



2SA2022/2SC5610

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.
- High allowable power dissipation.

Specifications

() : 2SA2022

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(-50)60	V
Collector-to-Emitter Voltage	V_{CEO}		(-)50	V
Emitter-to-Base Voltage	V_{EBO}		(-)6	V
Collector Current	I_C		(-)7	A
Collector Current (Pulse)	I_{CP}		(-)10	A
Base Current	I_B		(-)1.2	A
Collector Dissipation	P_C		2	W
		$T_c=25^{\circ}\text{C}$	18	W
Junction Temperature	T_j		150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)40V, I_E=0$			$(-)0.1$	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4V, I_C=0$			$(-)0.1$	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)2V, I_C=(-)1A$	150		300	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)500mA$		(290)		MHz
				330		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		(50)28		pF

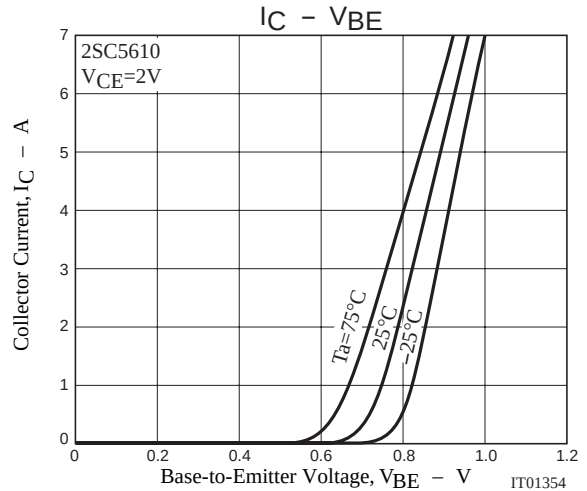
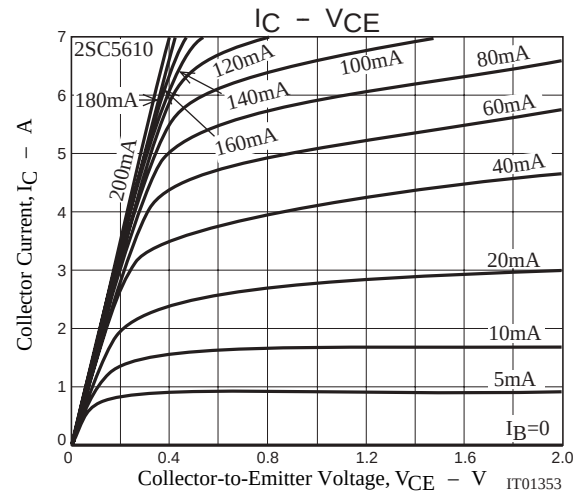
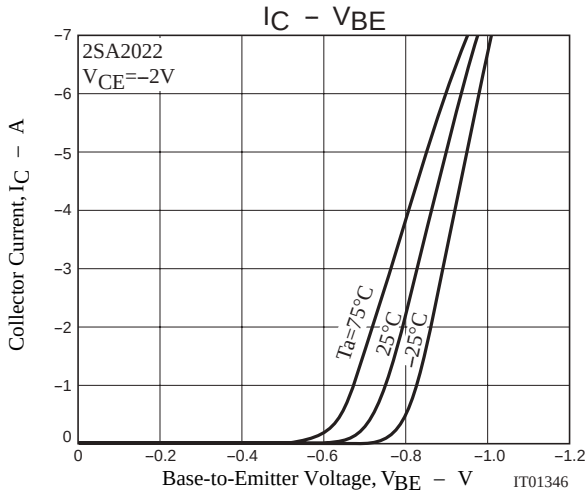
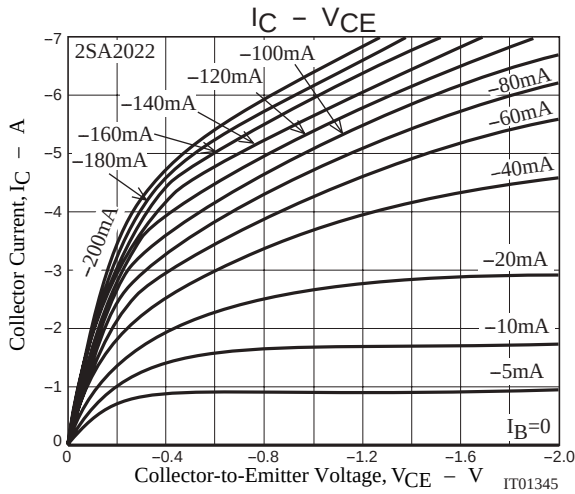
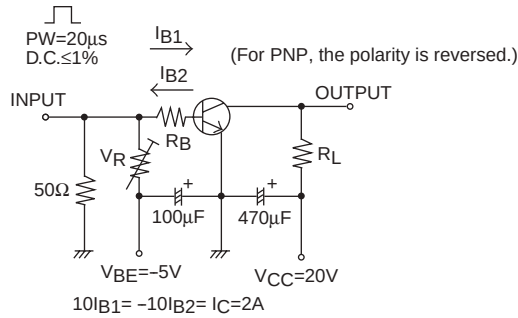
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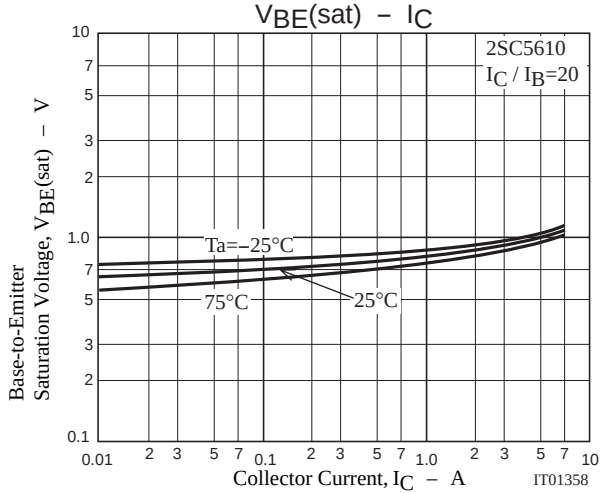
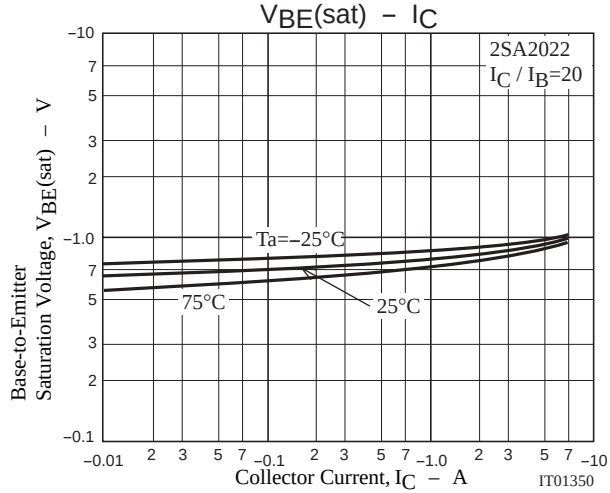
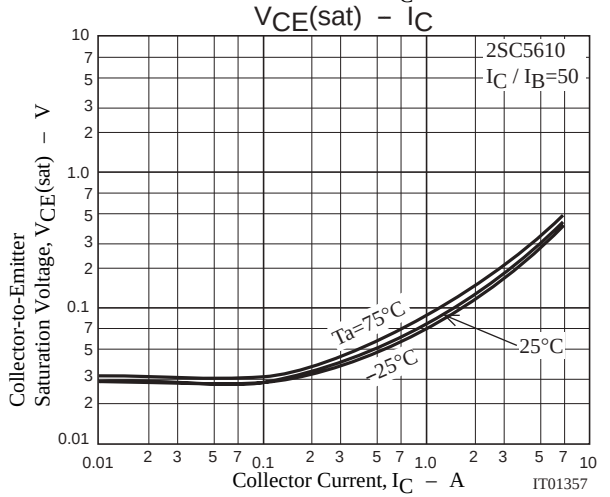
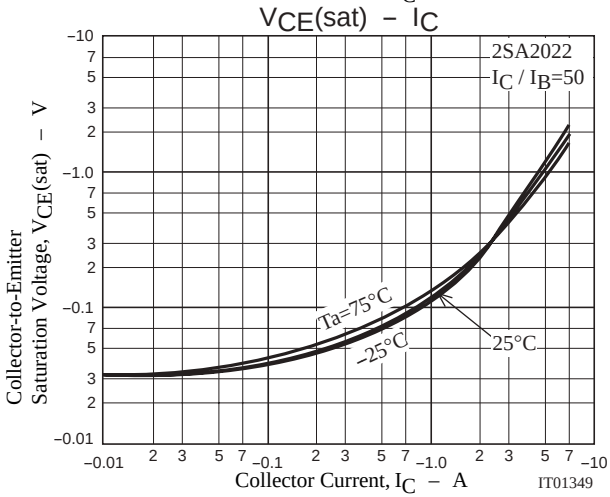
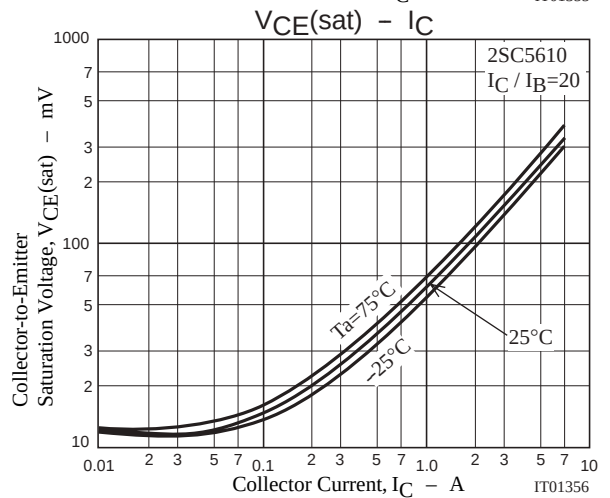
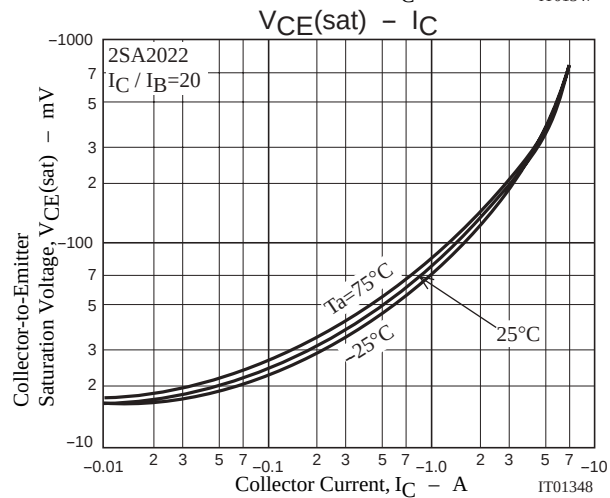
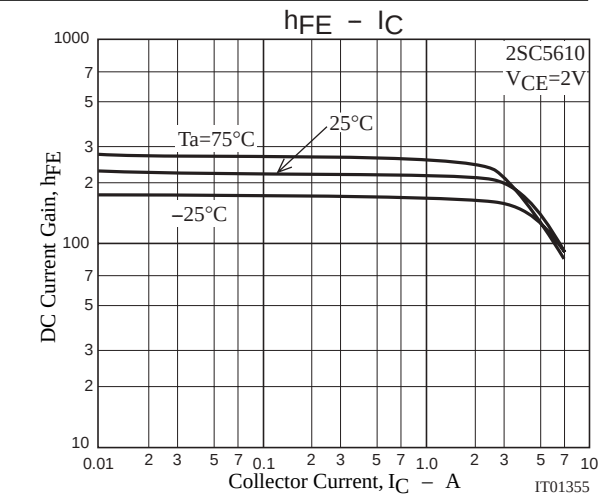
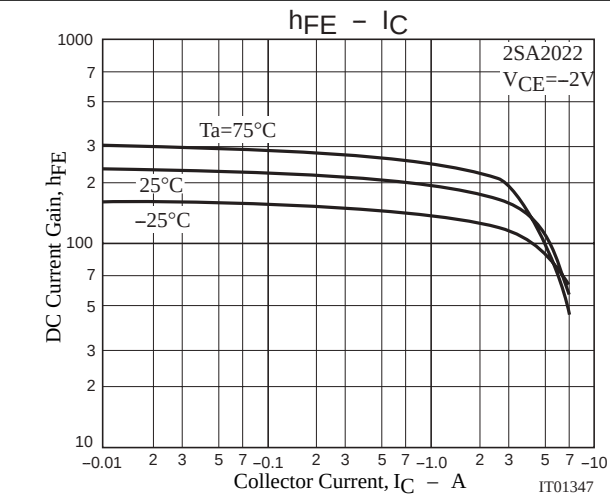
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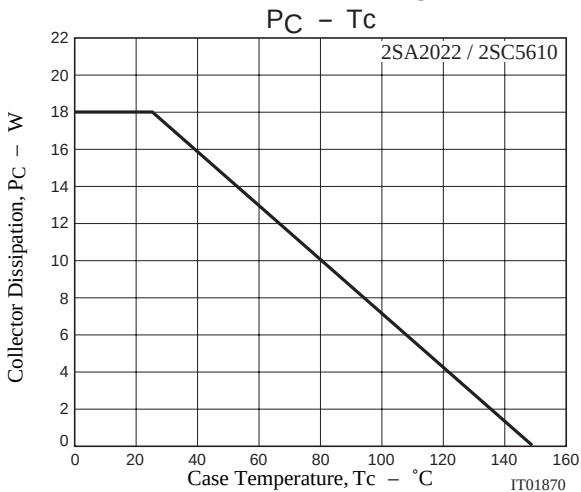
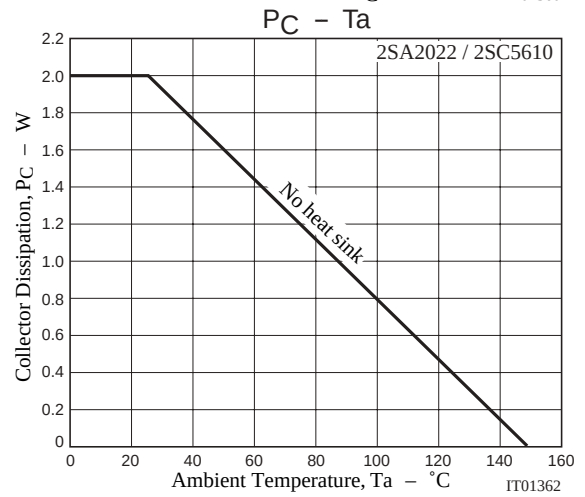
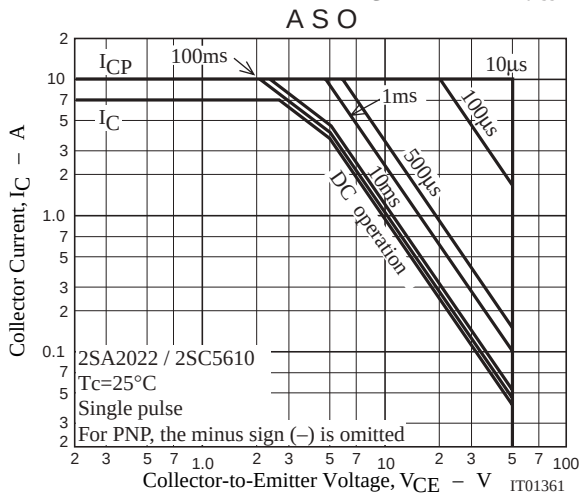
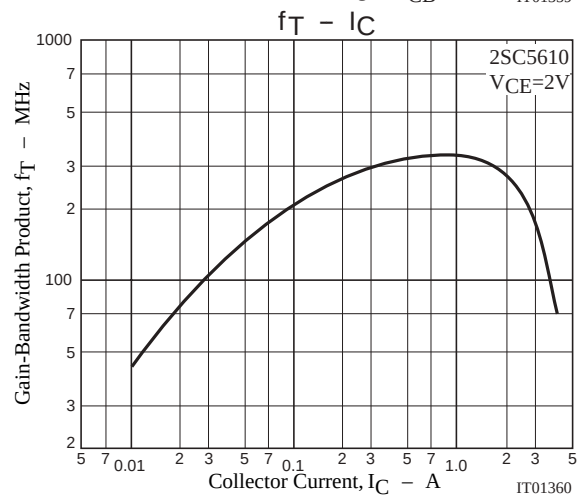
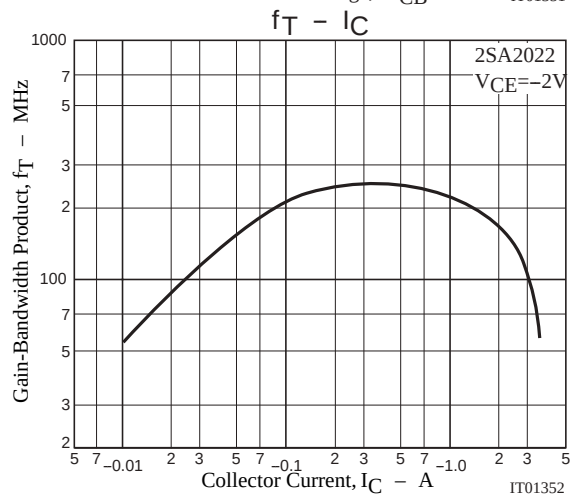
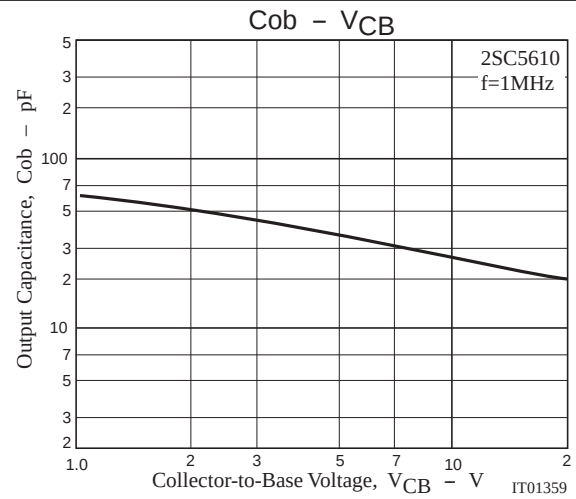
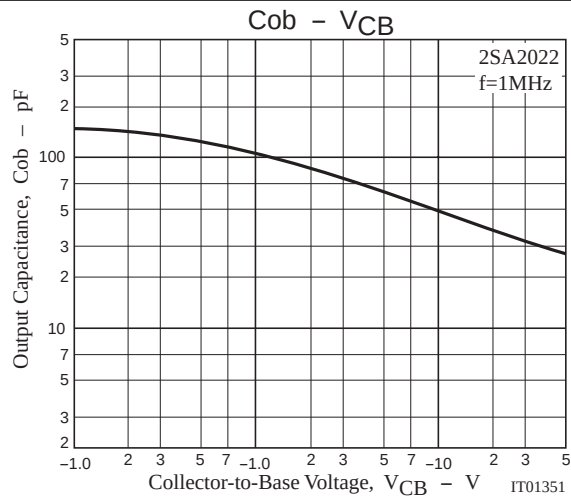
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)2.5A, I_B=(-)125mA$		(-150)	(-300)	mV
				130	260	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)2.5A, I_B=(-)125mA$		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-50)			V
			60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-)6			V
Turn-ON Time	t_{on}	See specified Test Circuit		30		ns
Storage Time	t_{stg}	See specified Test Circuit		(250)		ns
				300		ns
Fall Time	t_f	See specified Test Circuit		15		ns

Switching Time Test Circuit







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