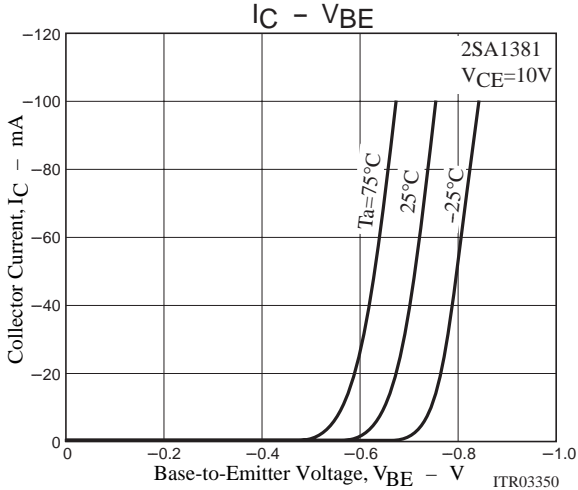
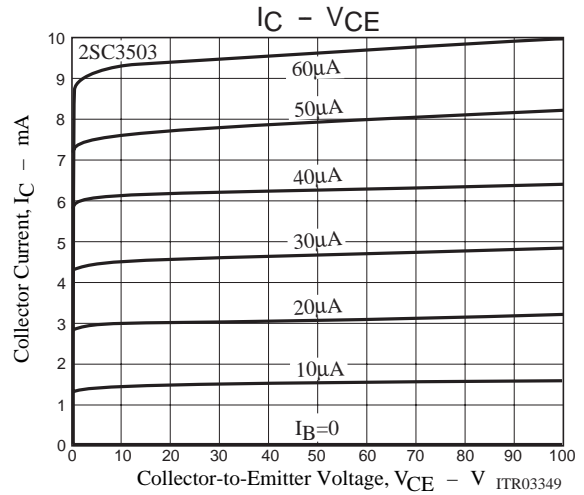
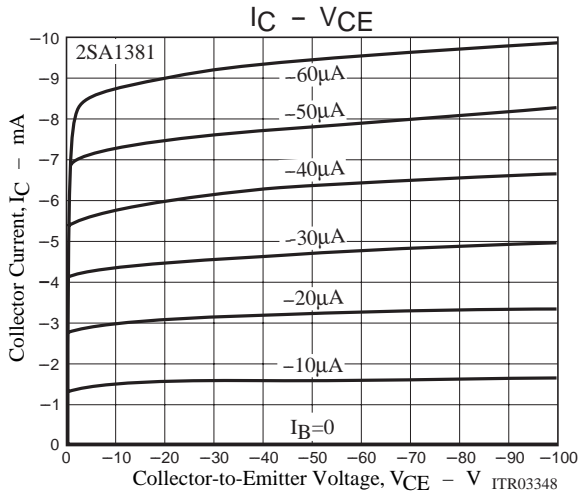
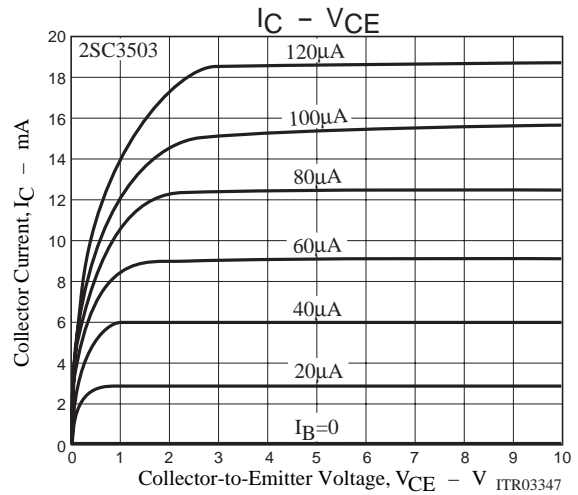
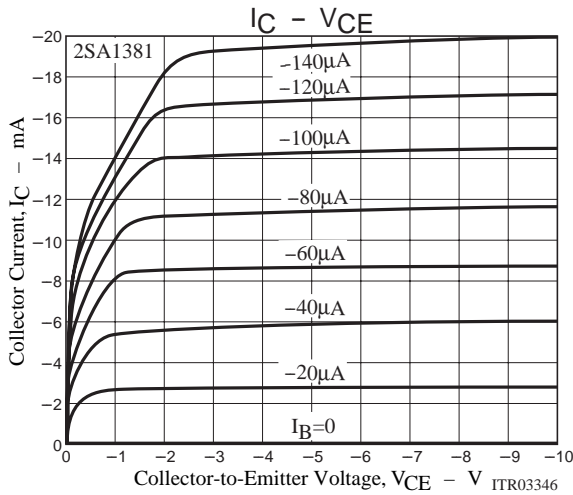
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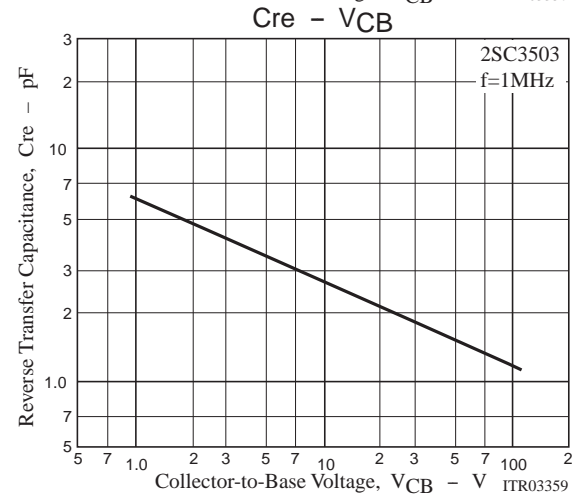
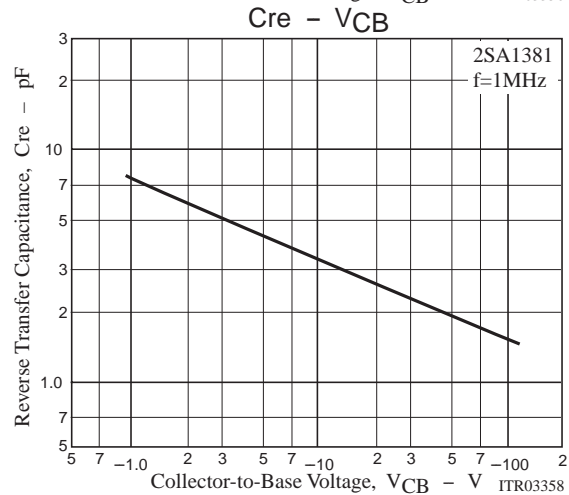
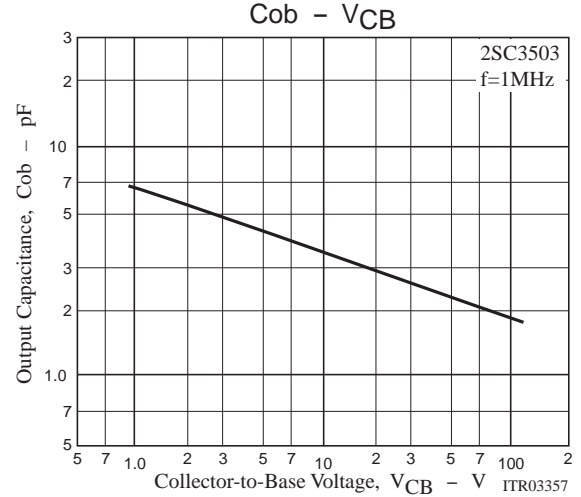
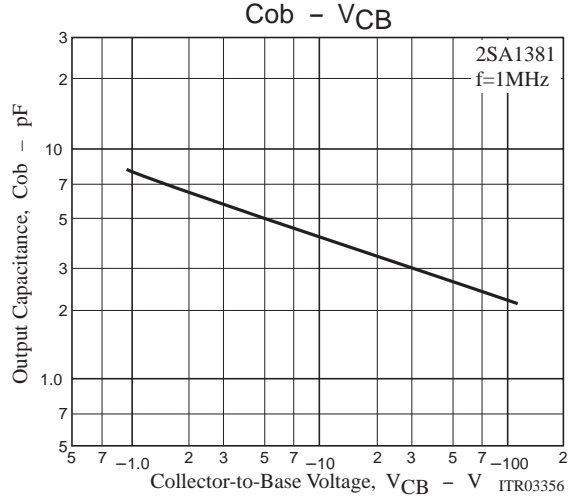
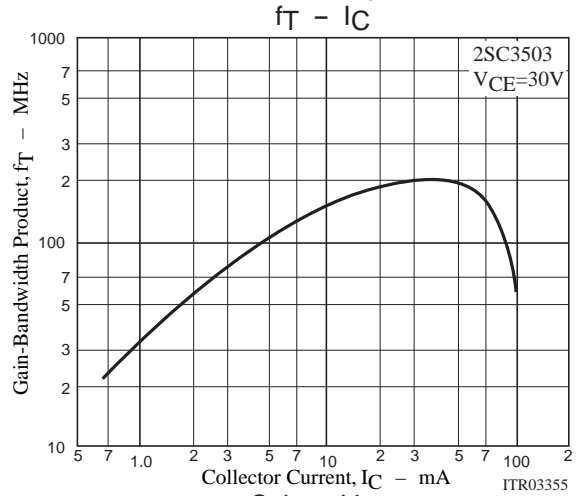
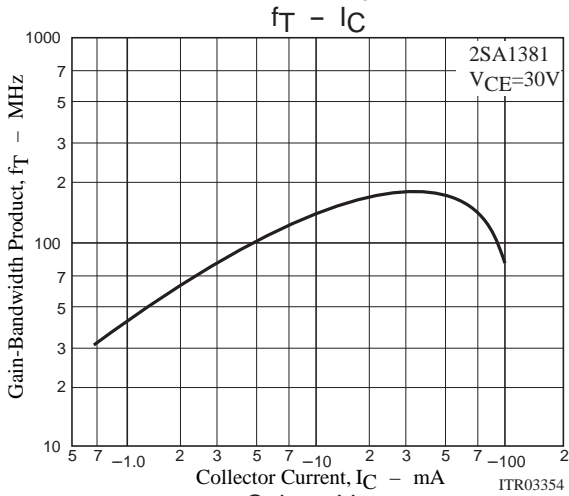
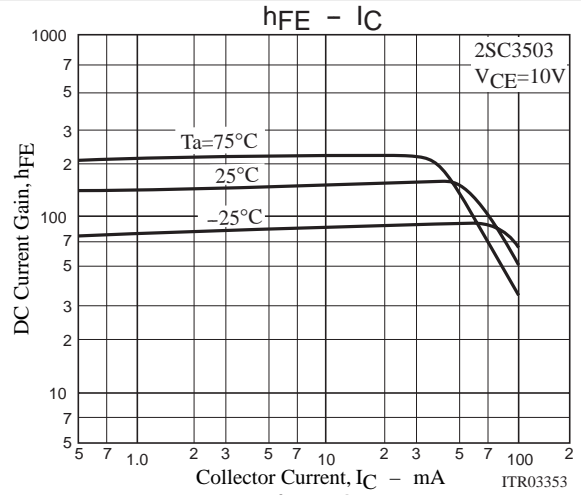
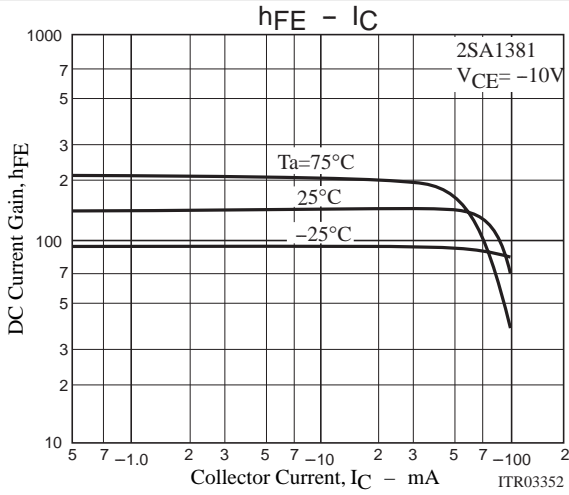
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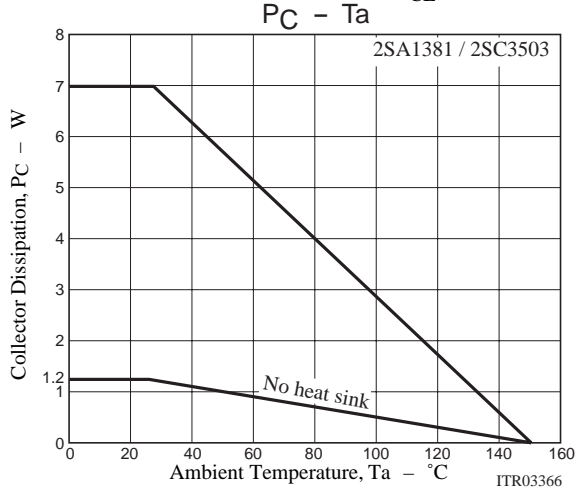
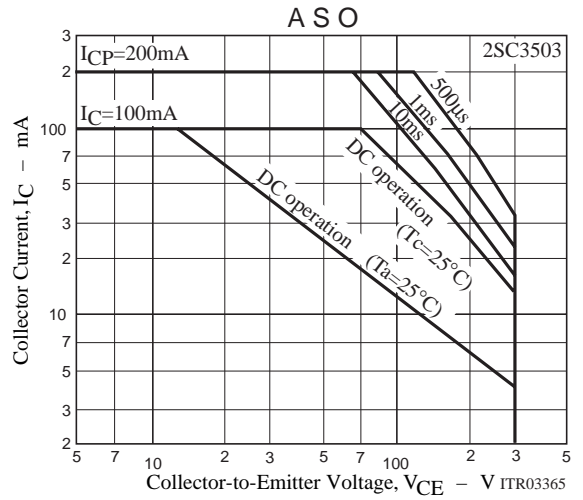
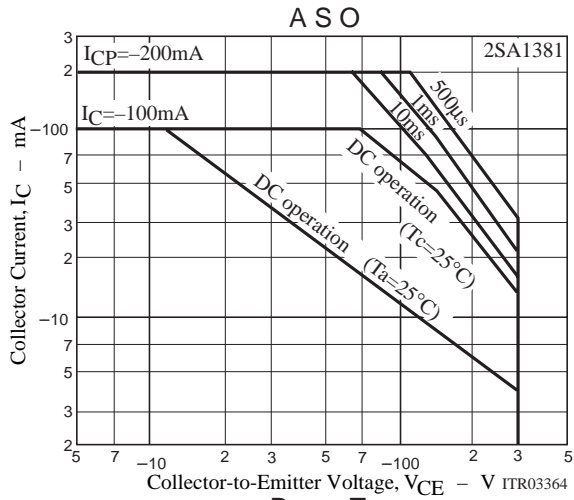
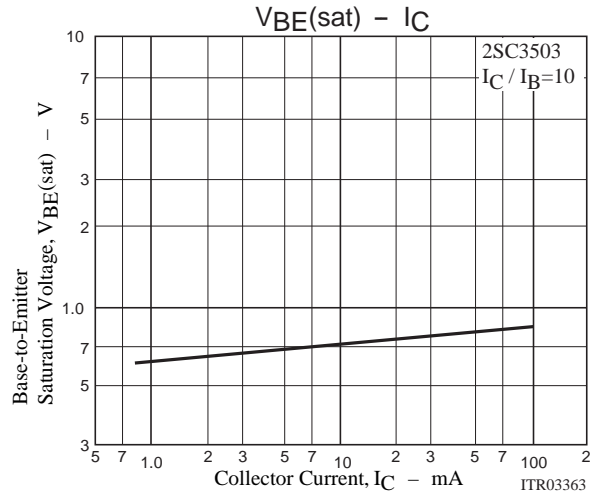
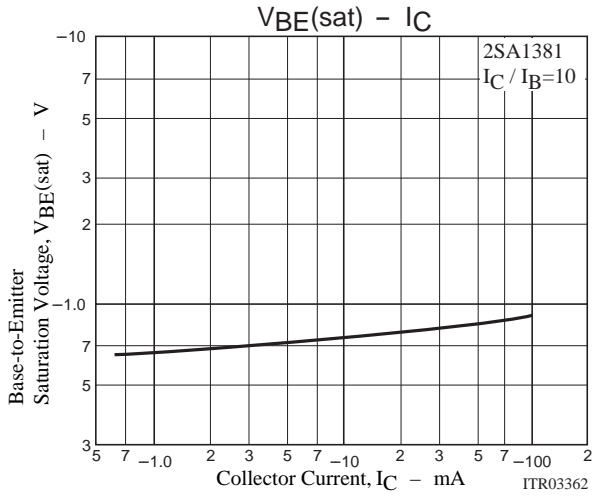
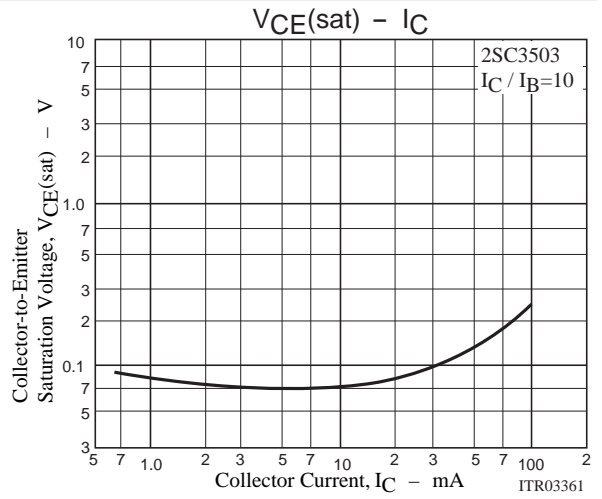
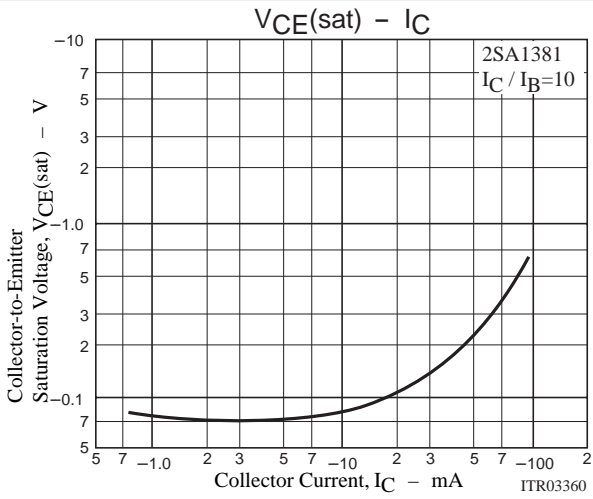
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	$C_{ob}$	$V_{CB}=(-)30V, f=1MHz$		2.6		pF
				(3.1)		pF
Reverse Transfer Capacitance	$C_{re}$	$V_{CB}=(-)30V, f=1MHz$		1.8		pF
				(2.3)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)20mA, I_B=(-)2mA$			(-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	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-300)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-300)			V
Base-to-Emitter Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-5)			V



# 2SA1381/2SC3503



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