



2SA2023/2SC5611

60V / 5A High-Speed Switching Applications

Applications

- Various inductance lamp drivers for electrical equipment.
- Inverters, converters (strobos, flash, fluorescent lamp lighting circuit).
- Power amplifier (high-power car stereo, motor control).
- High-speed switching (switching regulator, driver circuit).

Features

- Low collector-to-emitter saturation voltage.
- Excellent dependence of h_{FE} on current.
- High-speed switching.
- Micaless package facilitating mounting.

Specifications

Note * () : 2SA2023

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(-)80	V
Collector-to-Emitter Voltage	V_{CEO}		(-)60	V
Emitter-to-Base Voltage	V_{EBO}		(-)5	V
Collector Current	I_C		(-)5	A
Collector Current (Pulse)	I_{CP}		(-)7	A
Collector Dissipation	P_C		1.3	W
		$T_C=25^{\circ}\text{C}$	10	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}	$V_{CB}=(-)40V, I_E=0$			$(-)0.1$	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4V, I_C=0$			$(-)0.1$	mA
DC Current Gain	h_{FE}	$V_{CE}=(-)2V, I_C=(-)1A$	110		200	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)5V, I_C=(-)1A$		100		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)2.5A, I_B=(-)0.125A$			$(-)0.4$	V

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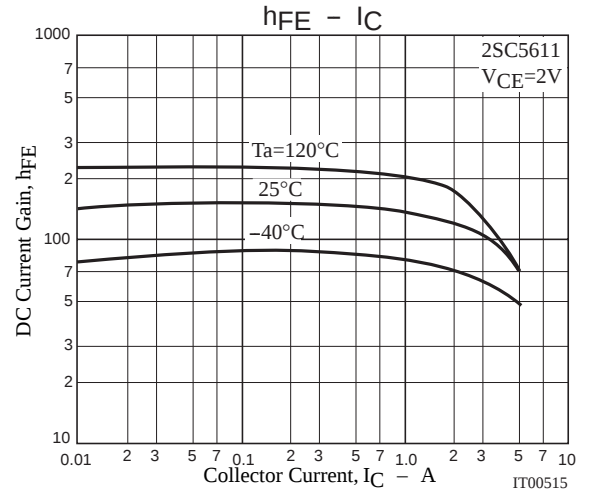
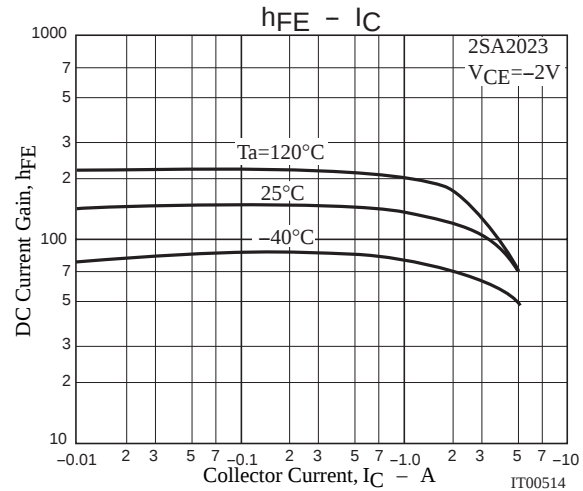
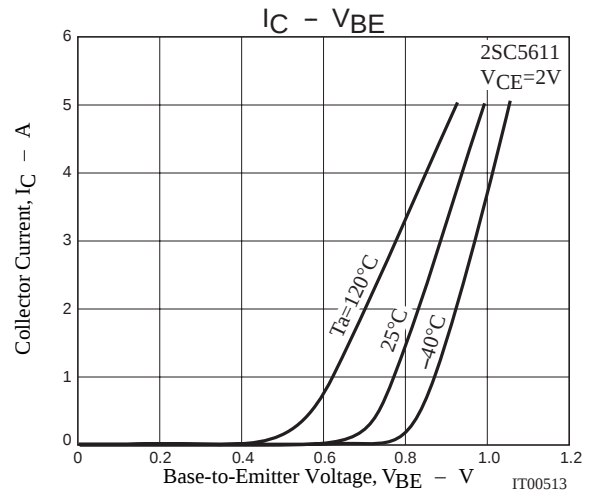
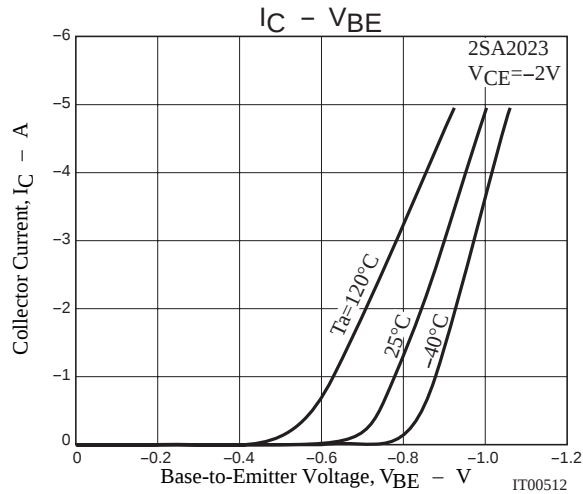
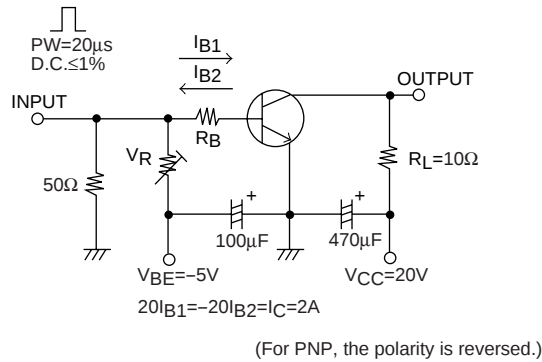
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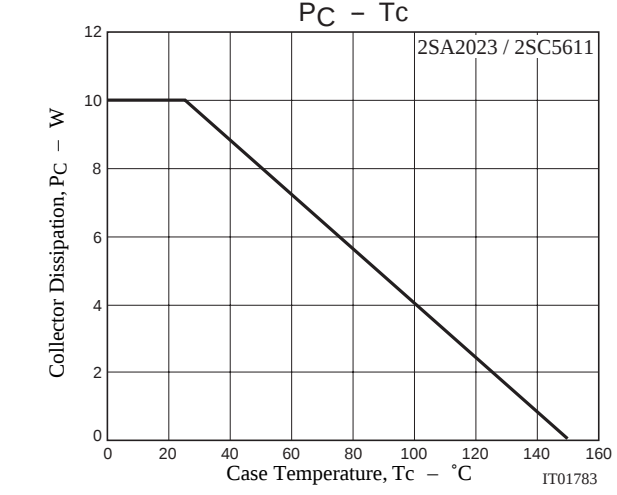
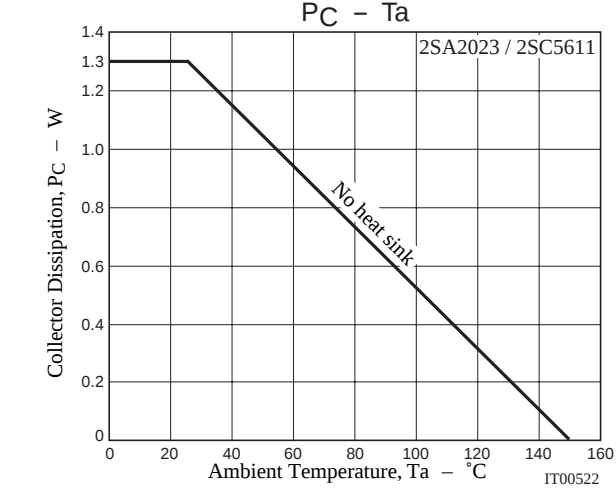
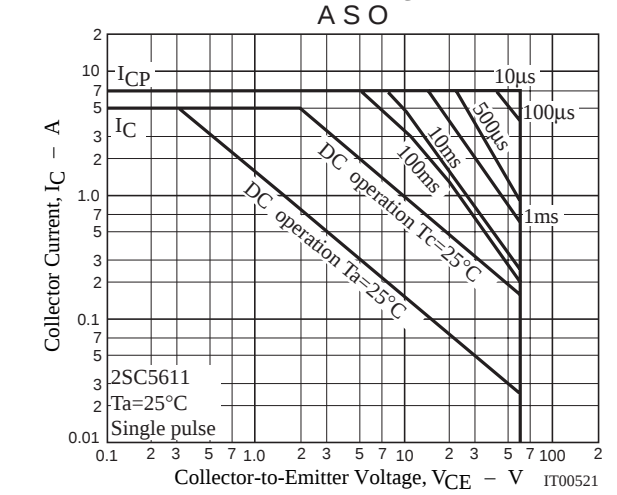
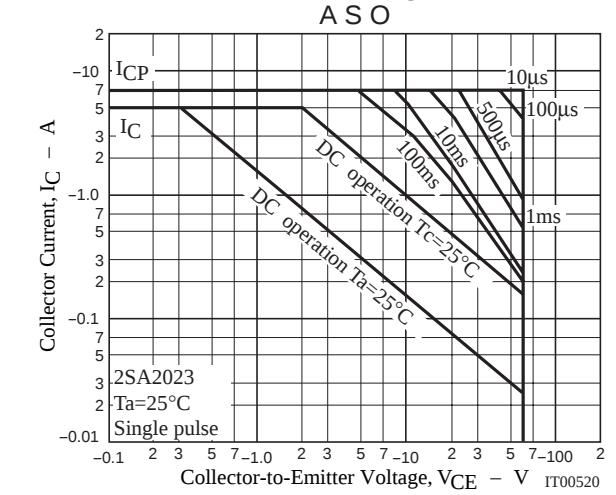
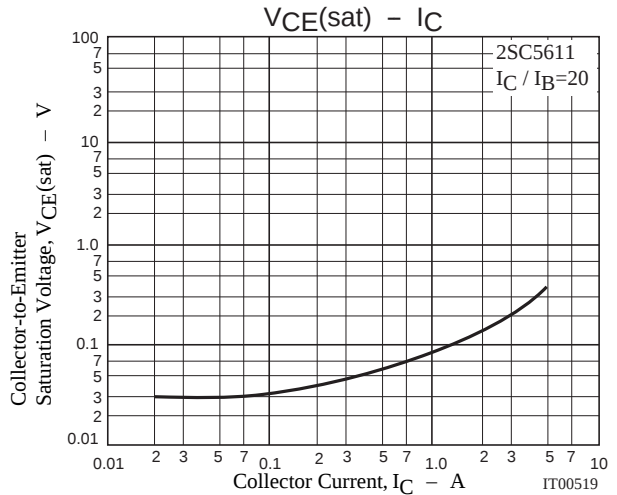
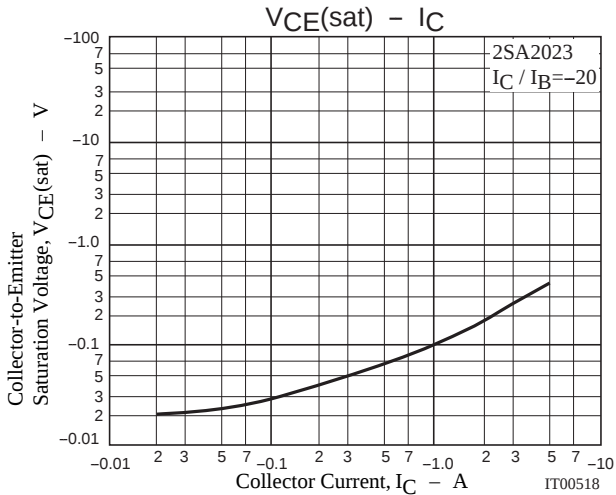
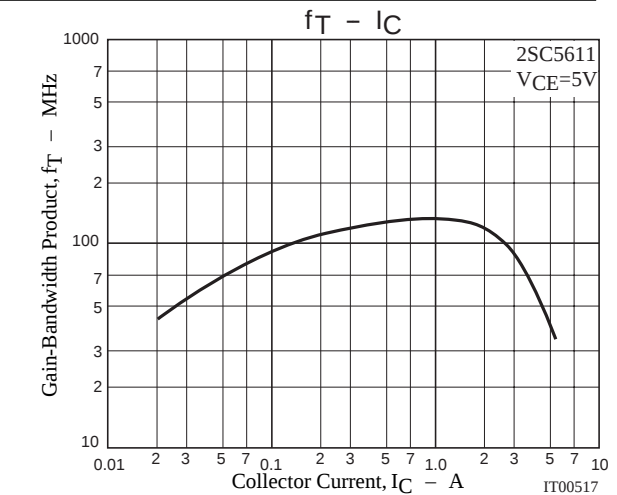
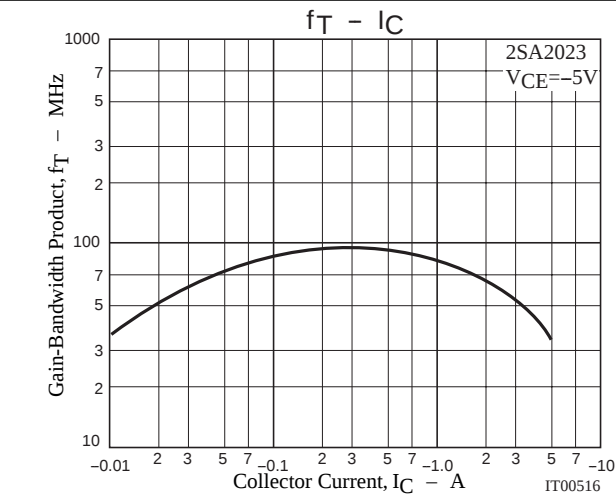
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)1mA, I_E=0$	(-)80			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)60			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)1mA, I_C=0$	(-)5			V
Turn-ON Time	t_{on}	See specified Test Circuit		0.1		μs
Storage Time	t_{stg}	See specified Test Circuit		0.5		μs
Fall Time	t_f	See specified Test Circuit		0.1		μs

Switching Time Test Circuit





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