



# 2SA1541/2SC3956

## High-Definition CRT Display Video Output Applications

### Applications

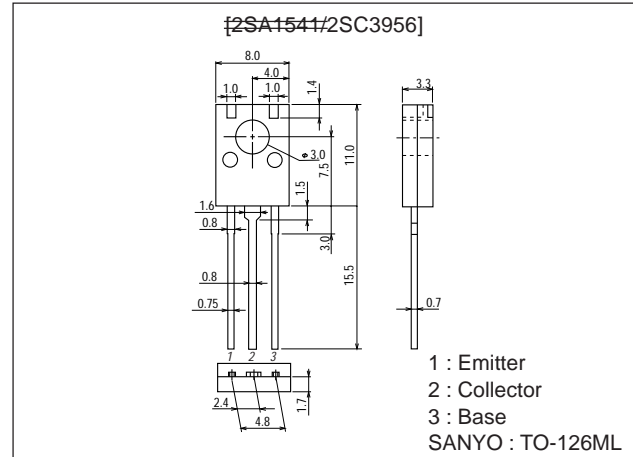
- High-definition CRT display video output, wide-band amplifier.

### Features

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

### Package Dimensions

unit:mm  
2042B



( $\ominus$ ): 2SA1541

### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		$\ominus 200$	V
Collector-to-Emitter Voltage	$V_{CEO}$		$\ominus 200$	V
Emitter-to-Base Voltage	$V_{EBO}$		$\ominus 3$	V
Collector Current	$I_C$		$\ominus 200$	mA
Peak Collector Current	$I_{CP}$		$\ominus 300$	mA
Collector Dissipation	$P_C$		1.3	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	$I_{CBO}$	$V_{CB}=\ominus 150\text{V}, I_E=0$			$\ominus 0.1$	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=\ominus 2\text{V}, I_C=0$			$\ominus 1.0$	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=\ominus 10\text{V}, I_C=\ominus 10\text{mA}$	40*		320*	
	$h_{FE2}$	$V_{CE}=\ominus 10\text{V}, I_C=\ominus 100\text{mA}$	20			
Gain-Bandwidth Product	$f_T$	$V_{CE}=\ominus 30\text{V}, I_C=\ominus 50\text{mA}$		300		MHz

\* $h_{FE1}$  : The 2SA1541/2SC3956 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

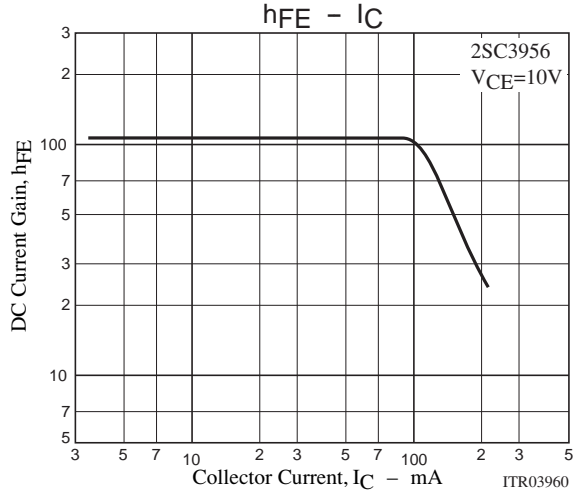
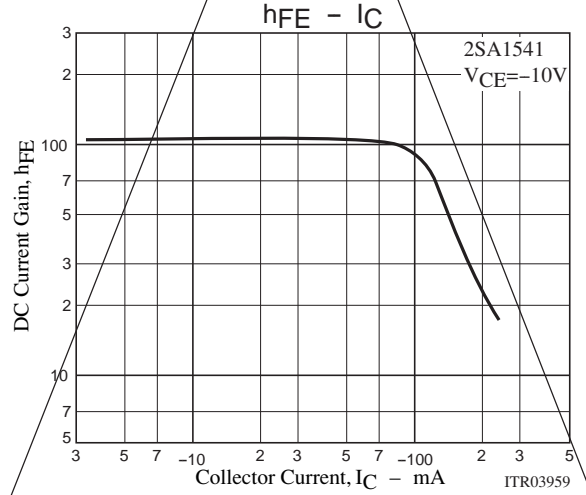
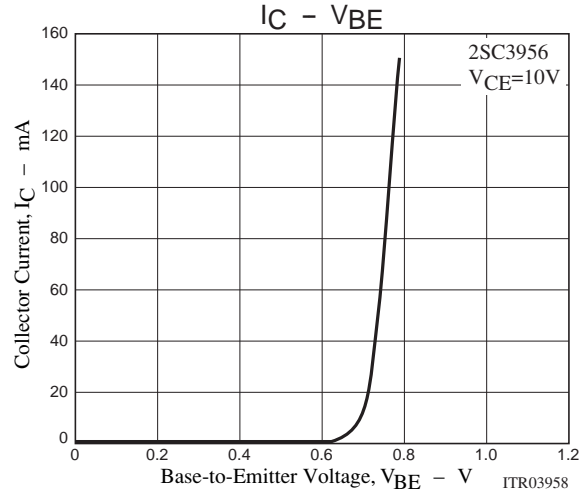
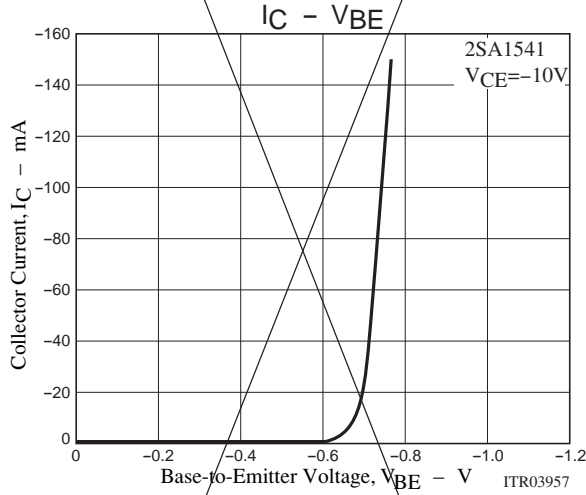
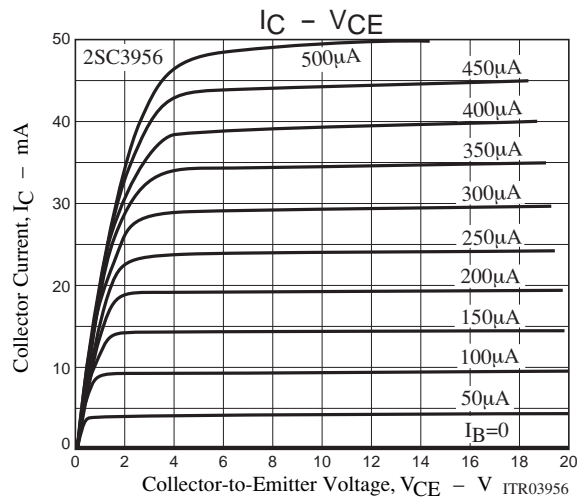
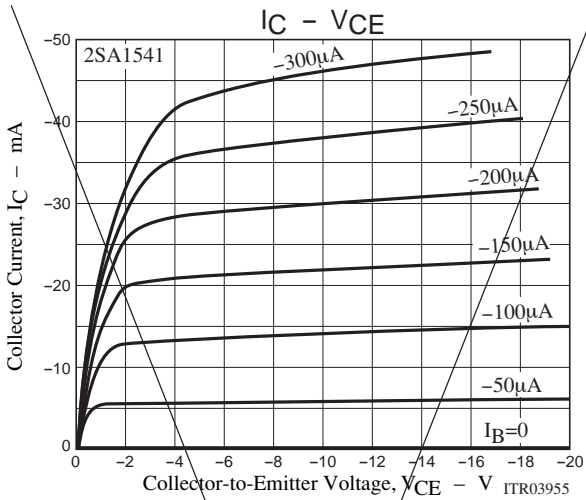
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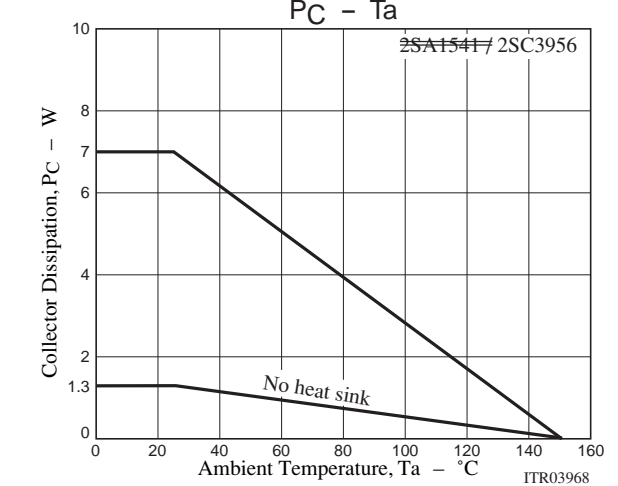
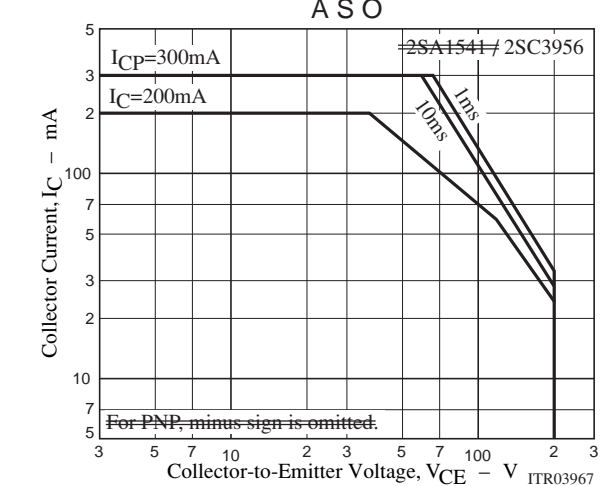
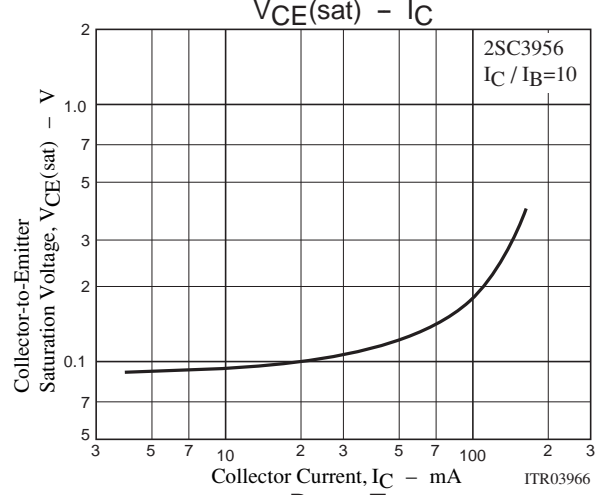
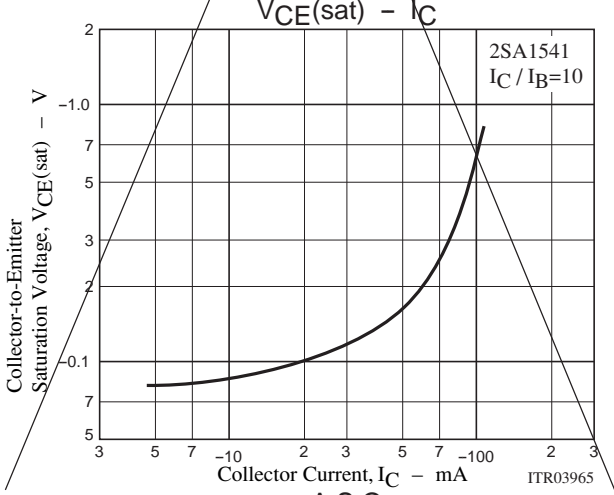
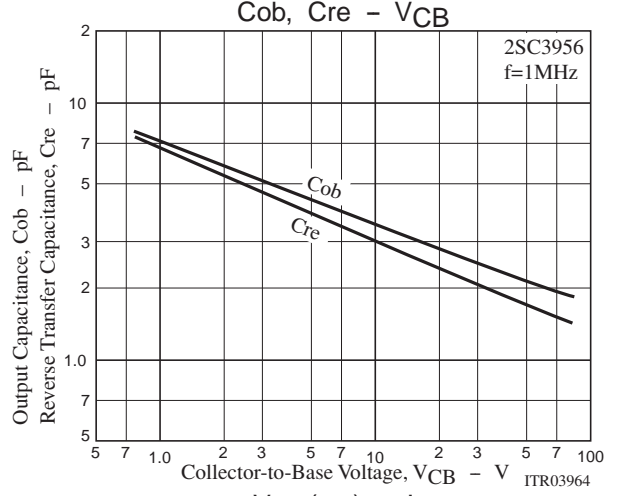
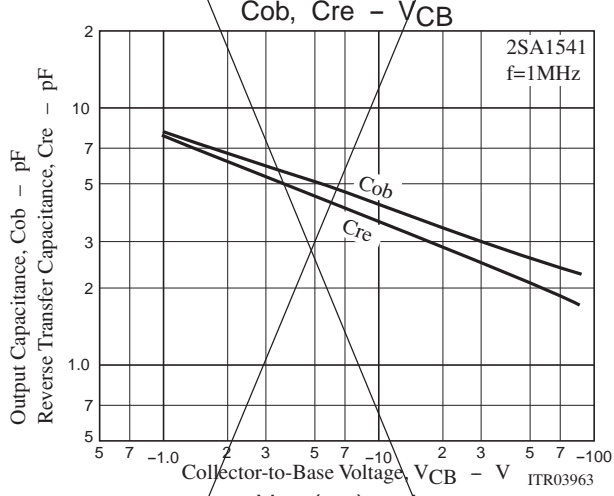
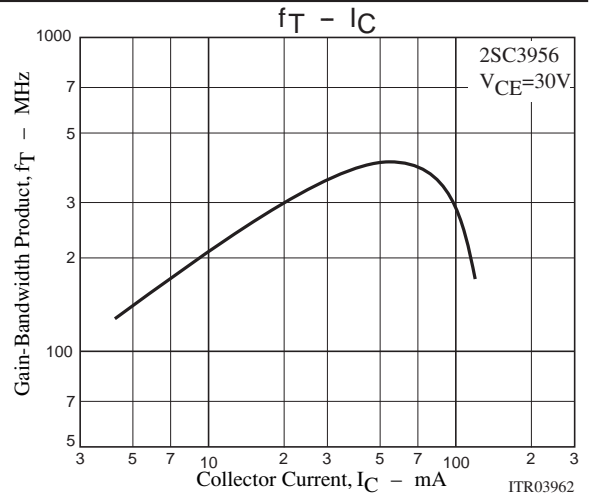
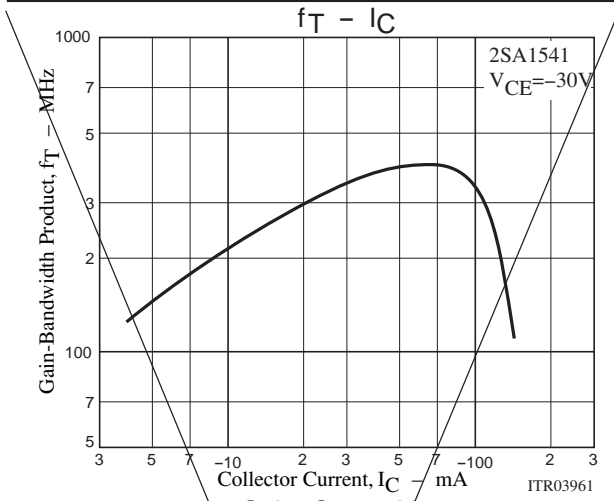
# 2SA1541/2SC3956

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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	$C_{ob}$	$V_{CB} = 30V, f = 1MHz$		2.7		pF
				<del>(3.2)</del>		pF
Reverse Transfer Capacitance	$C_{re}$	$V_{CB} = 30V, f = 1MHz$		2.2		pF
				<del>(2.7)</del>		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 30mA, I_B = 3mA$			$\approx 1.0$	V
Emitter-to-Base Saturation Voltage	$V_{BE(sat)}$	$I_C = 30mA, I_B = 3mA$			$\approx 1.0$	V



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