Ordering number: EN 3581

SANYO

No.3581

2SA1787/2SC4650

PNP/NPN Epitaxial Planar Silicon Transistors

High-Definition CRT Display Video Output Applications

Features

- High breakdown voltage : $V_{CEO} \geqq 200V$
- Small reverse transfer capacitance and excellent high frequency characteristic
  : $c_{re} = 1.2pF$(NPN), 1.7pF(PNP)
- Adoption of FBET processes

( ) : 2SA1786

Absolute Maximum Ratings at Ta = 25°C

			unit
Collector to Base Voltage	V_{CBO}	(−)200	V
Collector to Emitter Voltage	V_{CEO}	(−)200	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	1.0	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55 to +150	°C

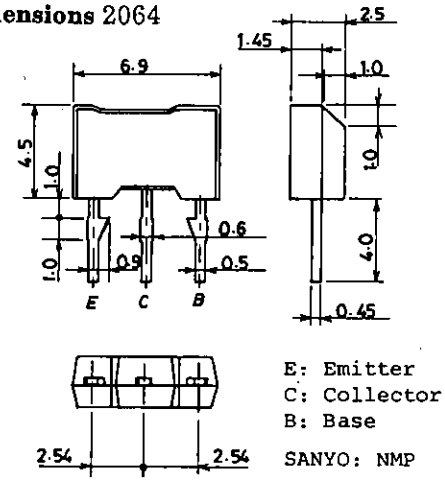
Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB}=(−)150V, I_E=0			(−)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(−)4V, I_C=0			(−)0.1	μA
DC Current Gain	h_{FE}	V_{CE}=(−)10V, I_C=(−)10mA	60		320	
Gain-Bandwidth Product	f_T	V_{CE}=(−)30V, I_C=(−)10mA		150		MHz
Output Capacitance	c_{ob}	V_{CB}=(−)30V, f=1MHz		(2.6)1.7		pF
Reverse Transfer Capacitance	c_{re}	V_{CB}=(−)30V, f=1MHz		(1.7)1.2		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=(−)20mA, I_B=(−)2mA			(−)0.6	V
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=(−)20mA, I_B=(−)2mA			(−)1.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=(−)10μA, I_E=0	(−)200			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=(−)1mA, R_{BE}=∞	(−)200			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=(−)10μA, I_C=0	(−)5			V

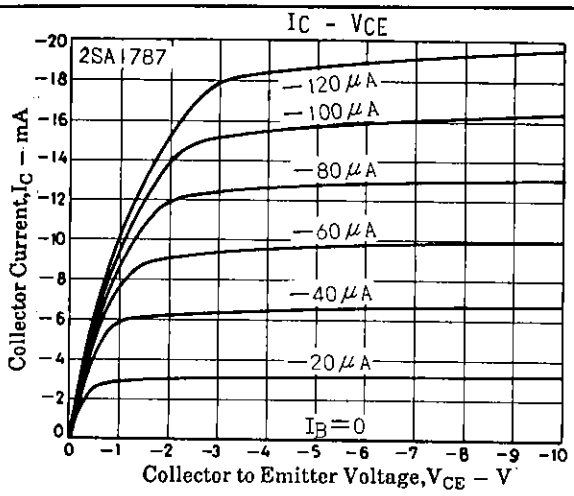
*: The 2SA1787/2SC4650 are classified by 10mA h_{FE} as follows:

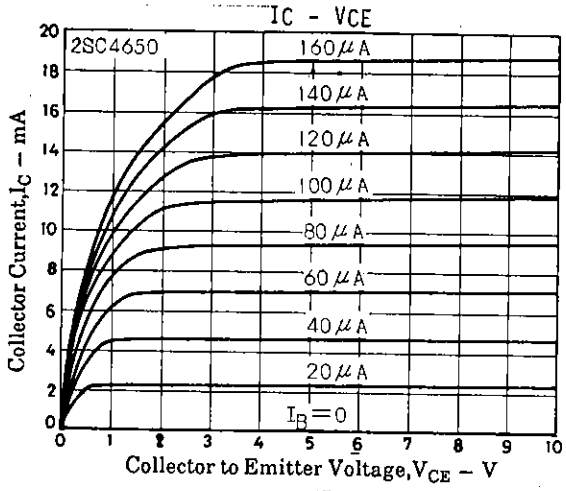
60 D 120	100 E 200	160 F 320

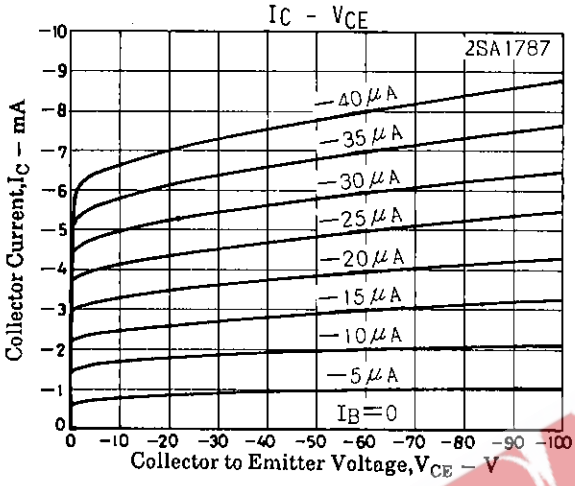
Package Dimensions 2064
(unit: mm)

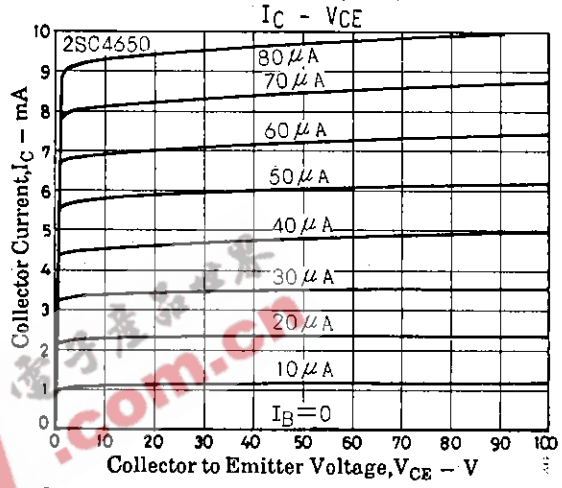


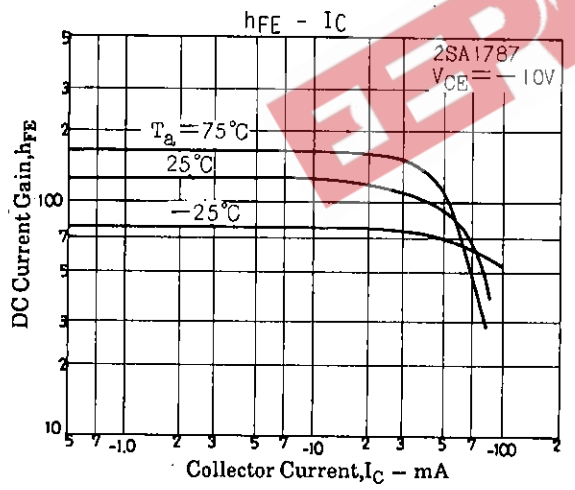
E: Emitter
C: Collector
B: Base
SANYO: NMP

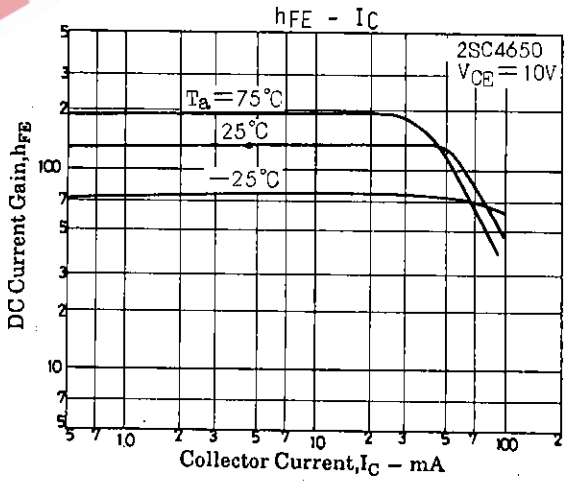

IC - VCE
2SA1787
−120μA
−100μA
−80μA
−60μA
−40μA
−20μA
IB=0
Collector Current,IC – mA
Collector to Emitter Voltage,VCE – V

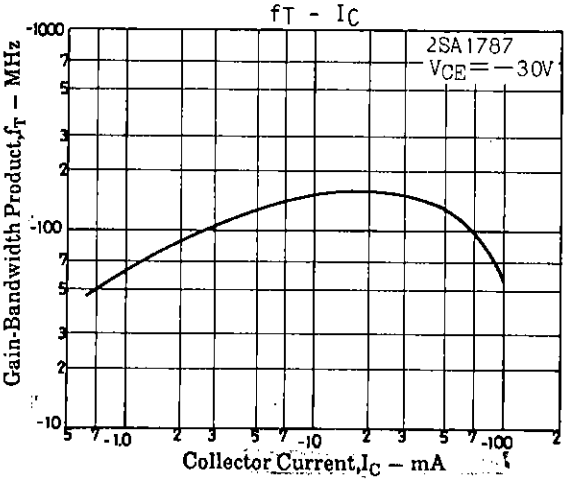

IC - VCE
2SC4650
160μA
140μA
120μA
100μA
80μA
60μA
40μA
20μA
IB=0
Collector Current,IC – mA
Collector to Emitter Voltage,VCE – V

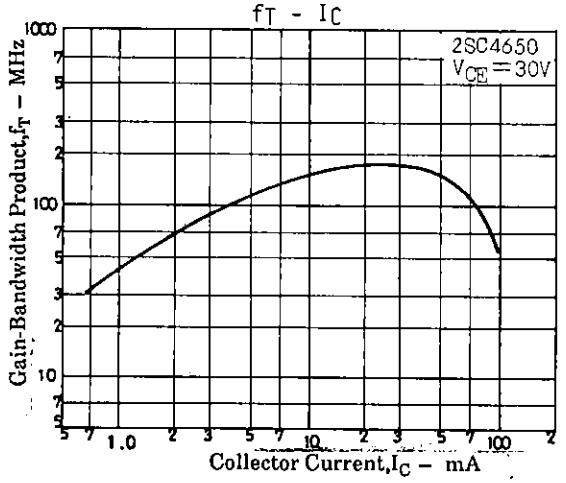

IC - VCE
2SA1787
−40μA
−35μA
−30μA
−25μA
−20μA
−15μA
−10μA
−5μA
IB=0
Collector Current,IC – mA
Collector to Emitter Voltage,VCE – V

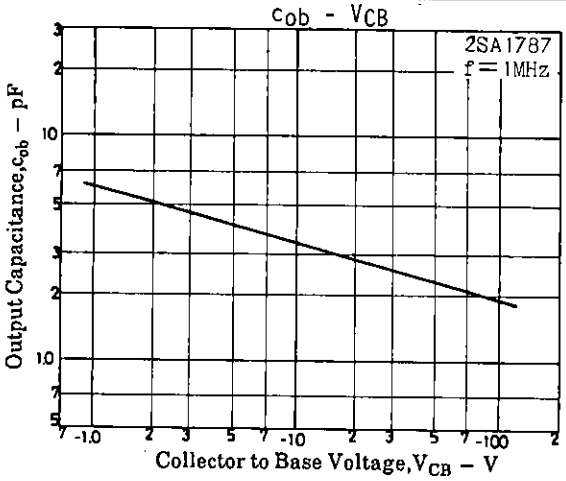

IC - VCE
2SC4650
80μA
70μA
60μA
50μA
40μA
30μA
20μA
10μA
IB=0
Collector Current,IC – mA
Collector to Emitter Voltage,VCE – V

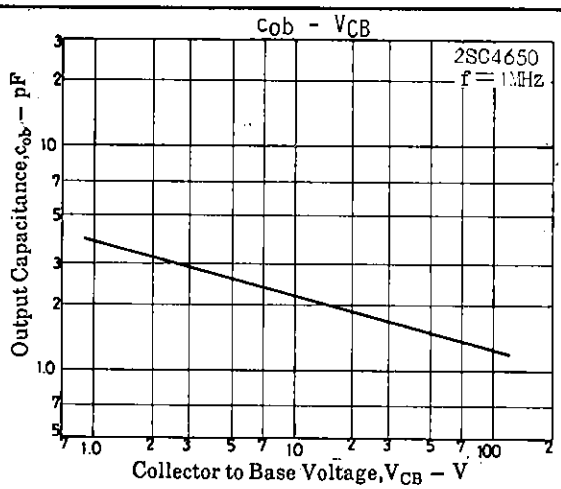

hFE - IC
2SA1787
VCE=−10V
Ta=75°C
25°C
−25°C
DC Current Gain,hFE
Collector Current,IC – mA

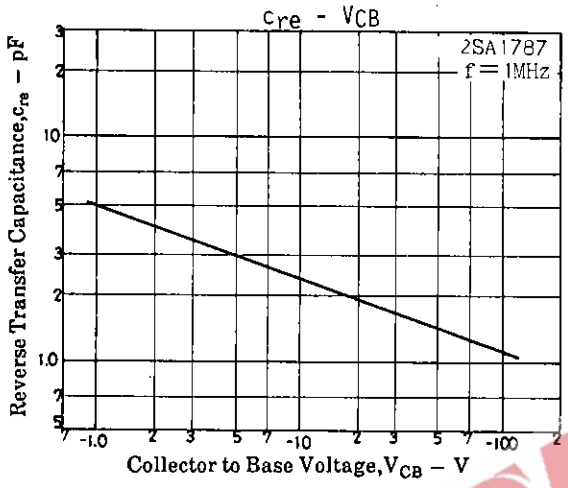

hFE - IC
2SC4650
VCE=10V
Ta=75°C
25°C
−25°C
DC Current Gain,hFE
Collector Current,IC – mA

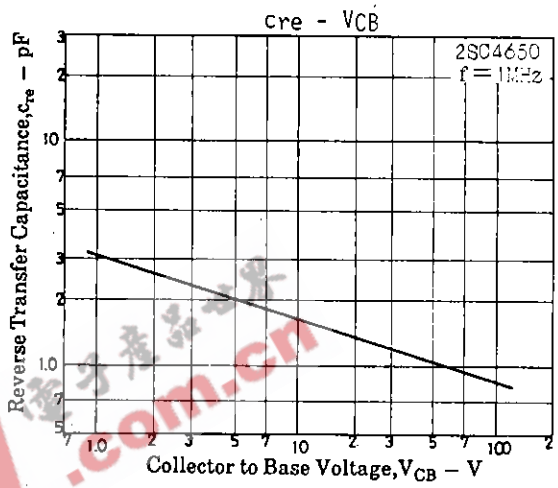

fT - IC
2SA1787
VCE=−30V
Gain-Bandwidth Product,fT – MHz
Collector Current,IC – mA

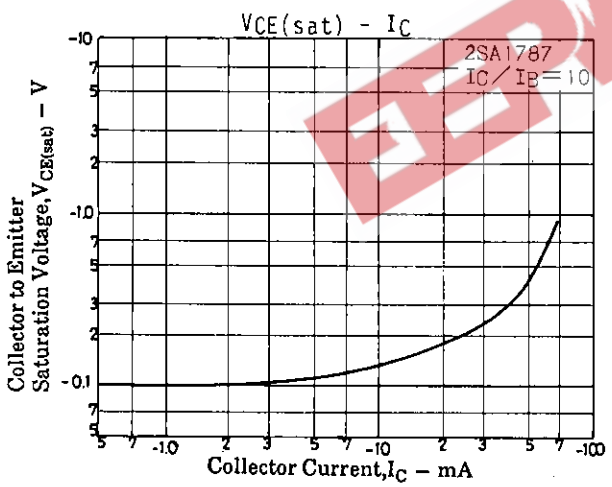

fT - IC
2SC4650
VCE=30V
Gain-Bandwidth Product,fT – MHz
Collector Current,IC – mA

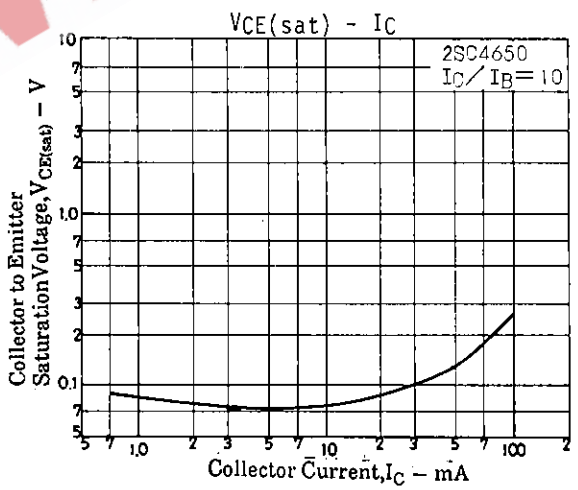

Cob - VCB
2SA1787
f = 1MHz
Output Capacitance,Cob – pF
Collector to Base Voltage,VCB – V

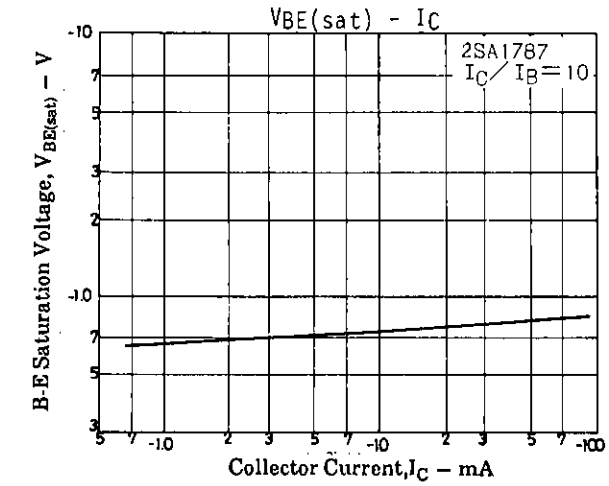

Cob - VCB
2SC4650
f = 1MHz
Output Capacitance,Cob – pF
Collector to Base Voltage,VCB – V

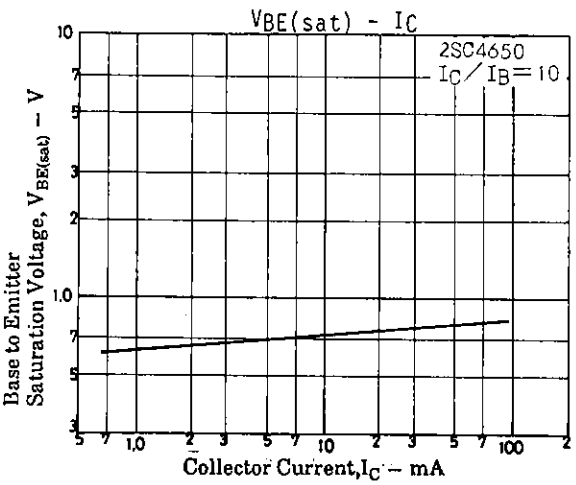

Cre - VCB
2SA1787
f = 1MHz
Reverse Transfer Capacitance,Cre – pF
Collector to Base Voltage,VCB – V


Cre - VCB
2SC4650
f = 1MHz
Reverse Transfer Capacitance,Cre – pF
Collector to Base Voltage,VCB – V


VCE(sat) - IC
2SA1787
IC / IB = 10
Collector to Emitter Saturation Voltage,VCE(sat) – V
Collector Current,IC – mA


VCE(sat) - IC
2SC4650
IC / IB = 10
Collector to Emitter Saturation Voltage,VCE(sat) – V
Collector Current,IC – mA


VBE(sat) - IC
2SA1787
IC / IB = 10
B-E Saturation Voltage, VBE(sat) – V
Collector Current,IC – mA


VBE(sat) - IC
2SC4650
IC / IB = 10
Base to Emitter Saturation Voltage, VBE(sat) – V
Collector Current,IC – mA