



2SA2011/2SC5564

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

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Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(-)15	V
Collector-to-Emitter Voltage	V_{CEO}		(-12)15	V
Emitter-to-Base Voltage	V_{EBO}		(-)5	V
Collector Current	I_C		(-)6	A
Collector Current (Pulse)	I_{CP}		(-)9	A
Base Current	I_B		(-)600	mA
Collector Dissipation	P_C	Mounted on a ceramic board (250mm ² ×0.8mm)	1.3	W
		$T_c=25^\circ\text{C}$	3.5	W
Junction Temperature	T_j		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)12\text{V}, I_E=0$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4\text{V}, I_C=0$			(-)0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)2\text{V}, I_C=(-)500\text{mA}$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)2\text{V}, I_C=(-)500\text{mA}$		(350)		MHz
				380		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$		(41)23		pF

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Marking : 2SA2011 : AR 2SC5564 : FA

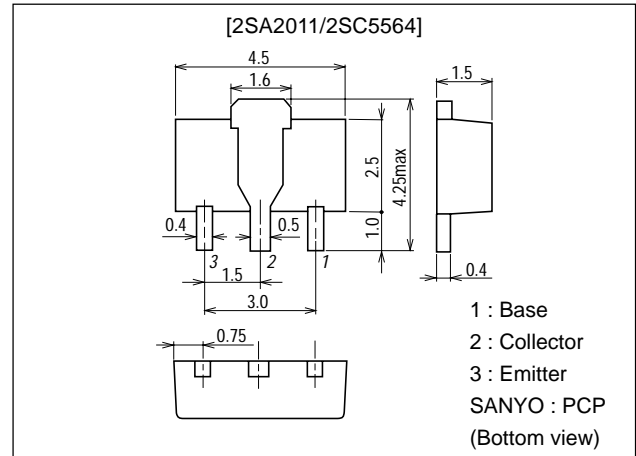
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Package Dimensions

unit:mm

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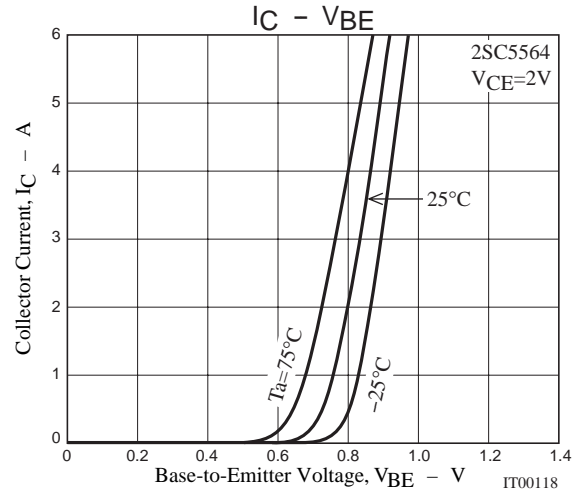
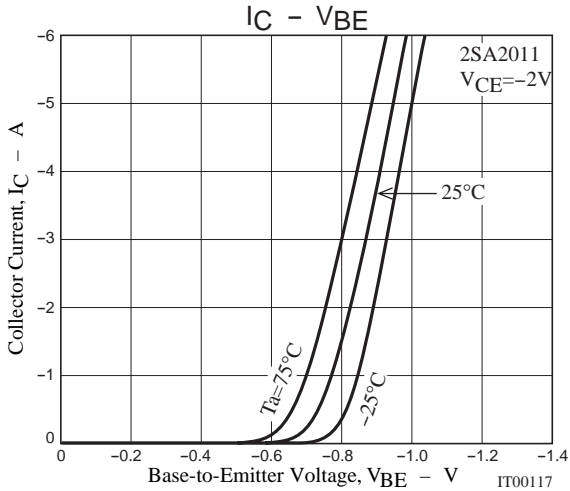
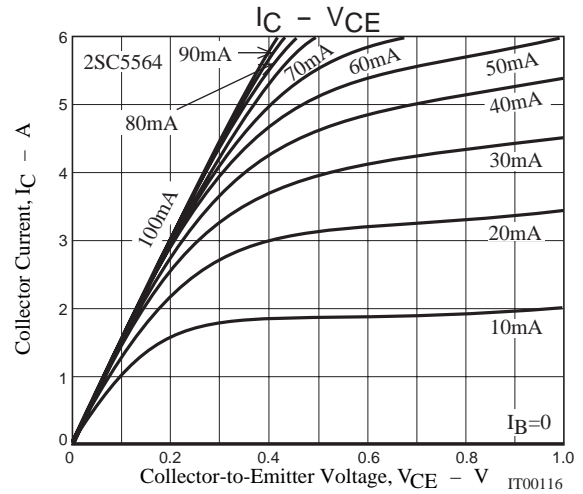
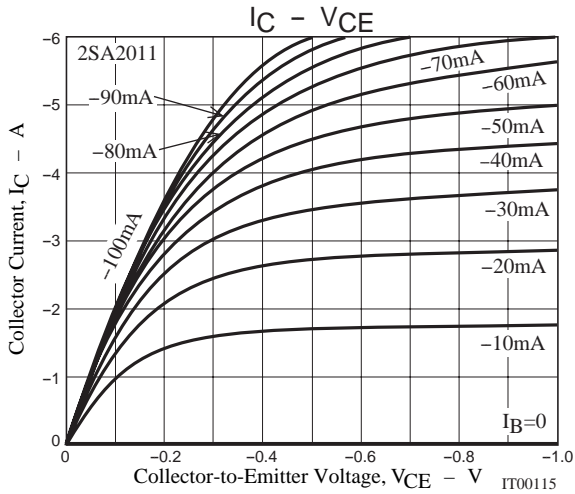
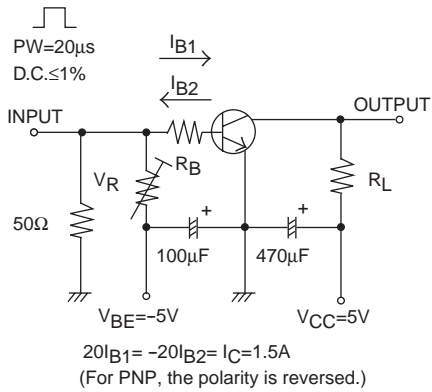


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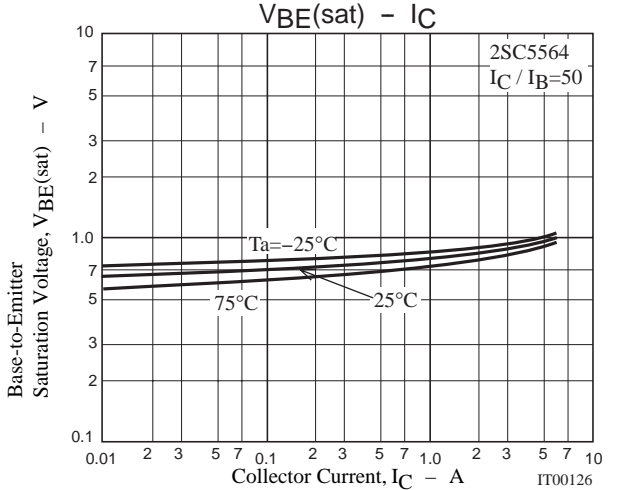
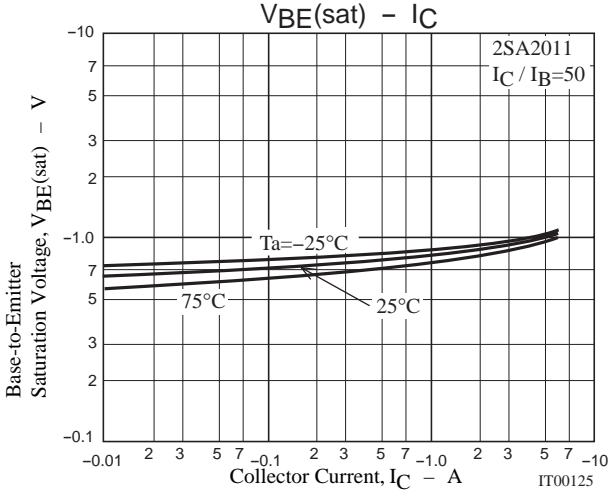
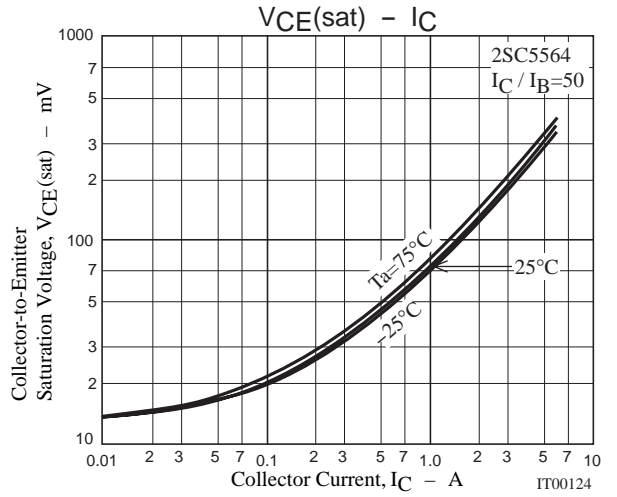
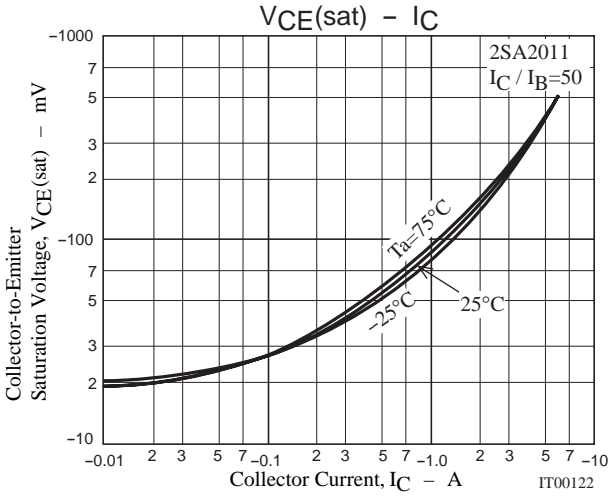
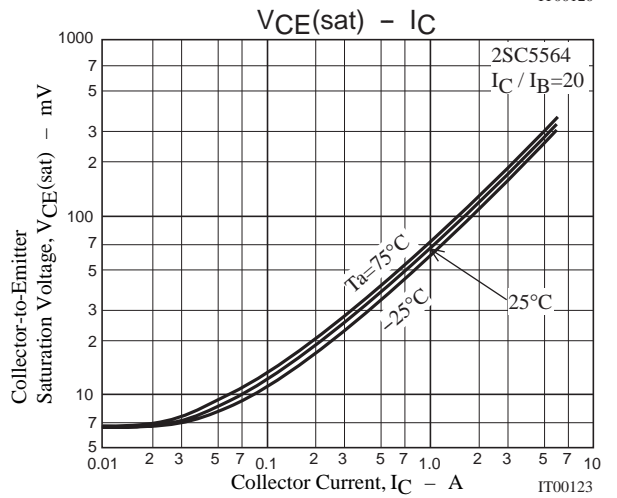
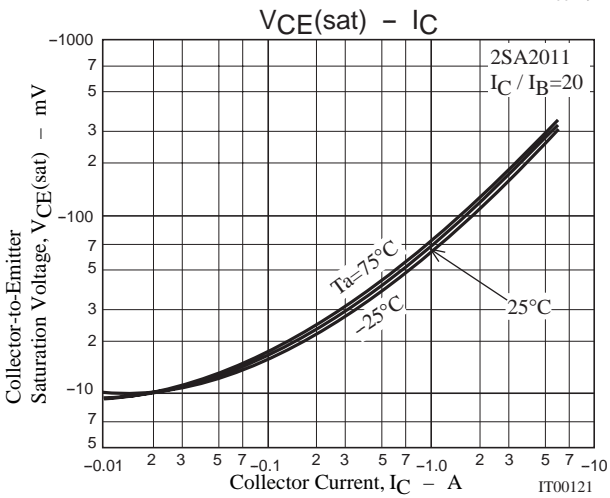
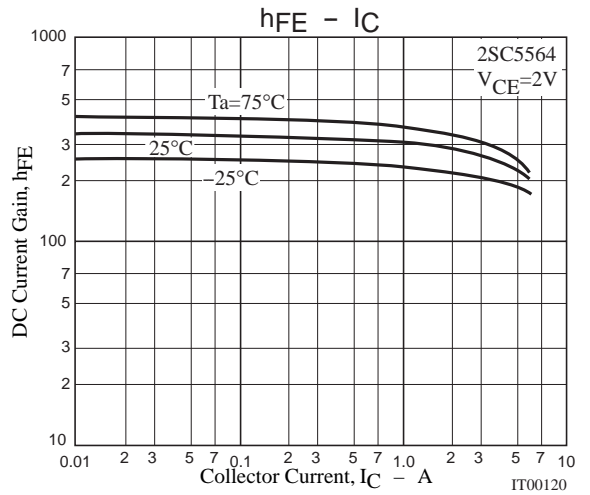
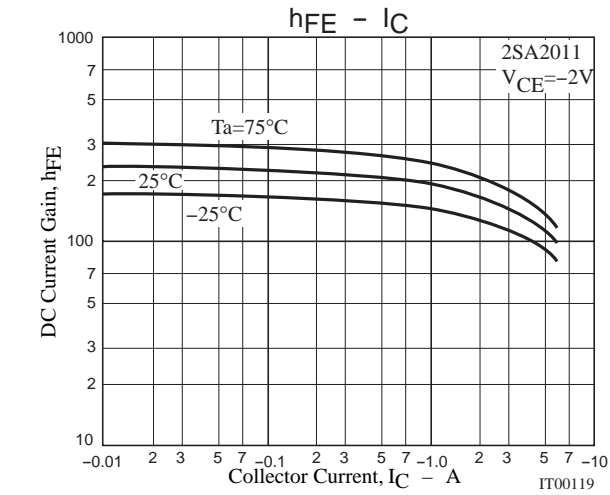
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Parameter	Symbol	Conditions	Ratings			Unit	
			min	typ	max		
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)1.5A, I_B=(-)30mA$		(-)120	(-)180	mV	
			$I_C=(-)3A, I_B=(-)60mA$		(-)190	(-)290	mV
					200	300	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)1.5A, I_B=(-)30mA$		(-)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	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)12			V	
			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		(35)30		ns	
Storage Time	t_{stg}	See specified Test Circuit		(110)		ns	
				190		ns	
Fall Time	t_f	See specified Test Circuit		15		ns	

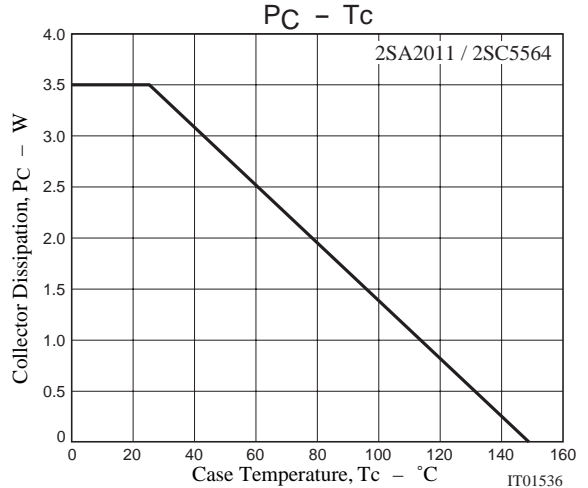
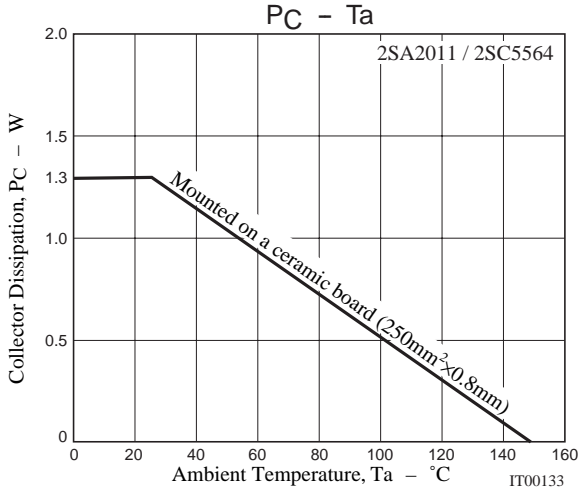
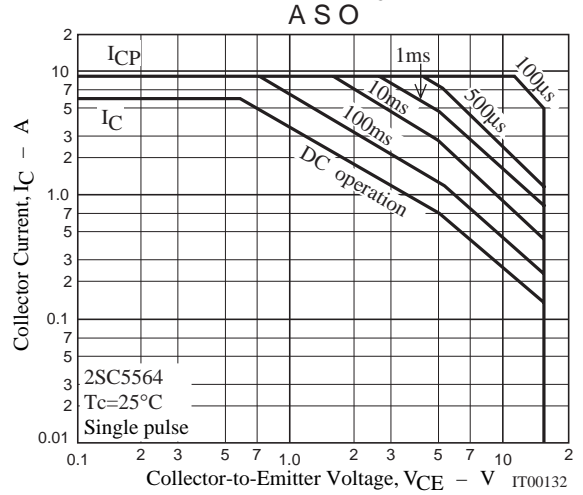
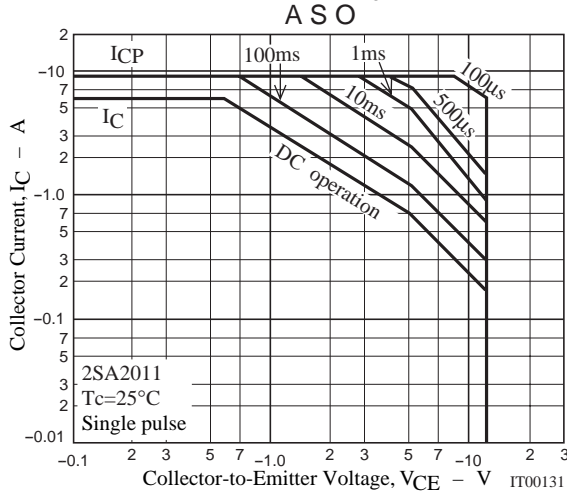
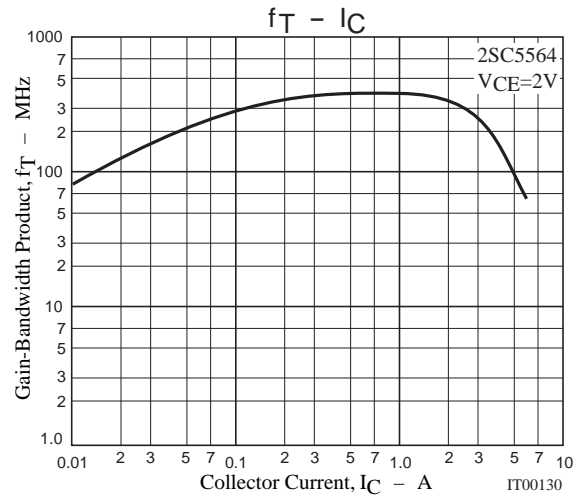
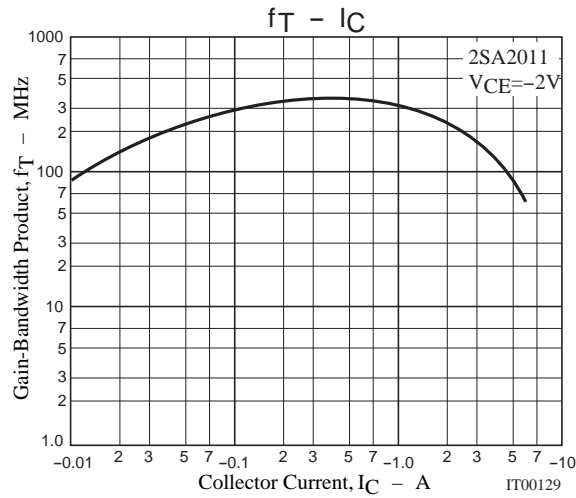
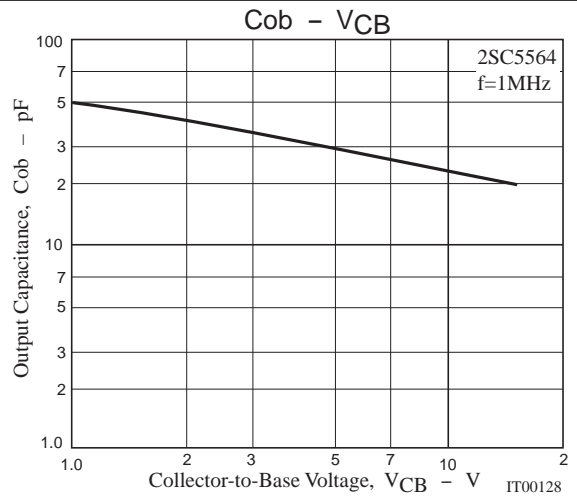
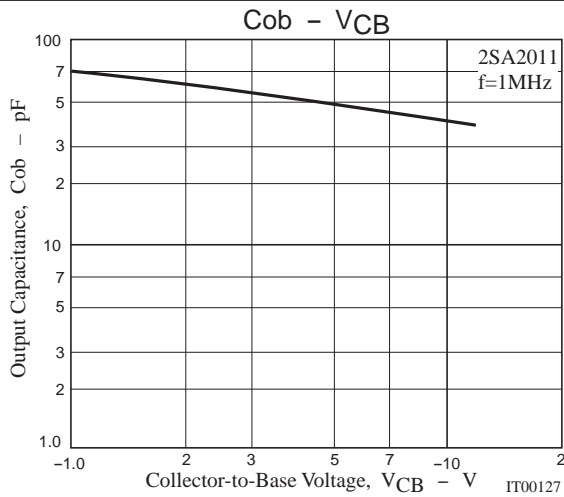
Switching Time Test Circuit



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