Ordering number:EN1425C

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1380/2SC3502

Ultrahigh-Definition CRT Display, Video Output Applications

Features

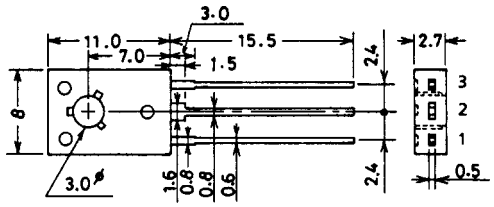
- High breakdown voltage : V_{CEO}≥200V.
- Small reverse transfer capacitance and excellent high-frequnecy characteristics
  : C_{re}=1.2pF (NPN), 1.7pF (PNP), V_{CB}=30V.
- Adoption of FBET process

Package Dimensions

unit:mm

2009B

[2SA1380/2SC3502]



JEDEC : TO-126

1 : Emitter
2 : Collector
3 : Base

( ) : 2SA1380

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	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		1.2	W
		Tc=25˚C	5	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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	40*		320*	
Gain-Bandwidth Product	f_T	V_{CE}=(–)30V, I_C=(–)10mA		150		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)30V, f=1MHz		1.7		pF
				(2.6)		pF
Reverse Transfer Capacitance	C_{re}	V_{CB}=(–)30V, f=1MHz		1.2		pF
				(1.7)		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=(–)10μA, I_E=0	(–)200			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)200			V
Emitter-to-Base Breakdown Votage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0	(–)5			V

* : The 2SA1380/2SC3502 are classified by 10mA h_{FE} as follows :

40	C	80	60	D	120	100	E	200	160	F	320

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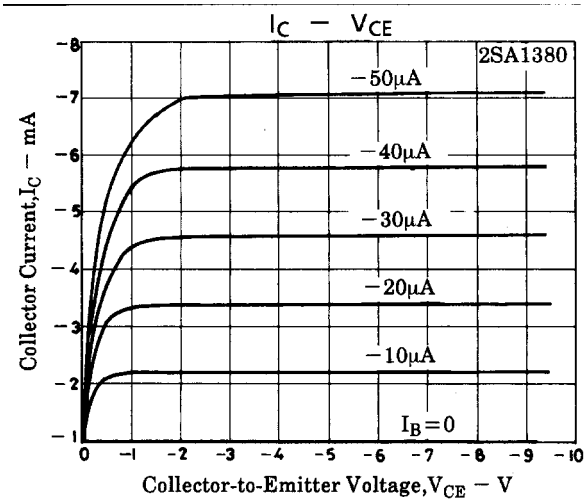
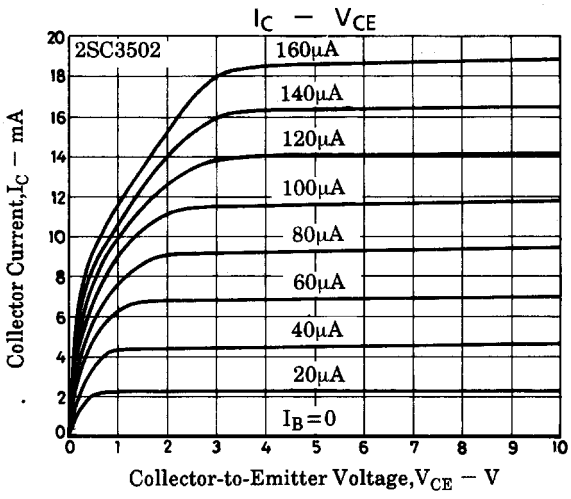
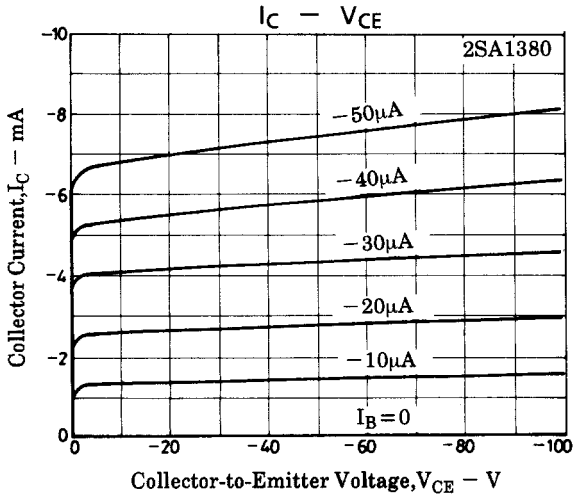
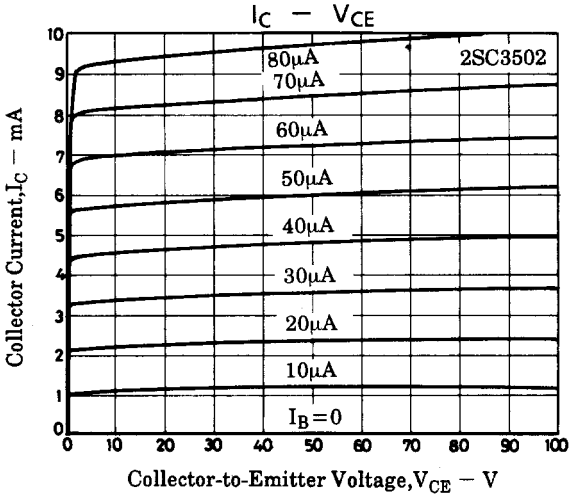
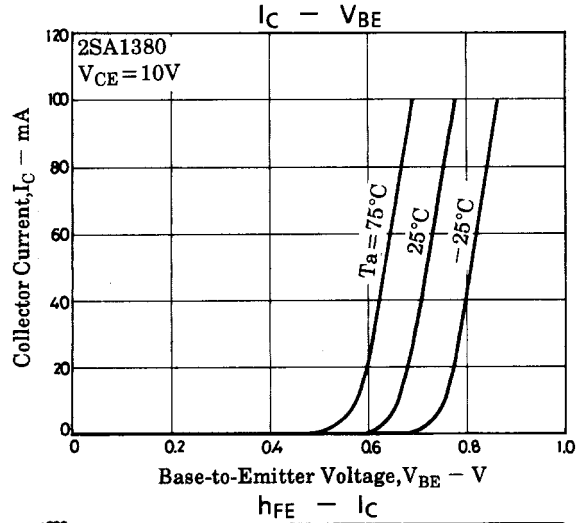
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

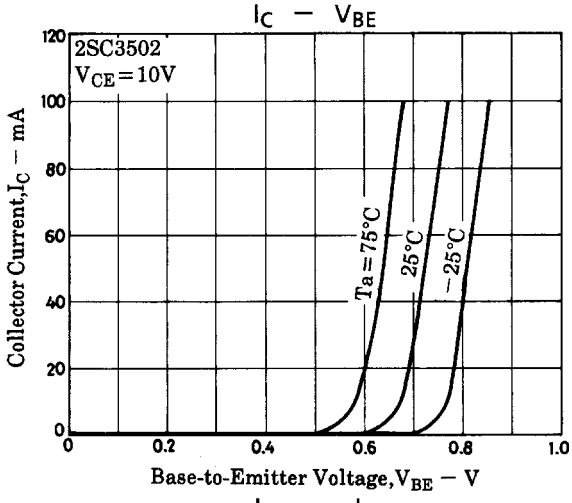

I_C – V_{CE}
2SA1380
−50μA
−40μA
−30μA
−20μA
−10μA
I_B=0
Collector Current,I_C – mA
Collector-to-Emitter Voltage,V_{CE} – V

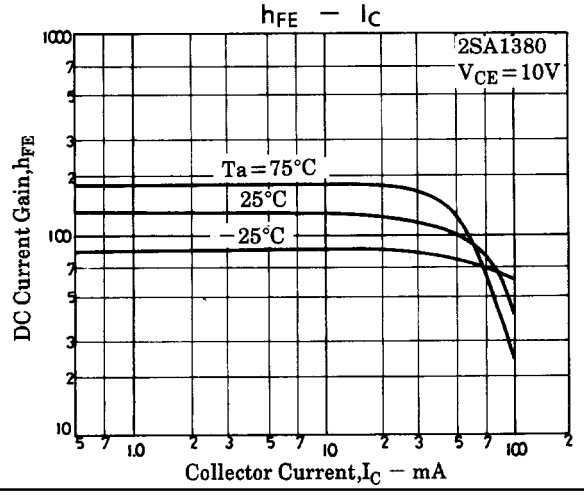

I_C – V_{CE}
2SC3502
160μA
140μA
120μA
100μA
80μA
60μA
40μA
20μA
I_B=0
Collector Current,I_C – mA
Collector-to-Emitter Voltage,V_{CE} – V

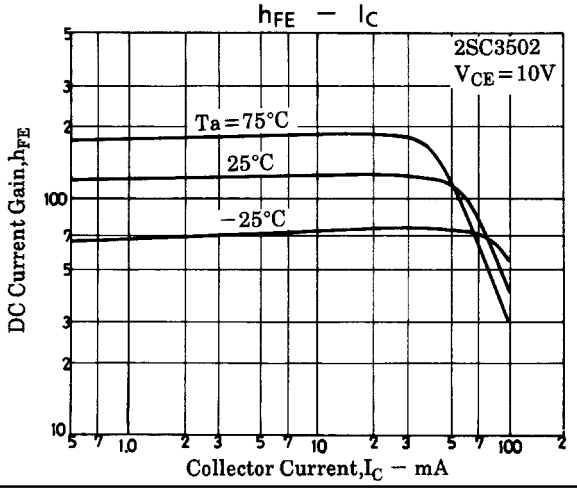

I_C – V_{CE}
2SA1380
−50μA
−40μA
−30μA
−20μA
−10μA
I_B=0
Collector Current,I_C – mA
Collector-to-Emitter Voltage,V_{CE} – V


I_C – V_{CE}
2SC3502
80μA
70μA
60μA
50μA
40μA
30μA
20μA
10μA
I_B=0
Collector Current,I_C – mA
Collector-to-Emitter Voltage,V_{CE} – V

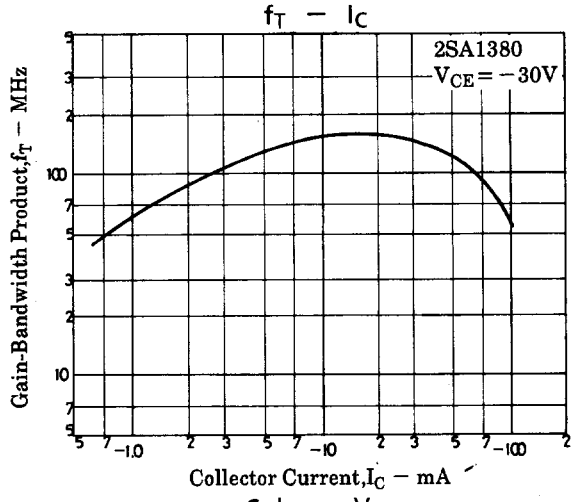

I_C – V_{BE}
2SA1380
V_{CE}=10V
Ta=75°C
25°C
−25°C
Collector Current,I_C – mA
Base-to-Emitter Voltage,V_{BE} – V


I_C – V_{BE}
2SC3502
V_{CE}=10V
Ta=75°C
25°C
−25°C
Collector Current,I_C – mA
Base-to-Emitter Voltage,V_{BE} – V

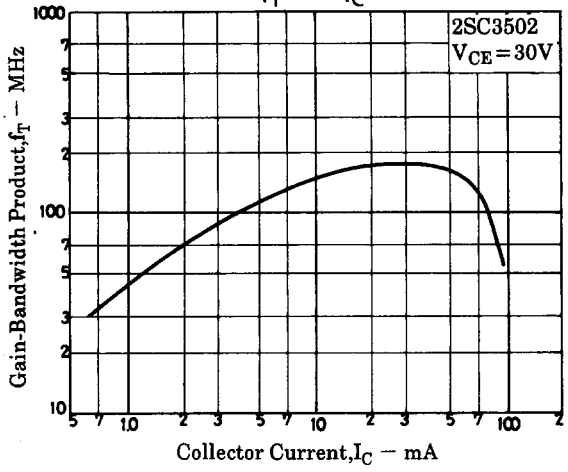

h_{FE} – I_C
2SA1380
V_{CE}=10V
Ta=75°C
25°C
−25°C
DC Current Gain,h_{FE}
Collector Current,I_C – mA


h_{FE} – I_C
2SC3502
V_{CE}=10V
Ta=75°C
25°C
−25°C
DC Current Gain,h_{FE}
Collector Current,I_C – mA

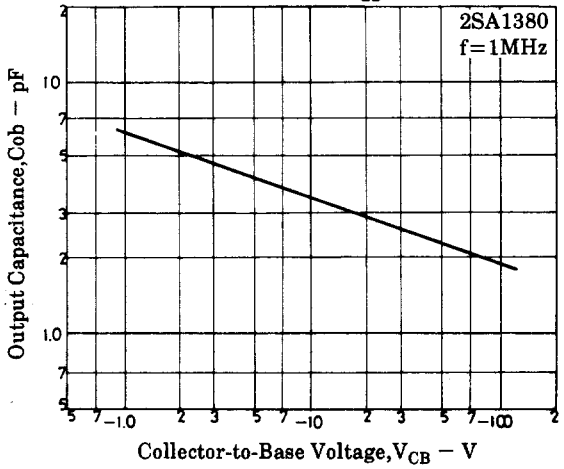
f_T – I_C



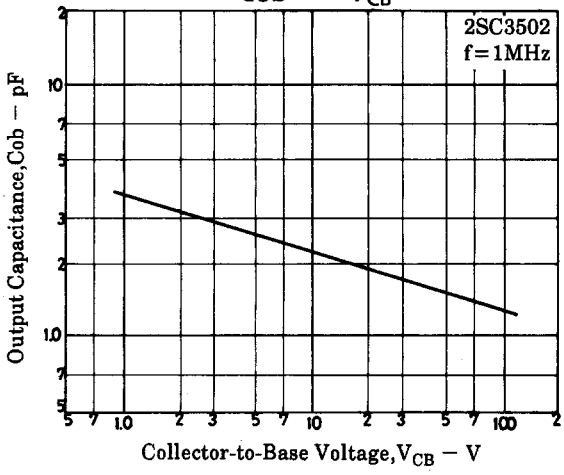
f_T – I_C



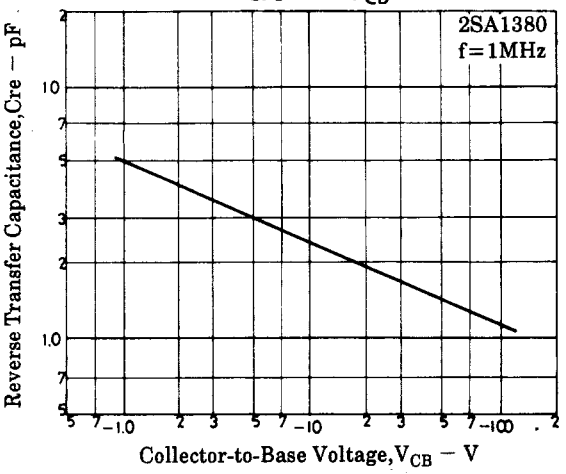
Cob – V_{CB}



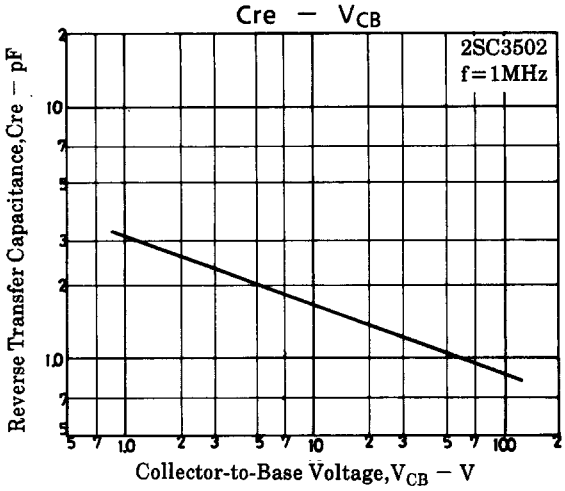
Cob – V_{CB}



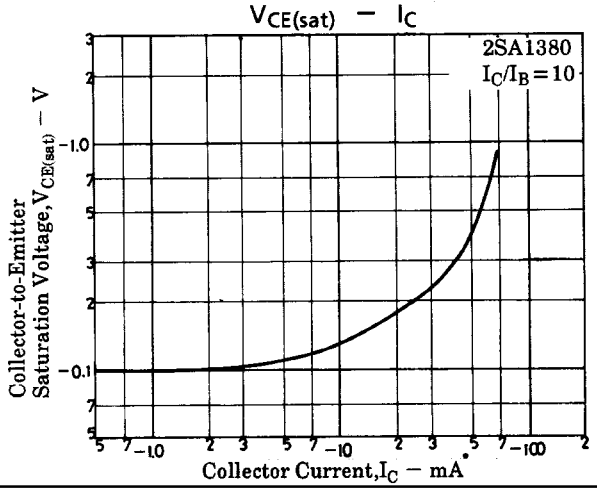
Cre – V_{CB}



Cre – V_{CB}



$V_{CE(sat)}$ – I_C



$V_{CE(sat)}$ – I_C