



SANYO Semiconductors

# DATA SHEET

## 2SA2012 / 2SC5565 — PNP / NPN Epitaxial Planar Silicon Transistors DC / DC Converter Applications

### Applications

- Relay drivers, lamp drivers, motor drivers, strobes.

### Features

- Adoption of MBIT processes.
- Large current capacitance.
- Low collector-to-emitter saturation voltage.
- Ultrasmall-sized package permitting applied sets to be made small and slim.
- High allowable power dissipation.

### Specifications ( ) : 2SA2012

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		(-30)40	V
Collector-to-Emitter Voltage	VCEO		(-30)	V
Emitter-to-Base Voltage	VEBO		(-5)	V
Collector Current	IC		(-5)	A
Collector Current (Pulse)	ICP		(-8)	A
Base Current	IB		(-600)	mA
Collector Dissipation	PC	Mounted on a ceramic board (250mm <sup>2</sup> ×0.8mm)	1.3	W
		Tc=25°C	3.5	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Marking 2SA2012 : AS

2SC5565 : FB

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## 2SA2012 / 2SC5565

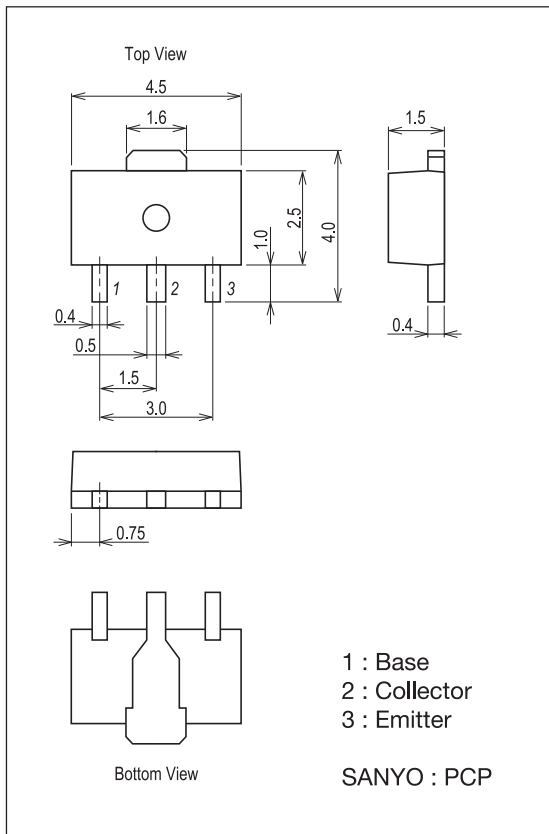
### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)30V, I_E=0A$			(-)0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)4V, I_C=0A$			(-)0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=(-)2V, I_C=(-)500mA$	200		560	
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)10V, I_C=(-)500mA$		(350)420		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=(-)10V, f=1MHz$		(30)20		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=(-)1.5A, I_B=(-)30mA$		(-140)125	(-210)190	mV
	$V_{CE(sat)2}$	$I_C=(-)2.5A, I_B=(-)125mA$		(-)170	(-)260	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)1.5A, I_B=(-)30mA$		(-)0.83	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0A$	(-30)40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0A$	(-)5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		(50)30		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		(270)300		ns
Fall Time	$t_f$	See specified Test Circuit.		(25)15		ns

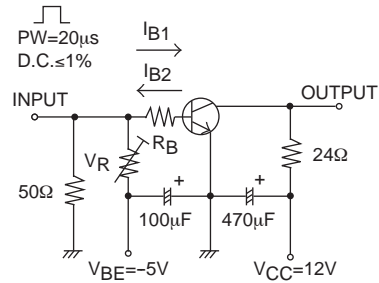
### Package Dimensions

unit : mm (typ)

7007B-004

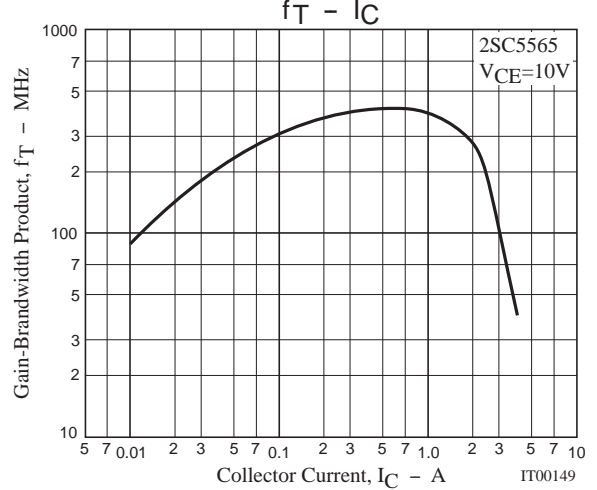
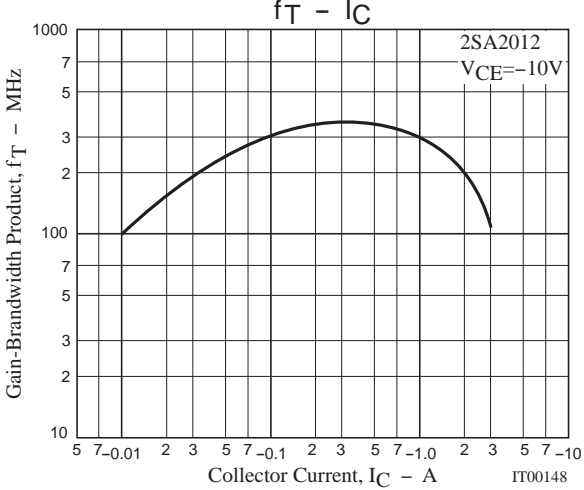
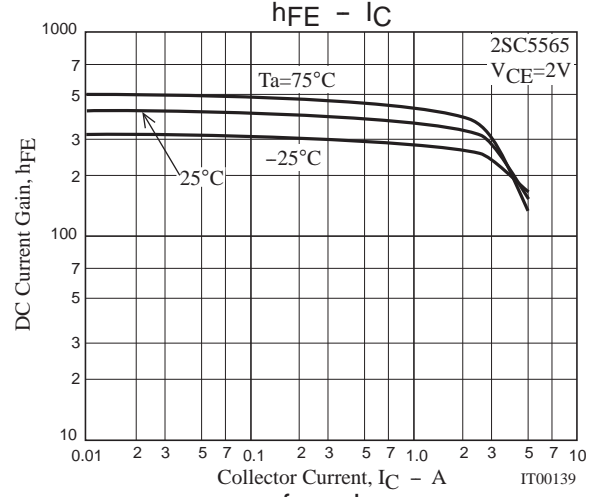
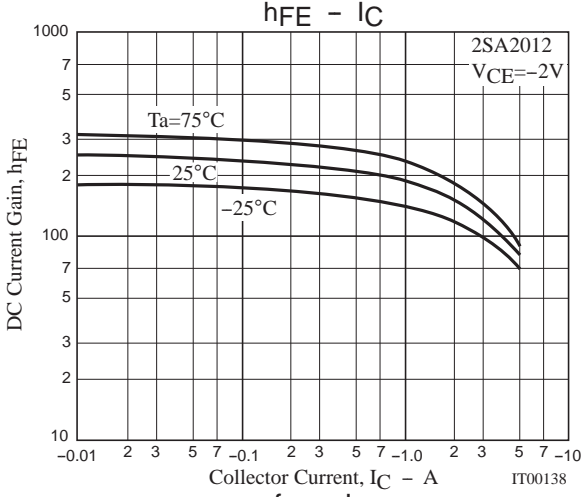
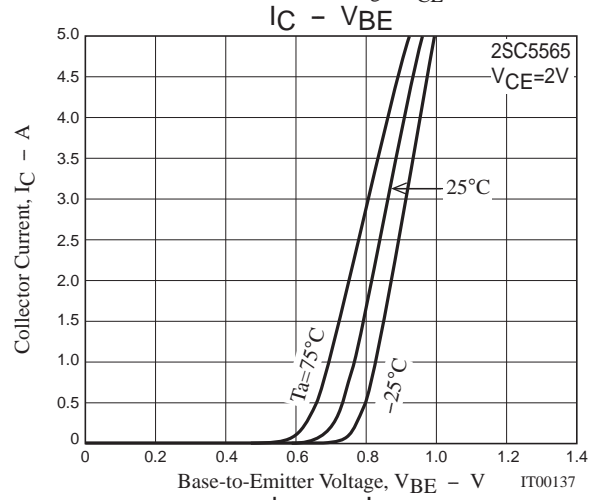
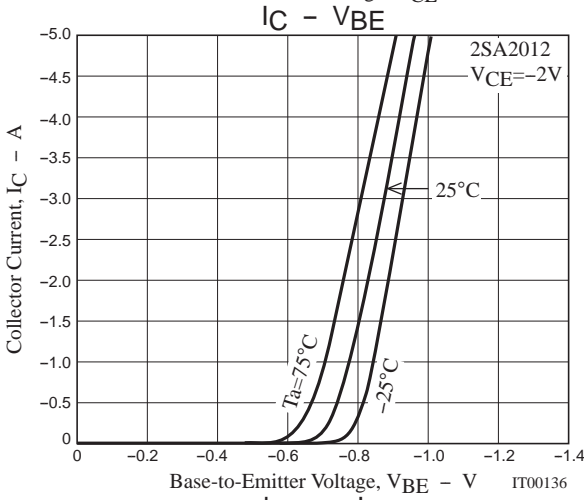
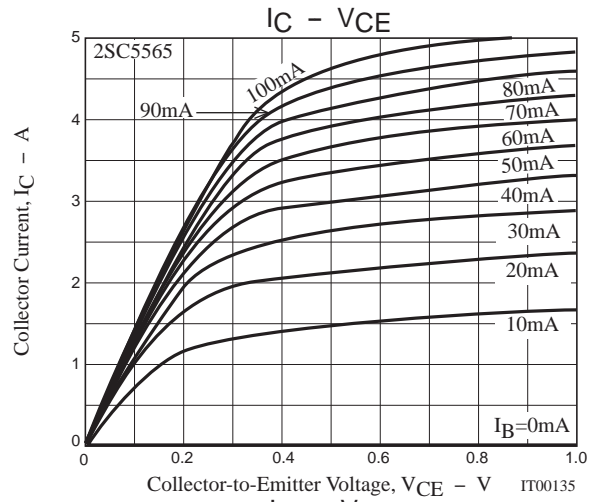
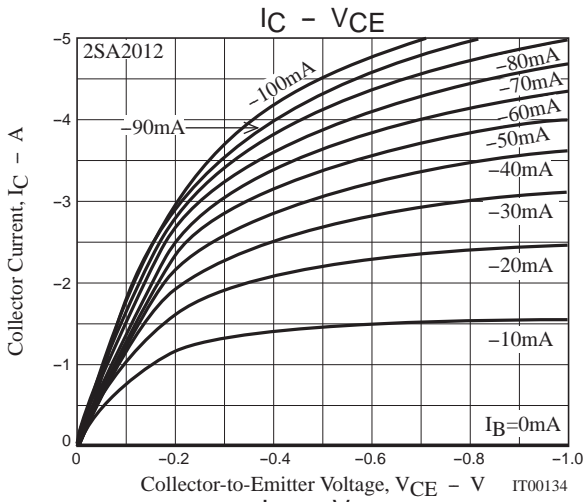


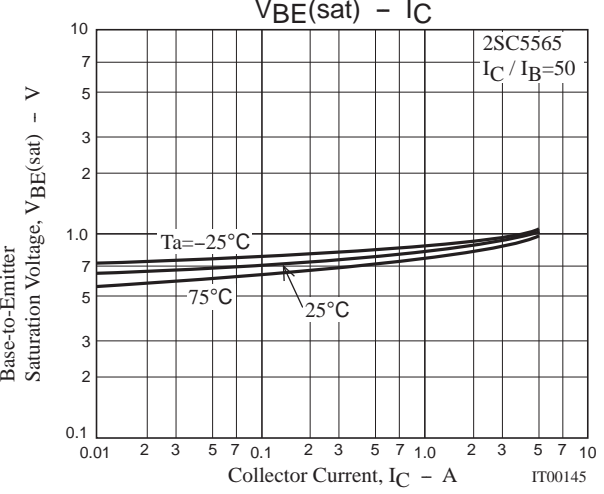
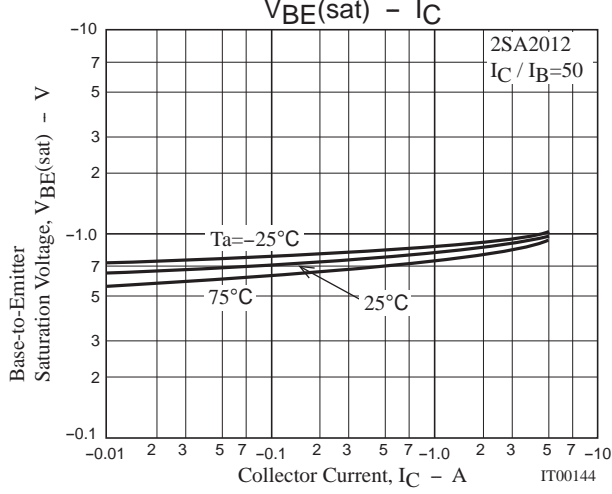
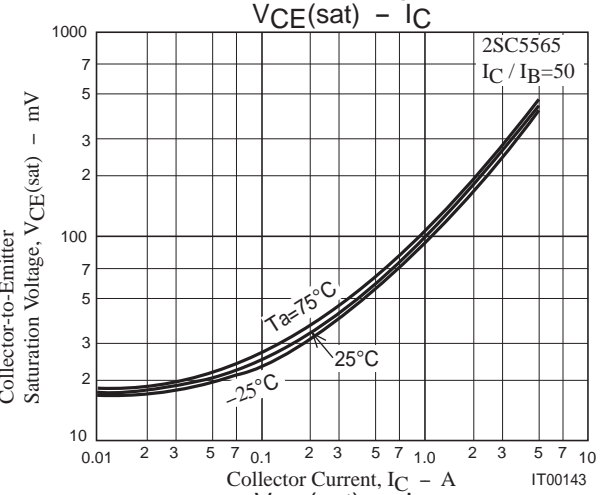
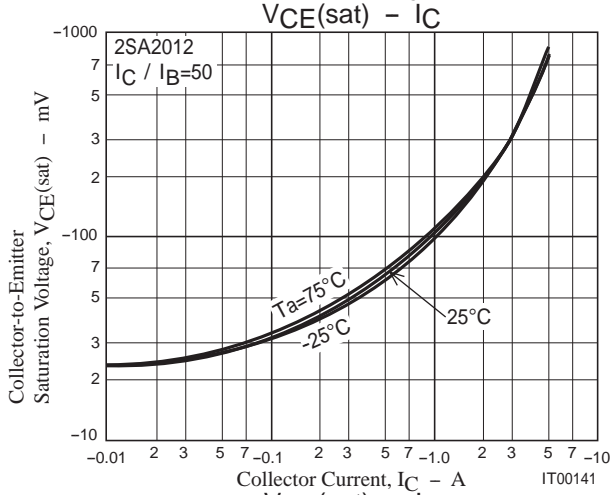
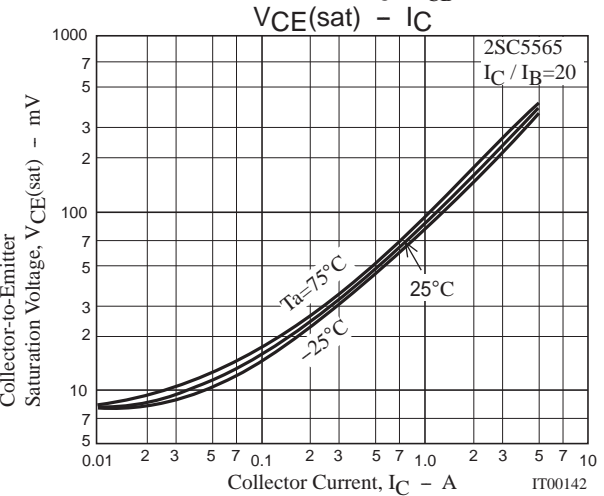
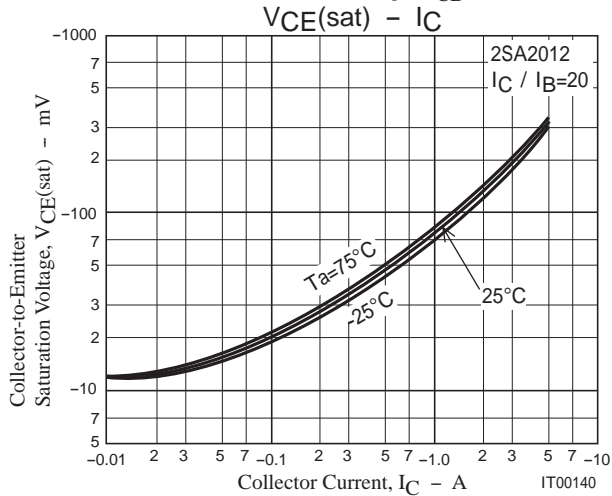
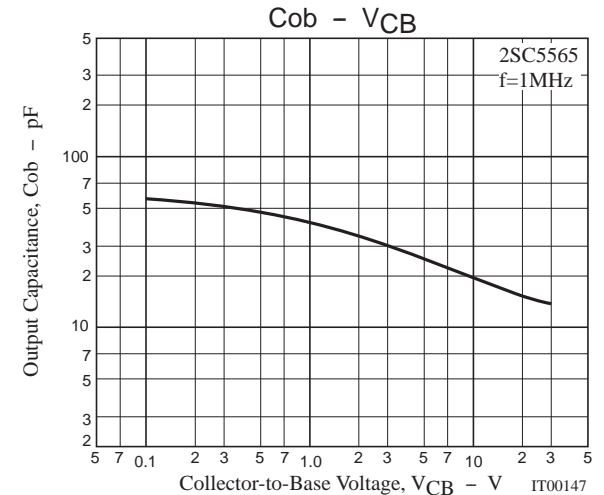
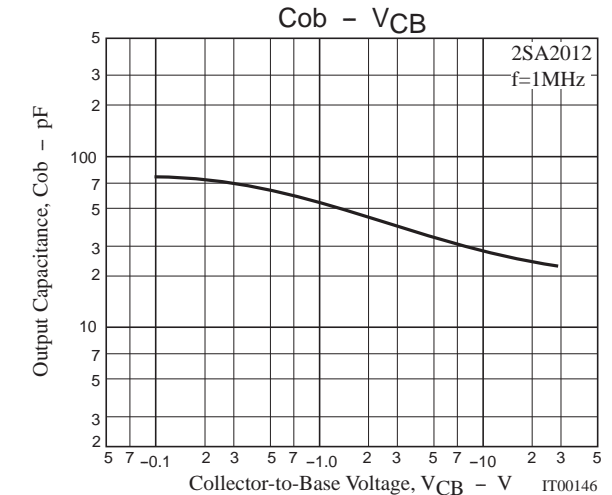
### Switching Time Test Circuit

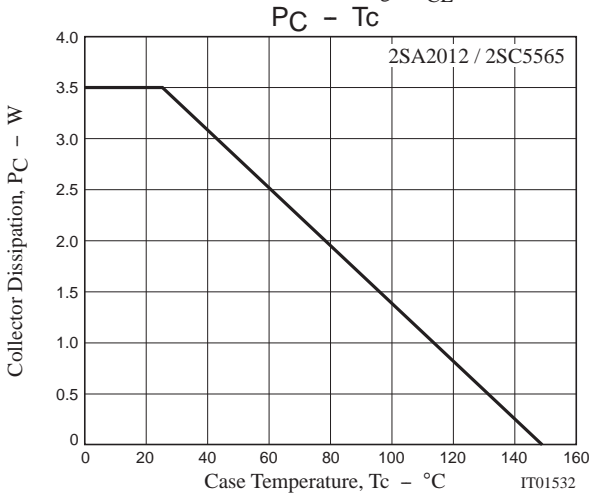
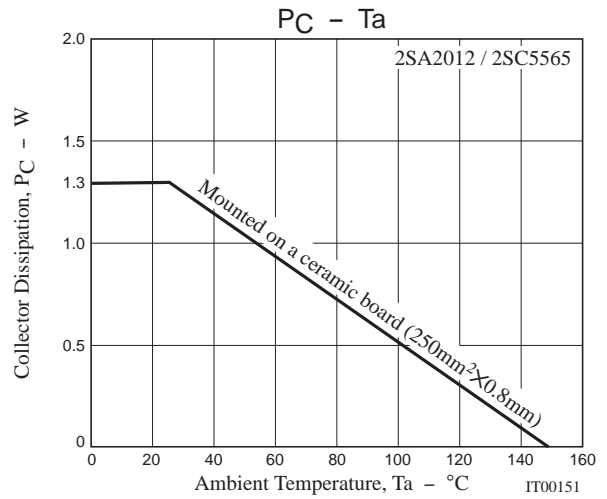
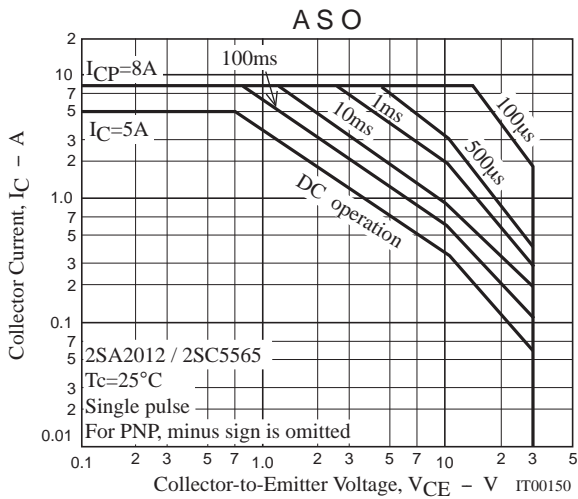


$I_C=20I_{B1} = -20I_{B2}=500mA$   
(For PNP, the polarity is reversed)

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