



# 2SA2014/2SC5567

## 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.
- High-speed switching.
- Ultrasmall-sized package permitting applied sets to be made small and slim.
- High allowable power dissipation.

### Specifications

( ) : 2SA2014

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		(-)15	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		(-)15	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		(-)5	V
Collector Current	I <sub>C</sub>		(-)9	A
Collector Current (Pulse)	I <sub>CP</sub>		(-)12	A
Base Current	I <sub>B</sub>		(-)1.2	A
Collector Dissipation	P <sub>C</sub>	Mounted on a ceramic board (250mm <sup>2</sup> ×0.8mm)	1.3	W
		T <sub>C</sub> =25°C	3.5	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

#### Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> =(-)12V, I <sub>E</sub> =0			(-)0.1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0			(-)0.1	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)500mA	200		560	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)500mA		(220)		MHz
				280		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =(-)10V, f=1MHz		(90)50		pF

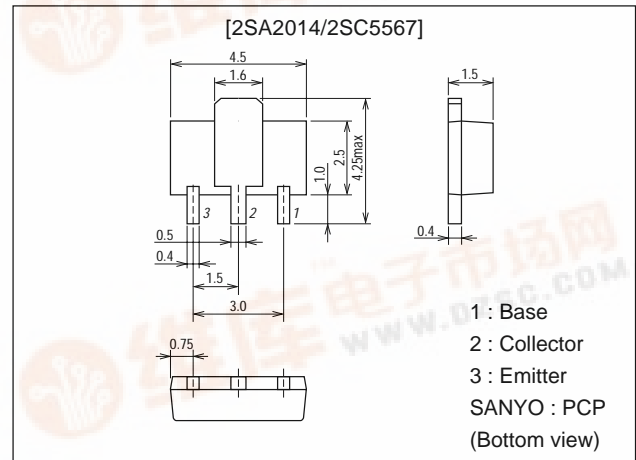
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### Package Dimensions

unit:mm

2163



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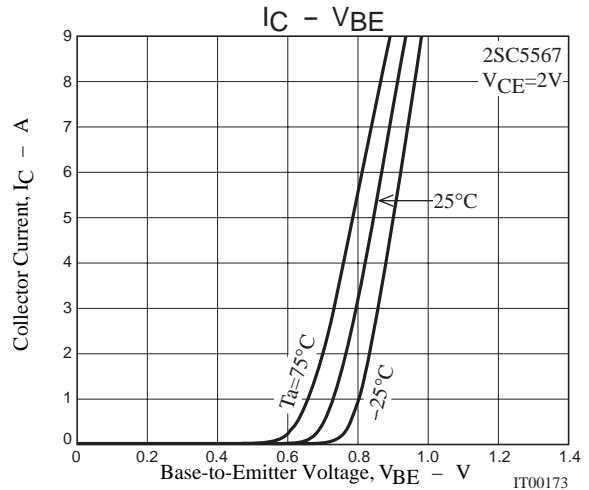
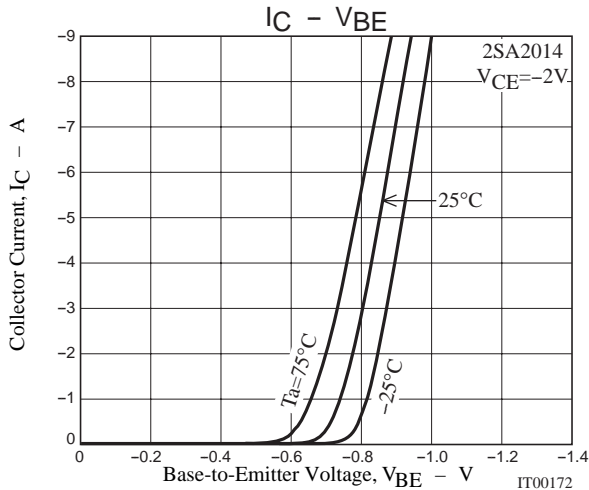
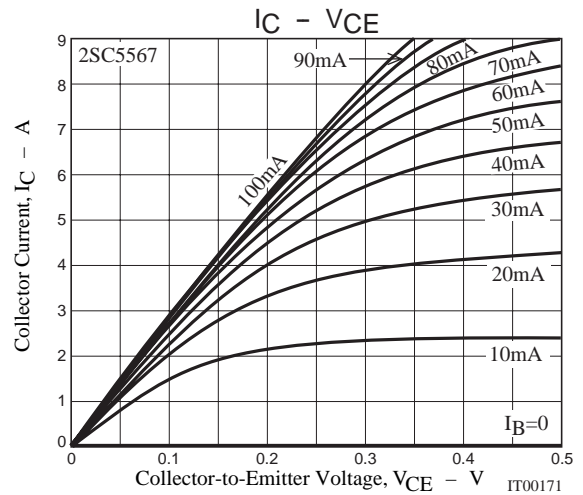
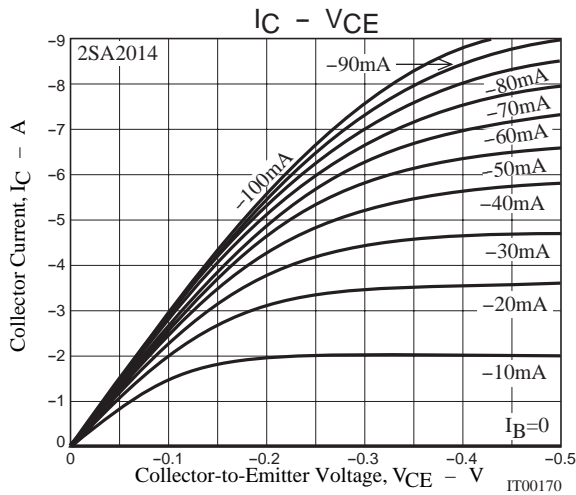
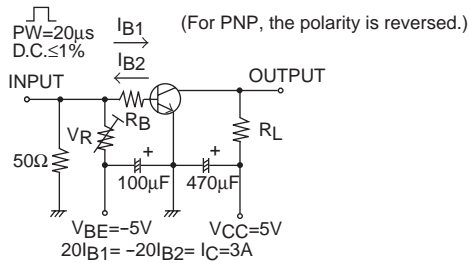


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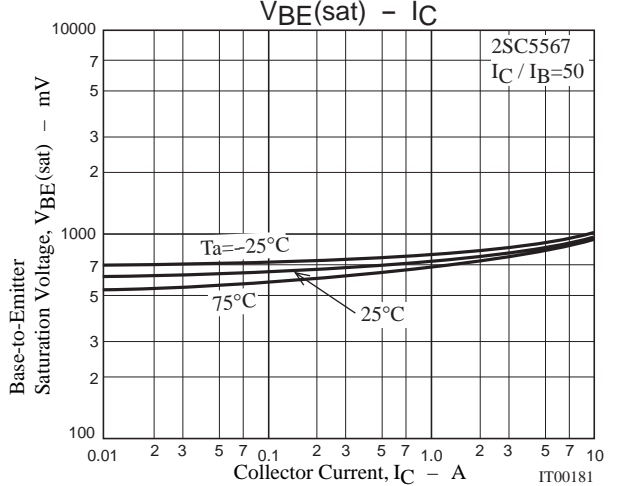
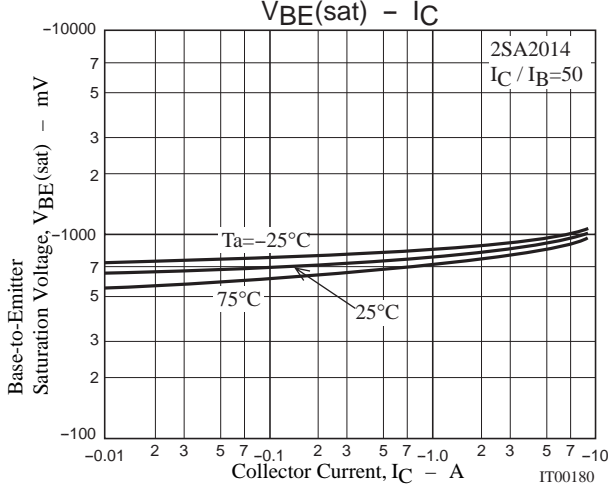
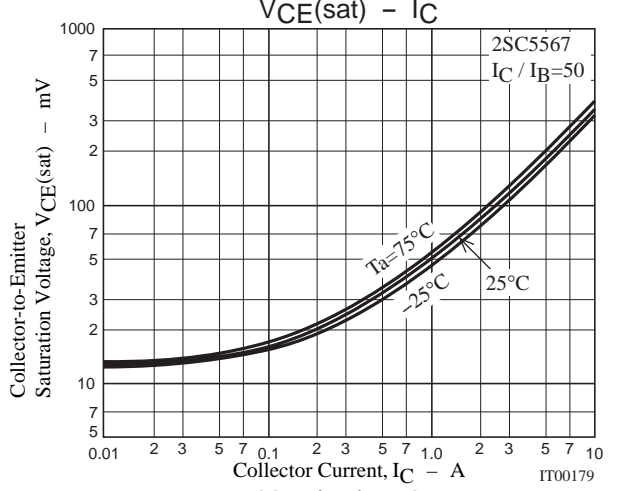
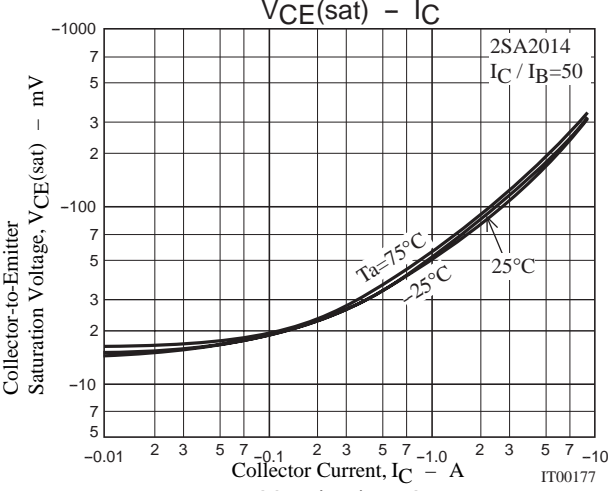
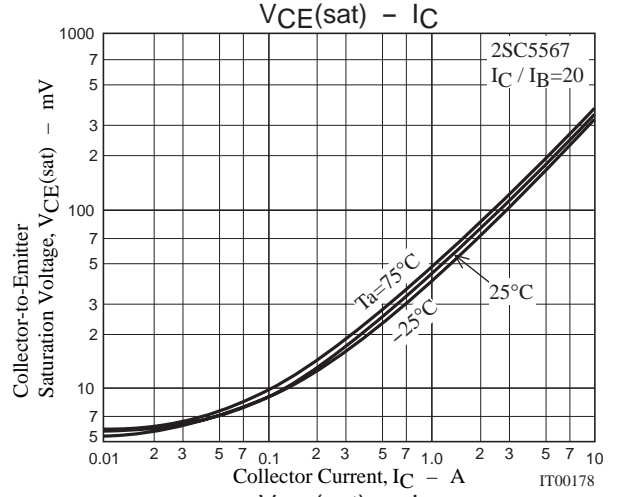
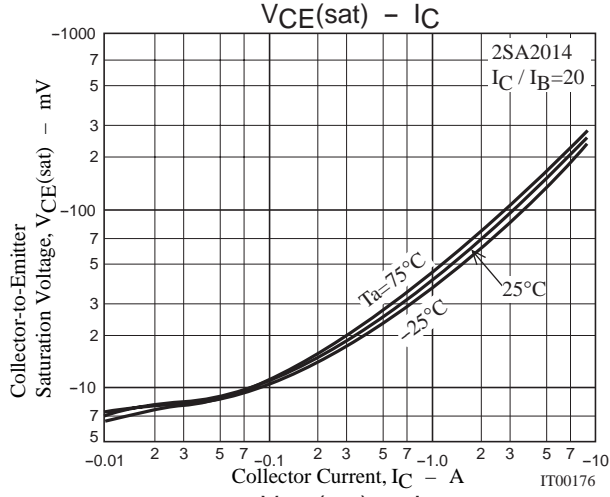
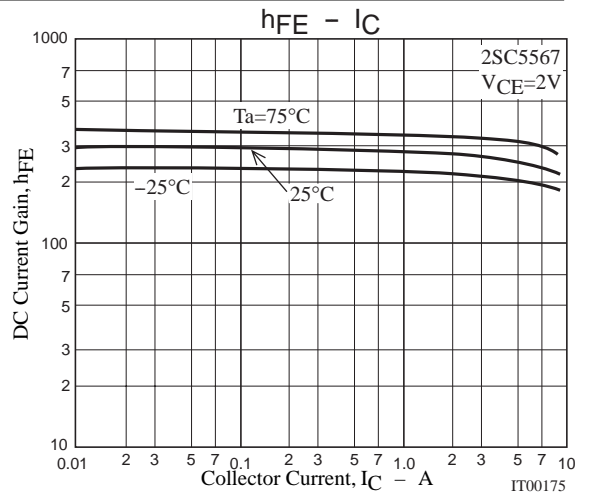
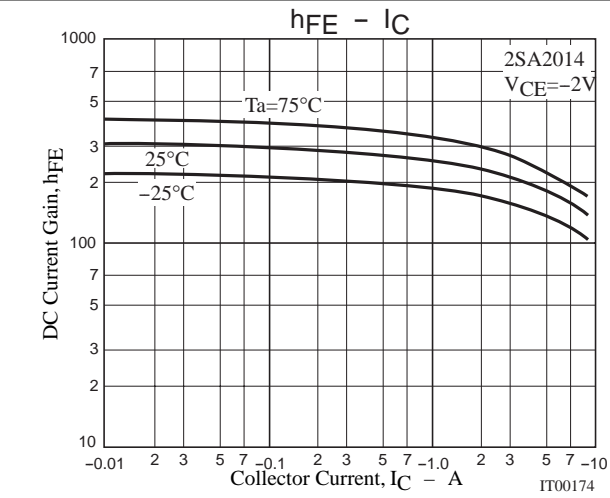
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)3A, I_B=(-)60mA$		(-110)	(-170)	mV
				120	180	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)3A, I_B=(-)60mA$		(-160)	(-240)	mV
				180	280	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)3A, I_B=(-)60mA$		(-0.85)	(-1.2)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-15)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-15)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-5)			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		30		ns
Storage Time	$t_{stg}$	See specified Test Circuit		(120)		ns
				180		ns
Fall Time	$t_f$	See specified Test Circuit		(14)25		ns

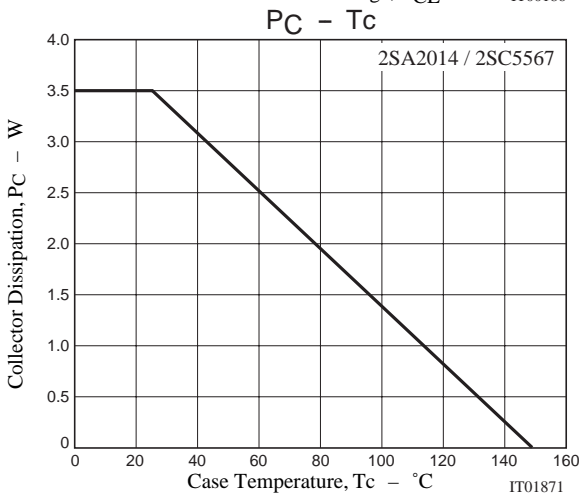
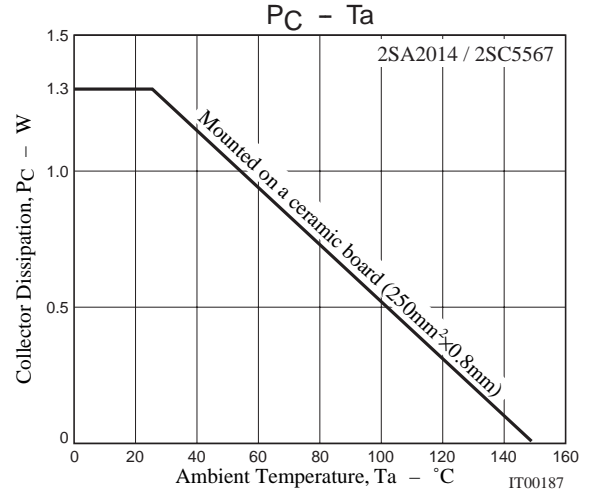
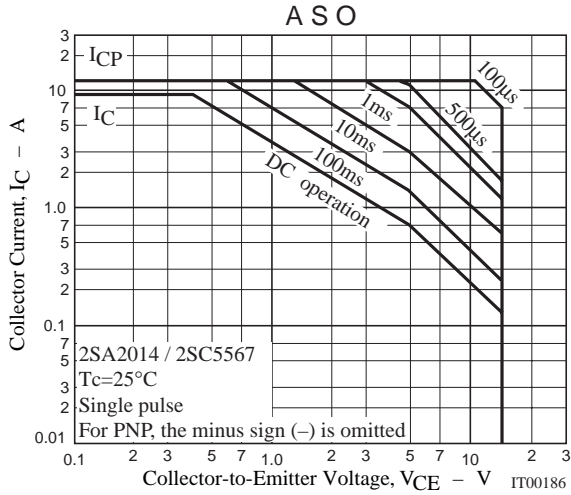
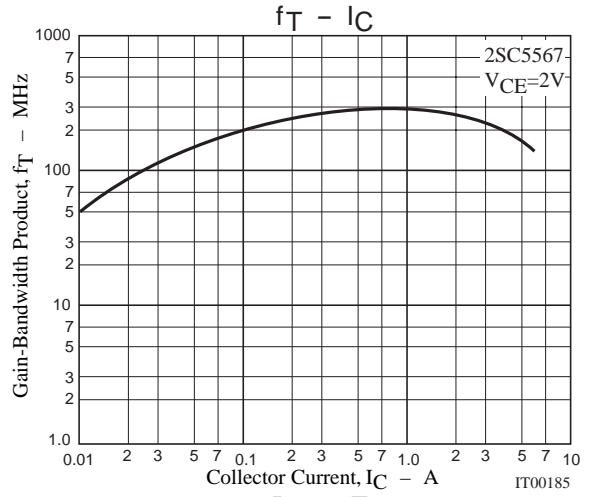
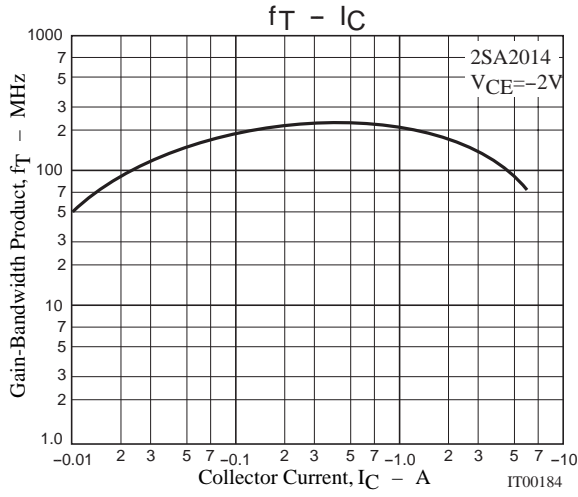
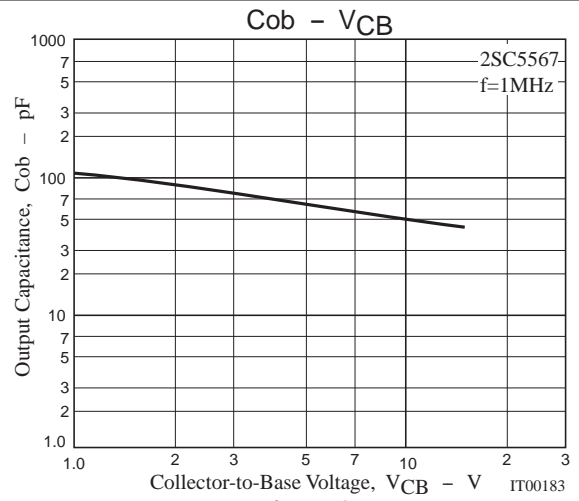
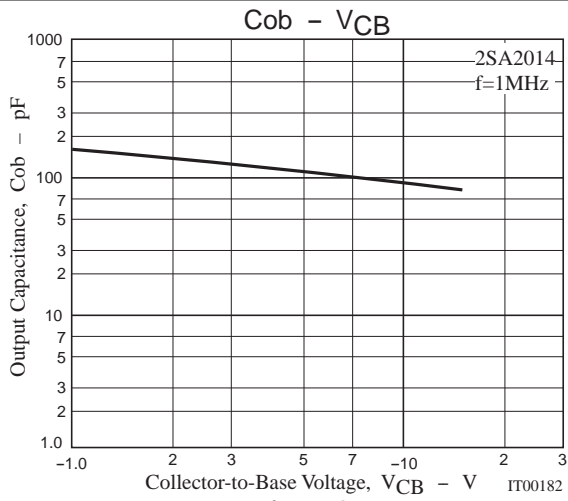
### Switching Time Test Circuit



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