



2SA1538/2SC3953

High-Definition CRT Display Video Output Applications

Applications

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

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 : $C_{re}=1.7\text{pF/NPN}$, 2.2pF/PNP .
- Complementary PNP and NPN types.
- Adoption of FBET process.
- Micaless type : TO-126 plastic package.

() : 2SA1538

Specifications

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

Parameter	Symbol	Conditions	Ratings	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
		$T_c=25^\circ\text{C}$	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	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)80\text{V}$, $I_E=0$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)2\text{V}$, $I_C=0$			(-)1.0	μA
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

* h_{FE1} : The 2SA1538/2SC3953 are classified by 50mA 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

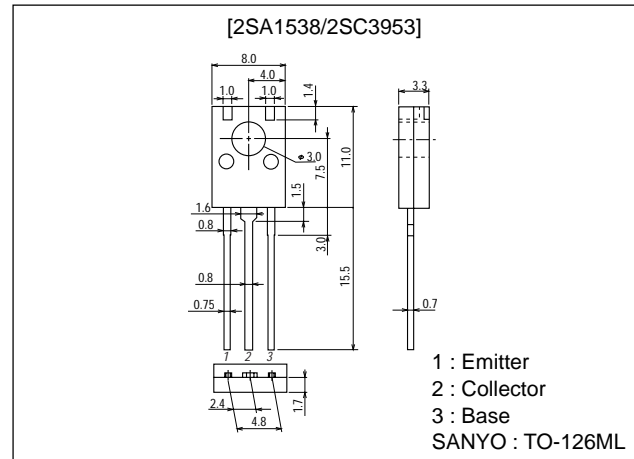
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Package Dimensions

unit:mm

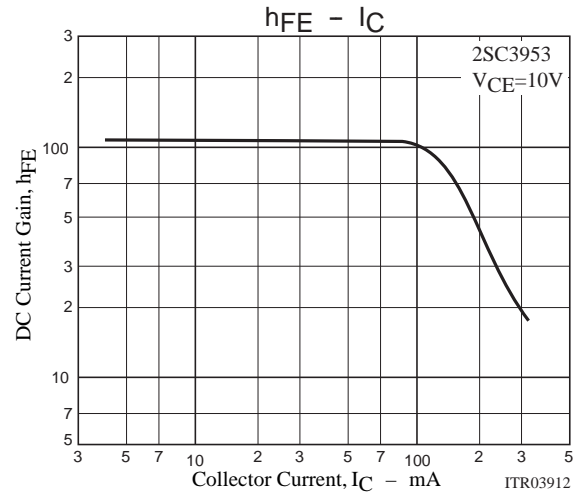
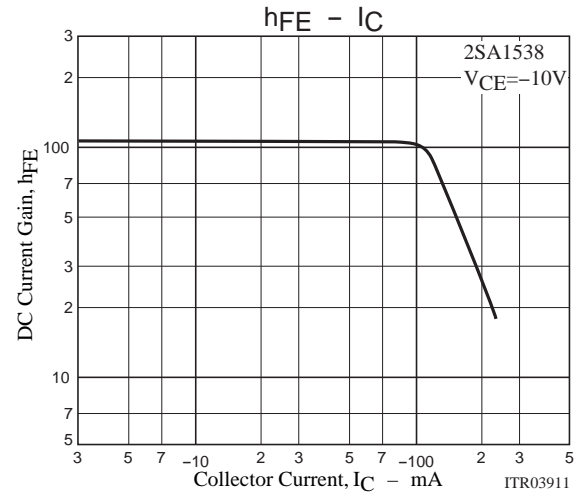
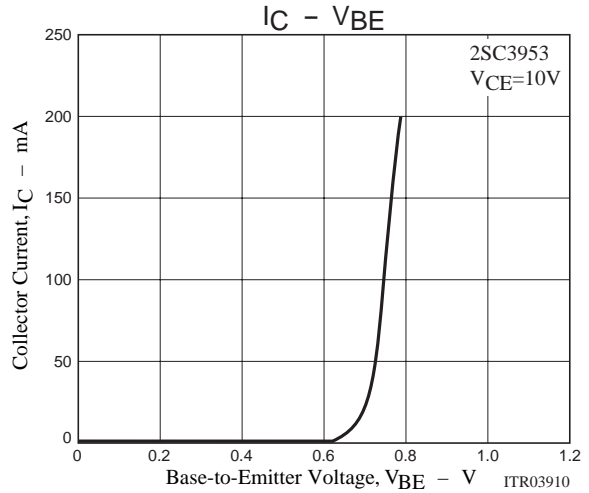
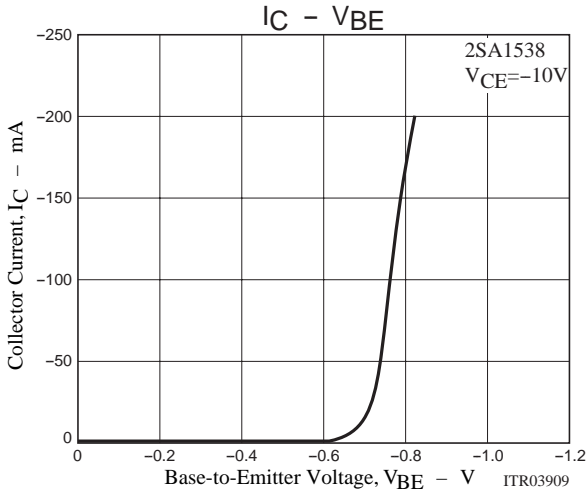
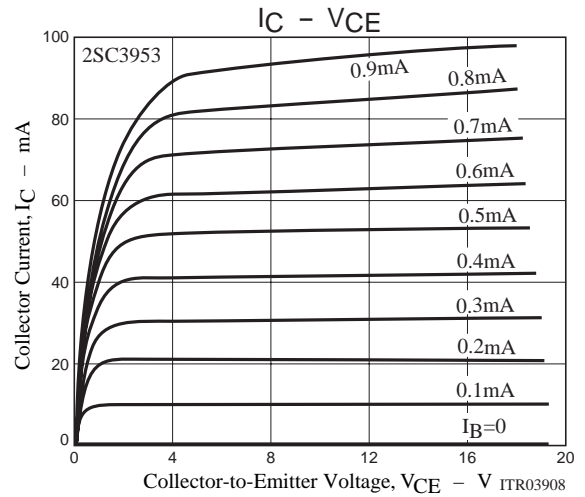
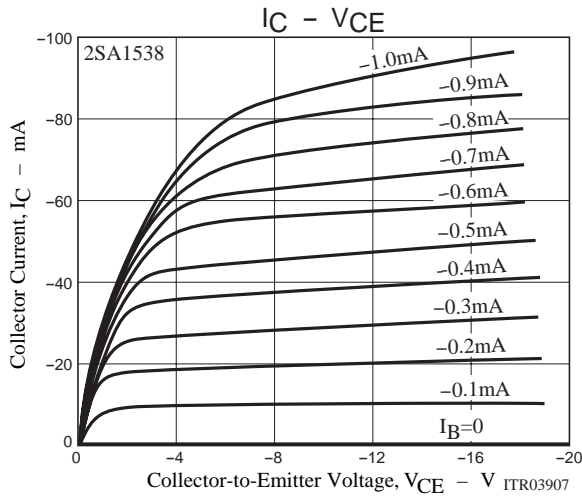
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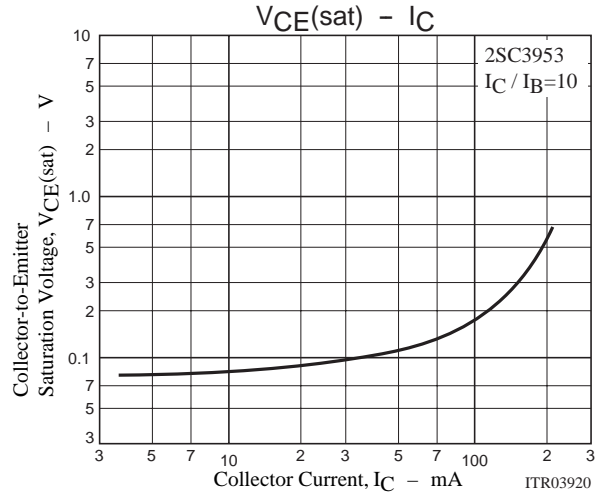
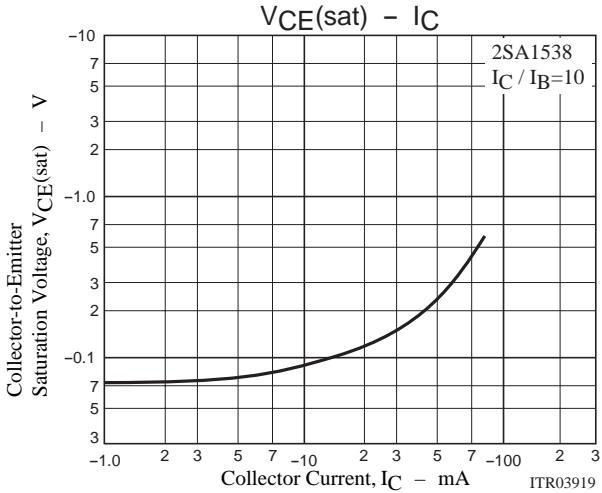
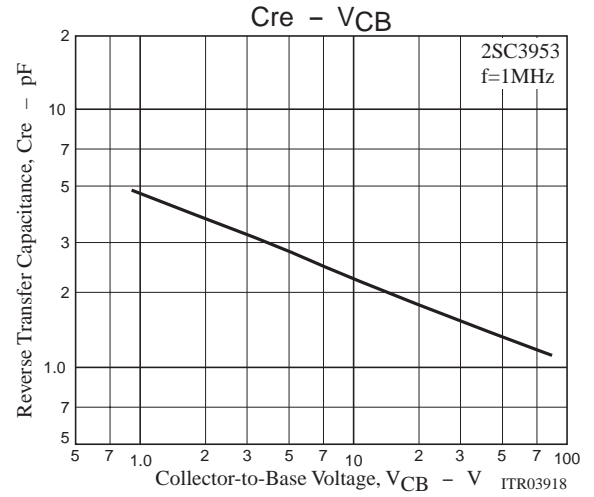
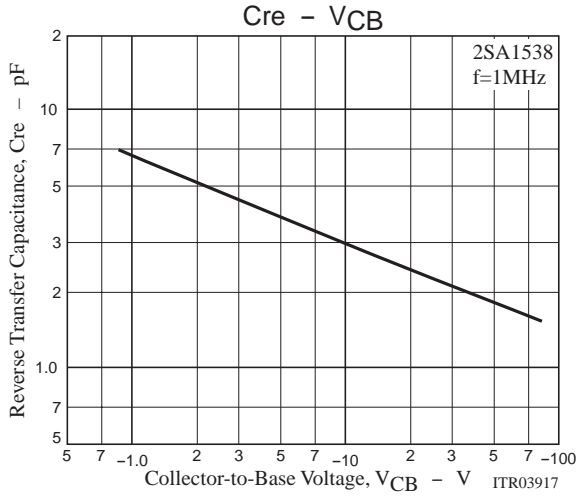
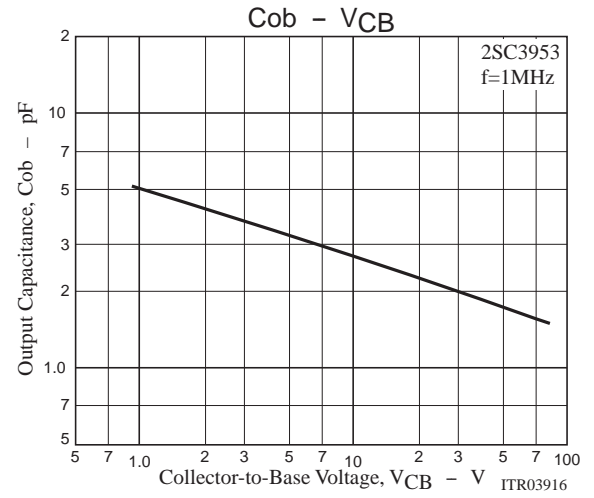
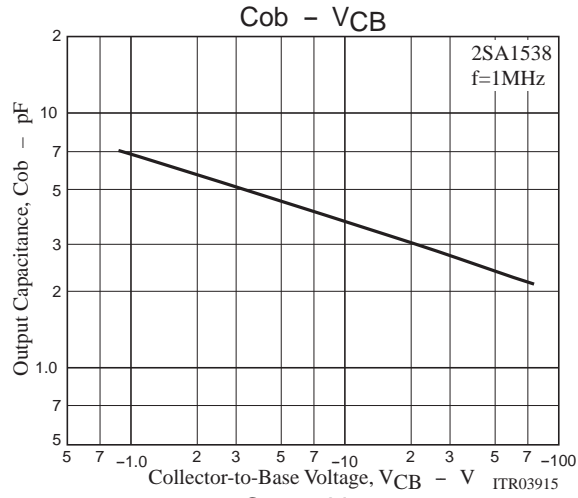
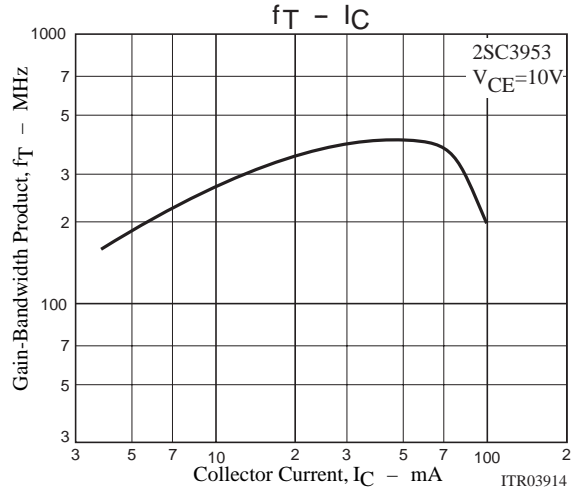
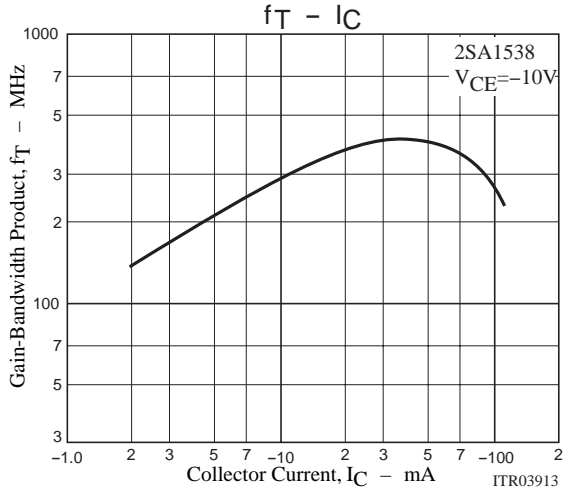
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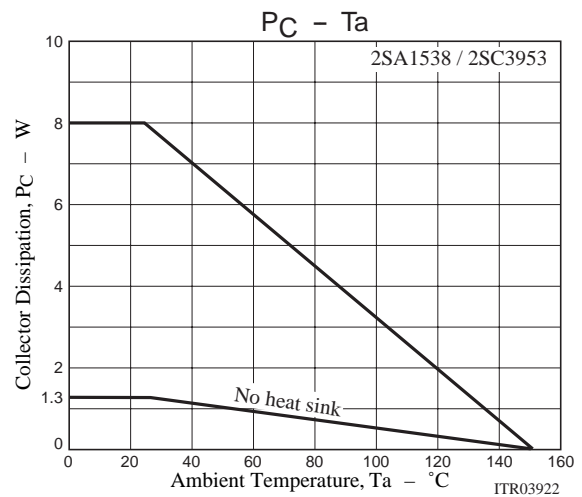
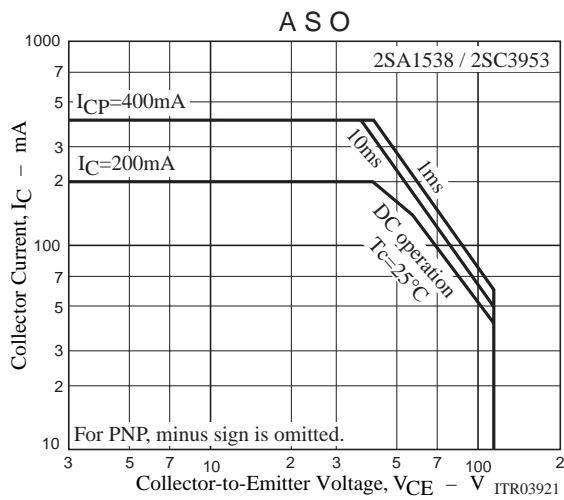
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	C_{ob}	$V_{CB} = (-)30V, f = 1MHz$		2.1		pF
				(2.8)		pF
Reverse Transfer Capacitance	C_{re}	$V_{CB} = (-)30V, f = 1MHz$		1.7		pF
				(2.2)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)30mA, I_B = (-)3mA$			(-1.0)	V
Emitter-to-Base Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)30mA, I_B = (-)3mA$			(-1.0)	V



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