

Ordering number : ENN6914

PNP / NPN Epitaxial Planar Silicon Transistors



2SA2043 / 2SC5709

DC / DC Converter Applications

Applications

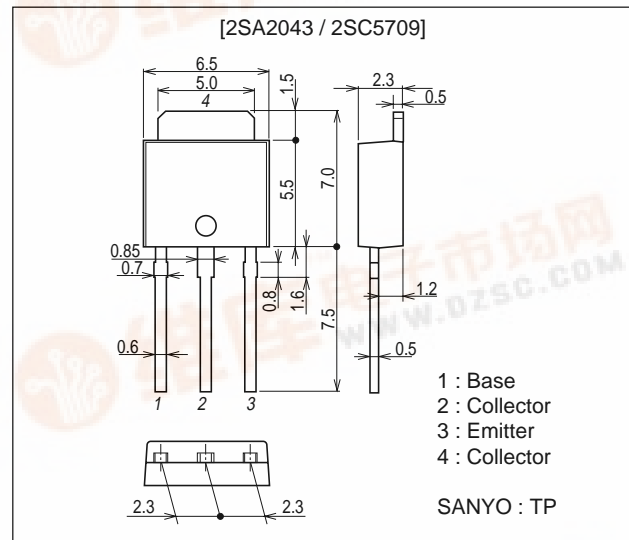
- Relay drivers, lamp drivers, motor drivers, strobos.

Features

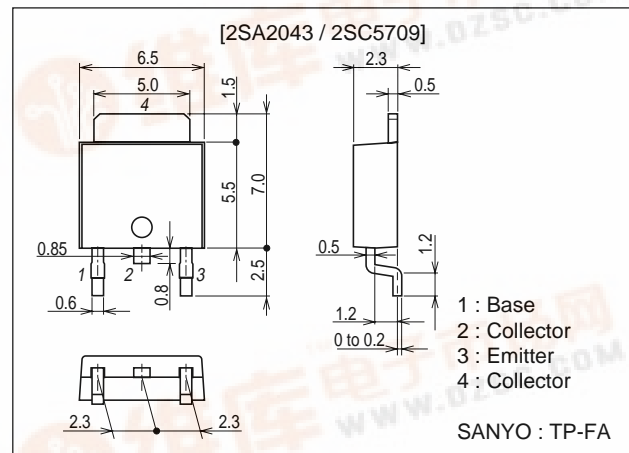
- Adoption of FBET and MBIT processes.
- Large current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- High allowable power dissipation.

Package Dimensions

unit : mm
2045B



unit : mm
2044B



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Specifications

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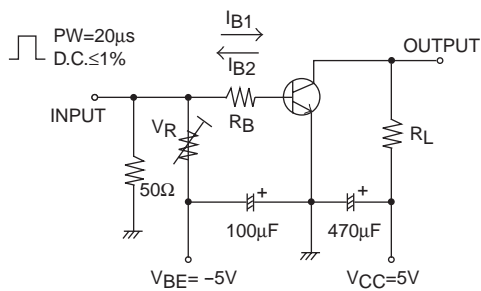
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-)15	V
Collector-to-Emitter Voltage	V_{CEO}		(-)15	V
Emitter-to-Base Voltage	V_{EBO}		(-)5	V
Collector Current	I_C		(-)10	A
Collector Current (Pulse)	I_{CP}		(-)13	A
Base Current	I_B		(-)1.2	A
Collector Dissipation	P_C	$T_c=25^\circ\text{C}$	1	W
			15	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_{CB0}	$V_{CB}=-12\text{V}, I_E=0$			(-)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	$V_{CE}=-2\text{V}, I_C=-500\text{mA}$		(220)280		MHz
Output Capacitance	C_{ob}	$V_{CB}=-10\text{V}, f=1\text{MHz}$		(90)50		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-3\text{A}, I_B=-60\text{mA}$		(-110)120	(-170)180	mV
		$I_C=-4.5\text{A}, I_B=-90\text{mA}$		(-160)180	(-240)280	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-3\text{A}, I_B=-60\text{mA}$		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0$	(-)15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, R_{BE}=\infty$	(-)15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0$	(-)5			V
Turn-On Time	t_{on}	See specified test circuit.		30		ns
Storage Time	t_{stg}	See specified test circuit.		(120)180		ns
Fall Time	t_f	See specified test circuit.		(14)25		ns

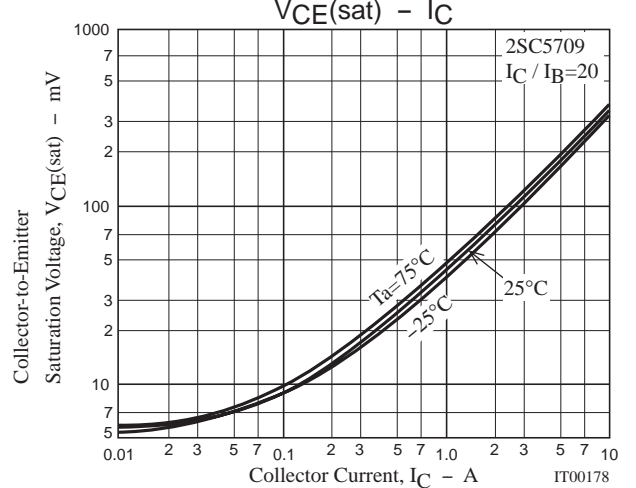
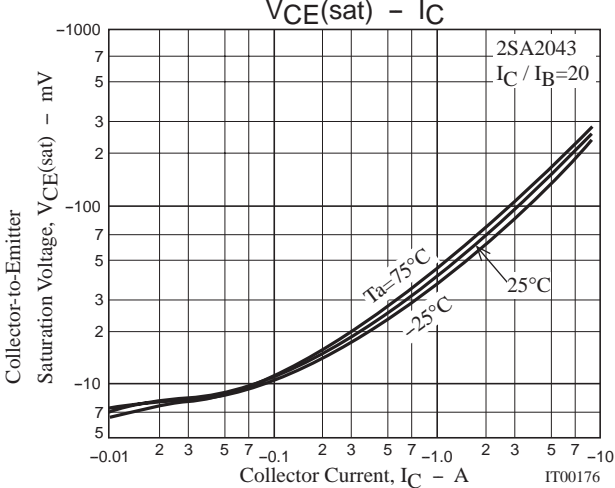
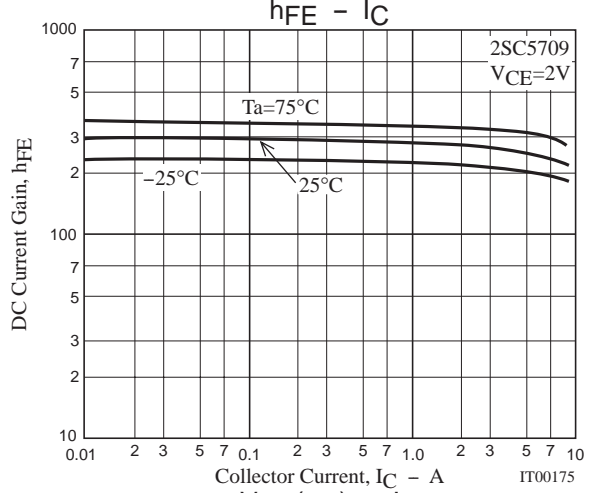
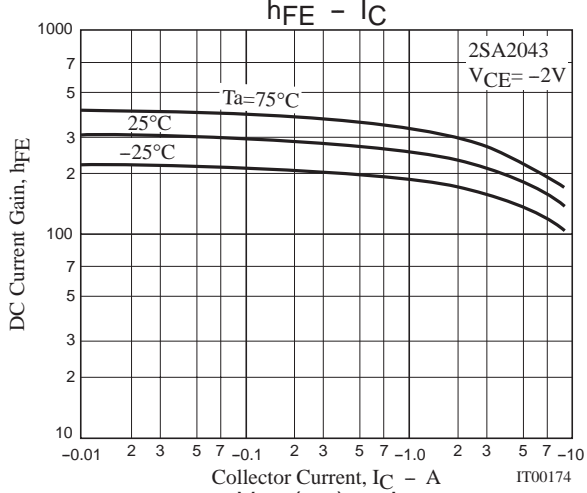
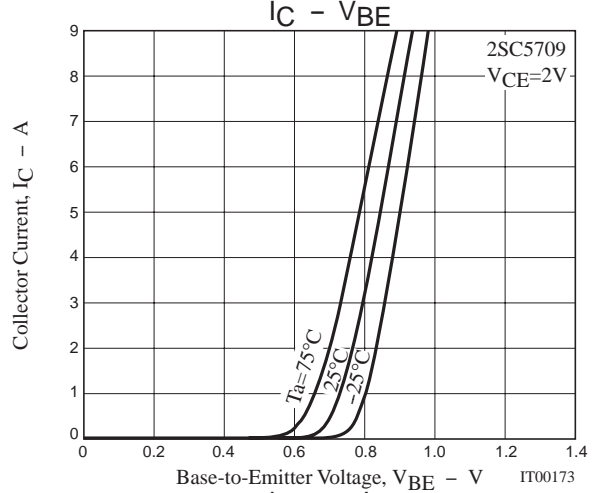
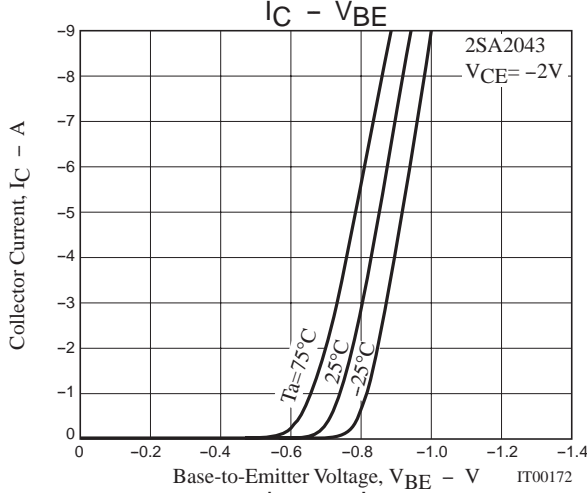
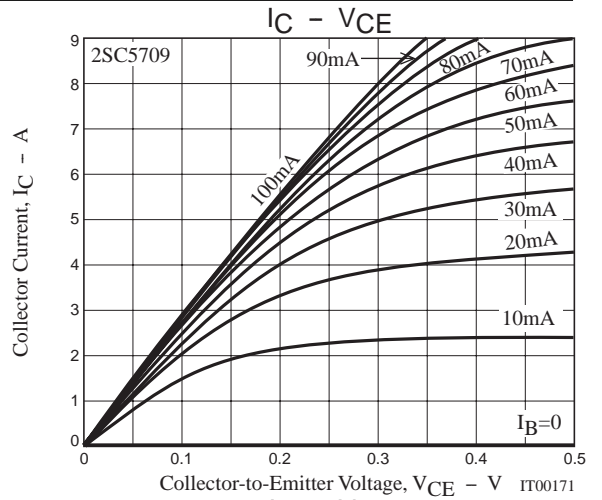
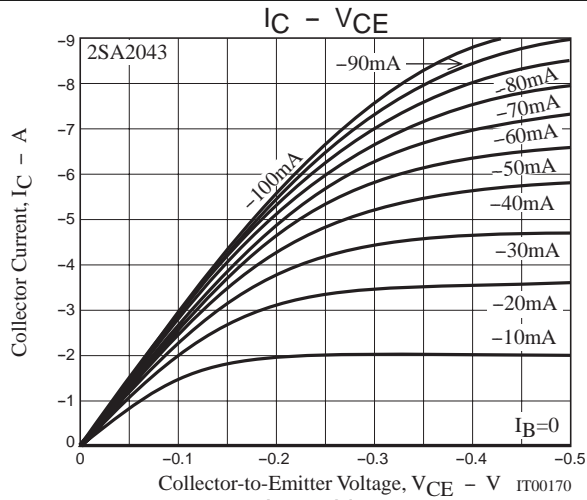
Swicthing Time Test Circuit



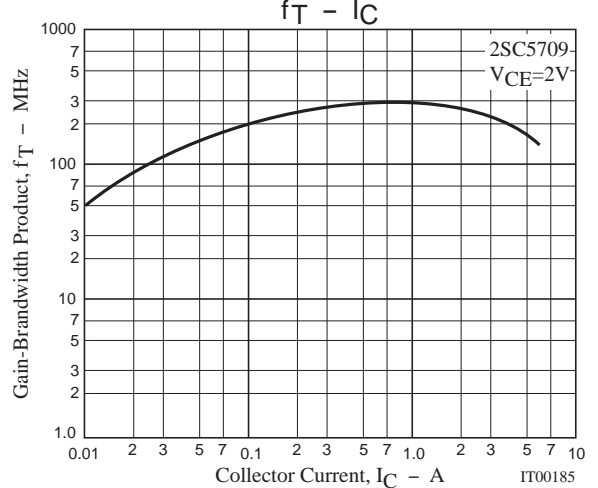
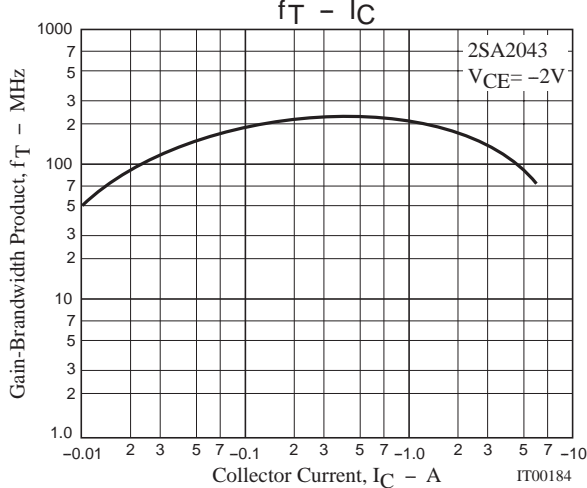
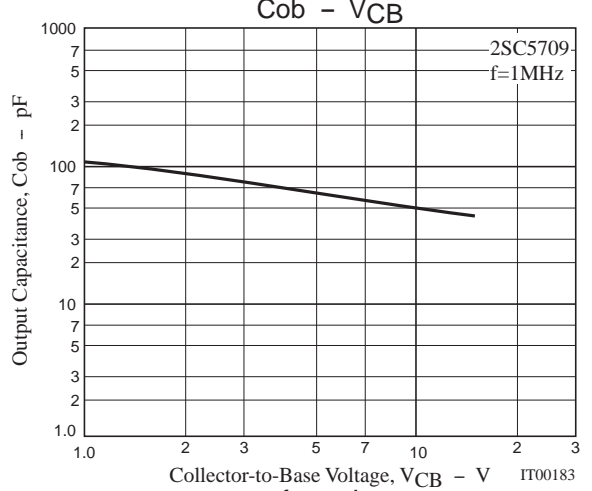
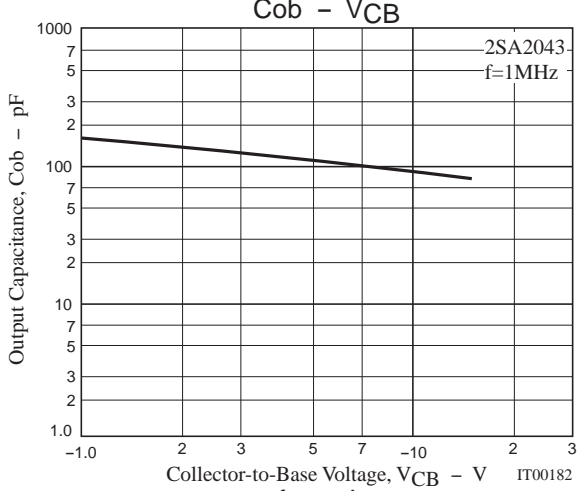
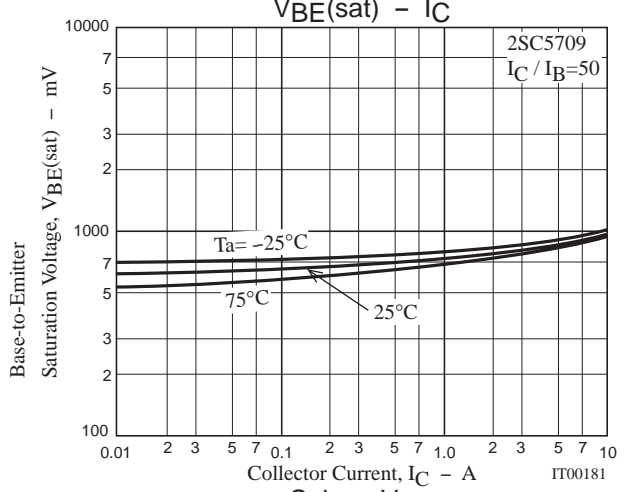
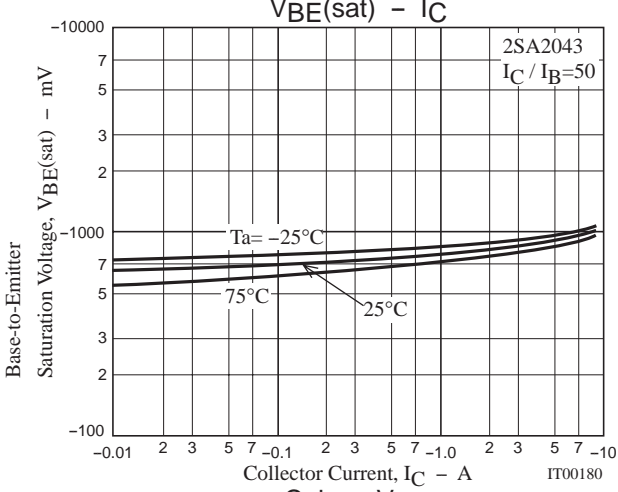
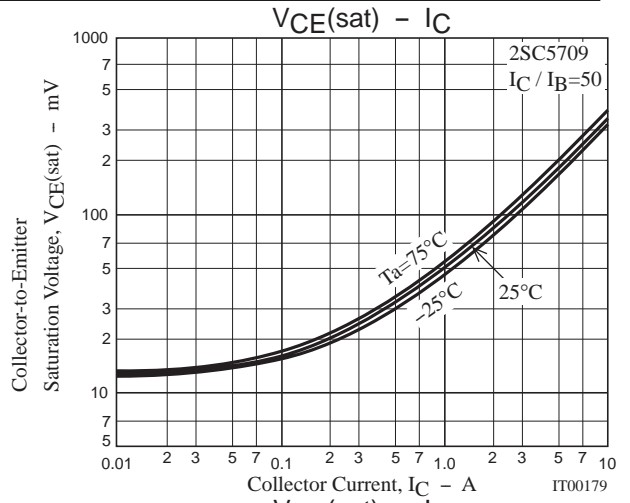
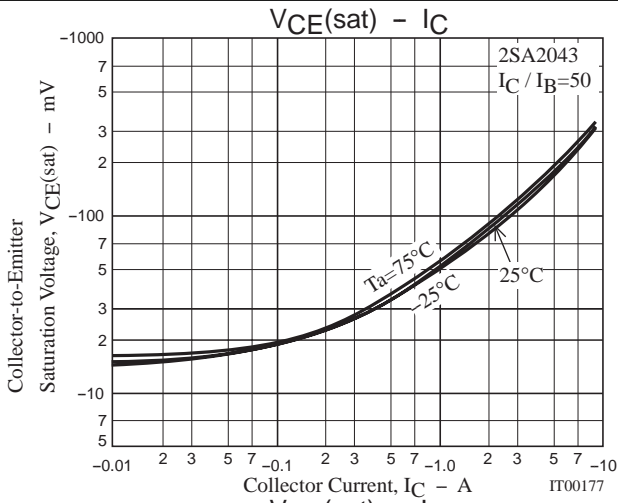
$$I_C = 20I_{B1} = -20I_{B2} = 3\text{A}$$

For PNP, the polarity is reversed.

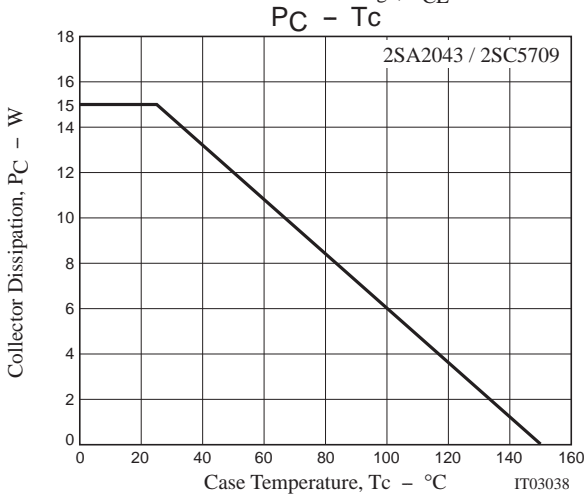
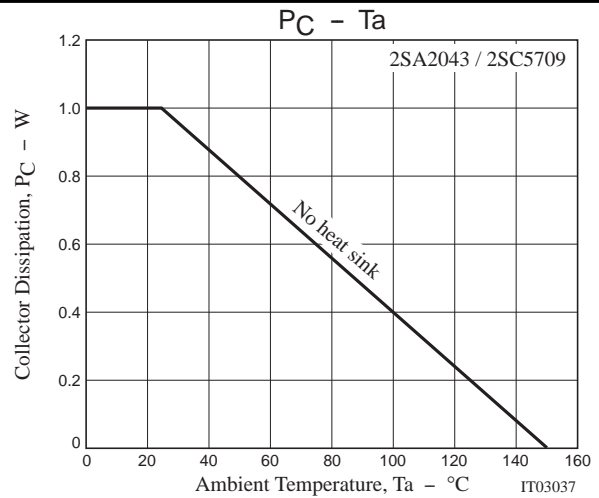
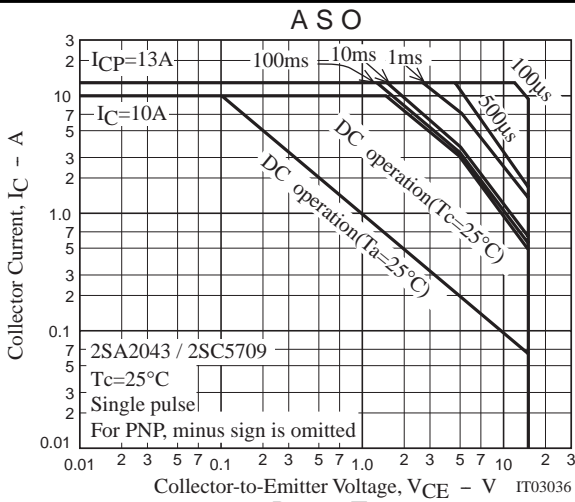
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