

# 2SA1538/2SC3953

PNP/NPN Epitaxial Planar Silicon Transistors

High-Definition CRT Display  
 Video Output Applications

### Applications

- High-definition CRT display video output, wide-band amp

### Features

- High  $f_T$ :  $f_T=400\text{MHz}$
- High breakdown voltage:  $V_{CEO}=120\text{Vmin}$
- Small reverse transfer capacitance and excellent HF response:  $c_{re}=1.7\text{pF/NPN}$ ,  $2.2\text{pF/PNP}$
- Complementary PNP and NPN types
- Adoption of FBET process
- Micaless type: TO126 plastic package

( ):PNP

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

Parameter	Symbol	Value	unit
Collector-to-Base Voltage	$V_{CBO}$	(-)120	V
Collector-to-Emitter Voltage	$V_{CEO}$	(-)120	V
Emitter-to-Base Voltage	$V_{EBO}$	(-)3	V
Collector Current	$I_C$	(-)200	mA
Peak Collector Current	$i_{cp}$	(-)400	mA
Collector Dissipation	$P_C$	1.3	W
		8	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

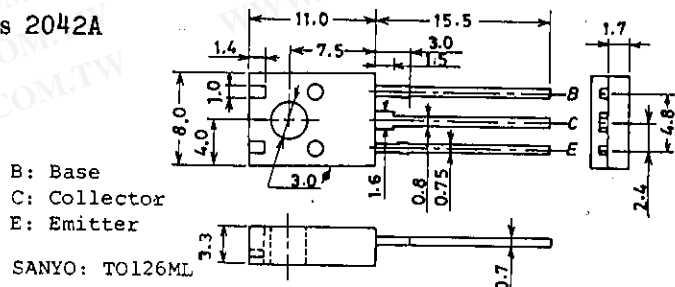
### Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Test Conditions	min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)80\text{V}, I_E=0$			(-)0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)2\text{V}, I_C=0$			(-)1.0	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=(-)10\text{V}, I_C=(-)10\text{mA}$	40*		320*	
	$h_{FE2}$	$V_{CE}=(-)10\text{V}, I_C=(-)100\text{mA}$	20			
Gain Bandwidth Product	$f_T$	$V_{CE}=(-)10\text{V}, I_C=(-)50\text{mA}$		400		MHz
Output Capacitance	$c_{ob}$	$V_{CB}=(-)30\text{V}, f=1\text{MHz}$		2.1		pF
				(2.8)		pF
Reverse Transfer Capacitance	$c_{re}$	$V_{CB}=(-)30\text{V}, f=1\text{MHz}$		1.7		pF
				(2.2)		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)30\text{mA}, I_B=(-)3\text{mA}$			(-)1.0	V
E-B Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)30\text{mA}, I_B=(-)3\text{mA}$			(-)1.0	V

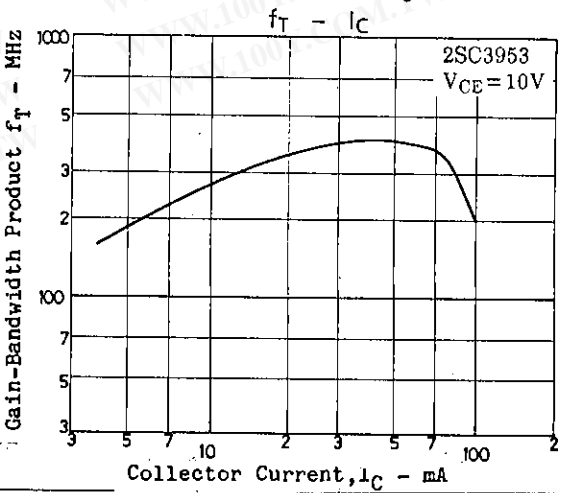
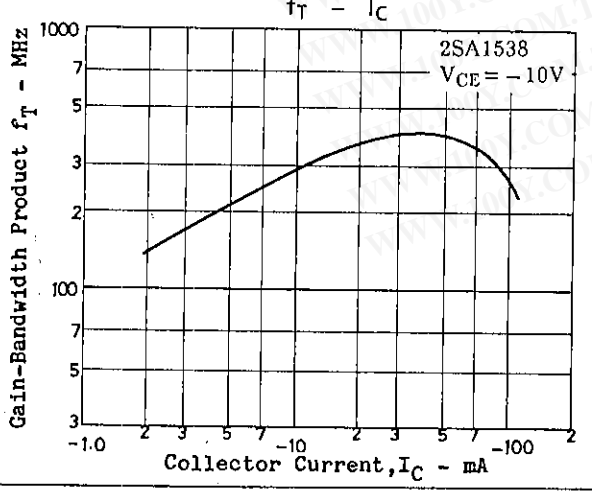
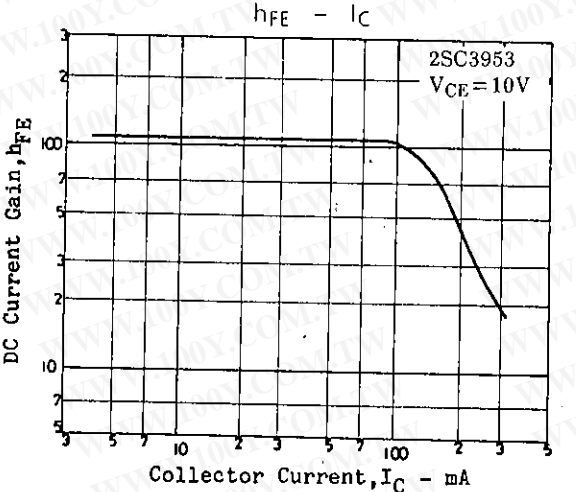
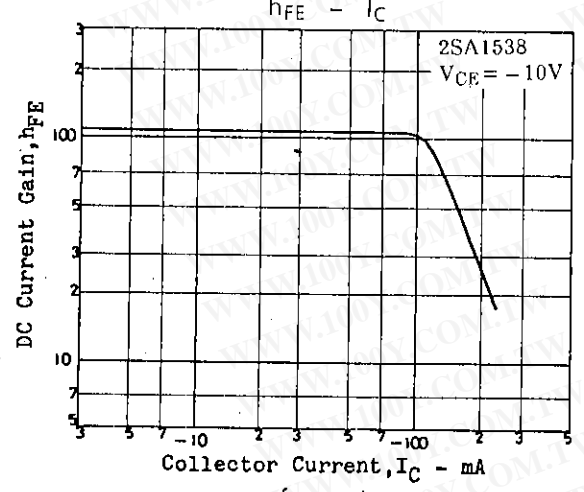
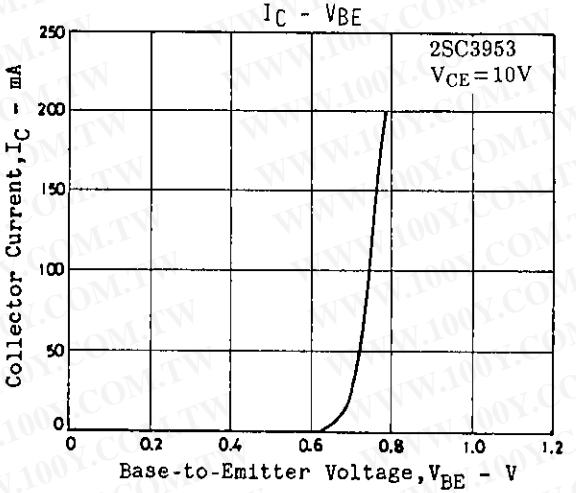
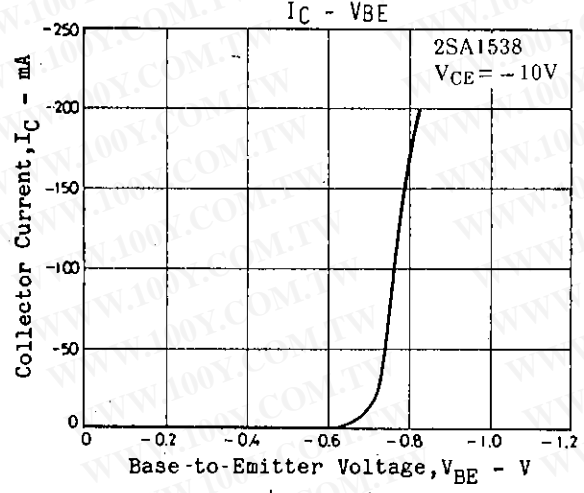
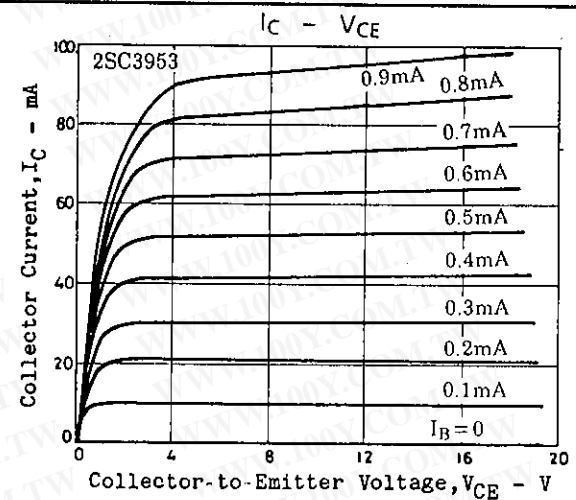
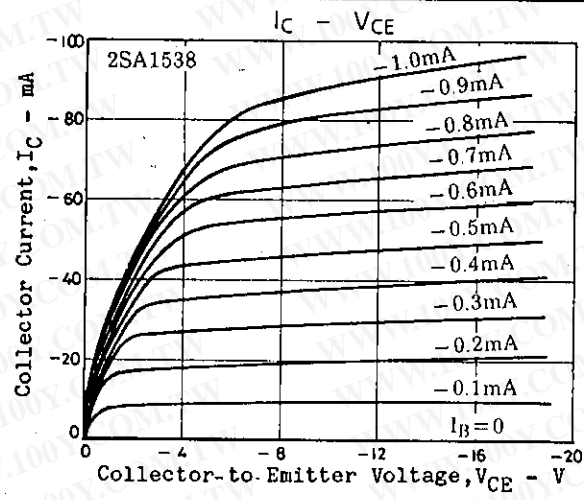
\* $h_{FE1}$ : The 2SA1538/2SC3953 are classified by 50mA  $h_{FE}$  as follows:

40	C	80	60	D	120	100	E	200	160	F	320
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Package Dimensions 2042A  
 (unit: mm)



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