

2SA2043 / 2SC5709



DC / DC Converter Applications

Applications

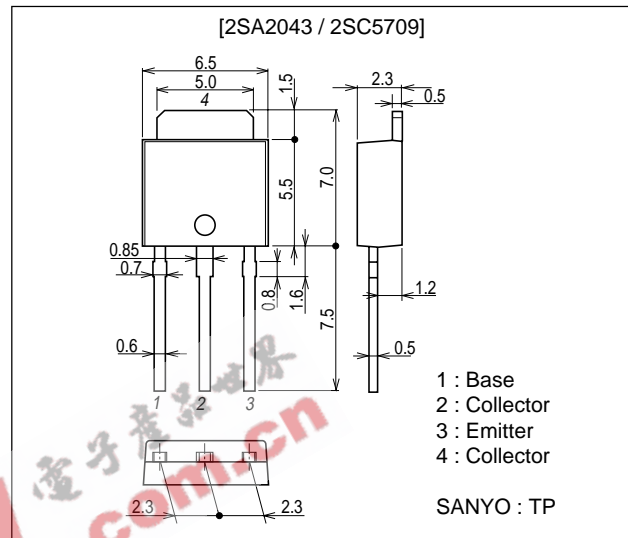
- Relay drivers, lamp drivers, motor drivers, strobes.

Features

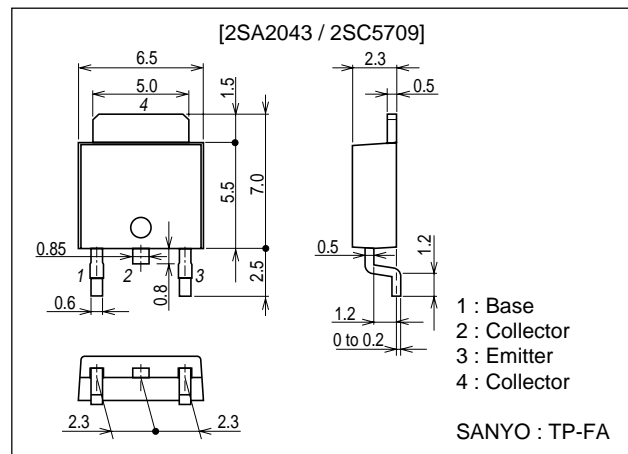
- Adoption of FBET and MBIT processes.
- Large current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- High allowable power dissipation.

Package Dimensions

unit : mm
2045B



unit : mm
2044B



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Specifications

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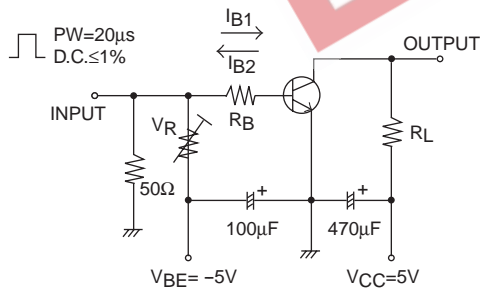
Absolute Maximum Ratings at Ta=25°C

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		1	W
		T _C =25°C	15	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} =(-)12V, 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 =(-)500mA	200		560	
Gain-Bandwidth Product	f _T	V _{CE} =(-)2V, I _C =(-)500mA		(220)280		MHz
Output Capacitance	C _{ob}	V _{CB} =(-)10V, f=1MHz		(90)50		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =(-)3A, I _B =(-)60mA		(-110)120	(-170)180	mV
		I _C =(-)4.5A, I _B =(-)90mA		(-160)180	(-240)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 =(-)10μA, I _E =0	(-)15			V
Collector-to-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =(-)1mA, R _{BE} =∞	(-)15			V
Emitter-to-Base Breakdown Voltage	V _{(BR)EBO}	I _E =(-)10μA, 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

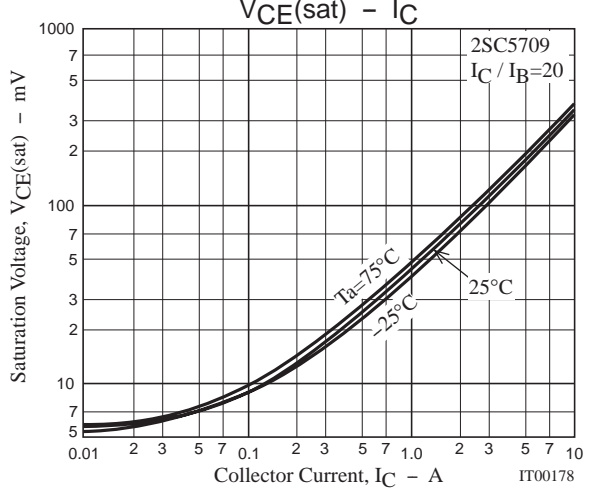
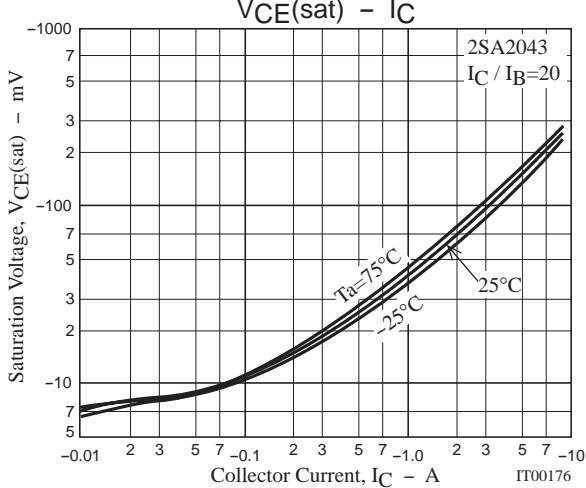
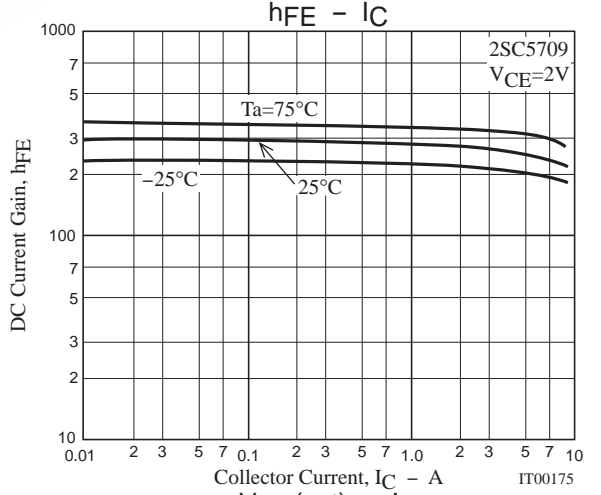
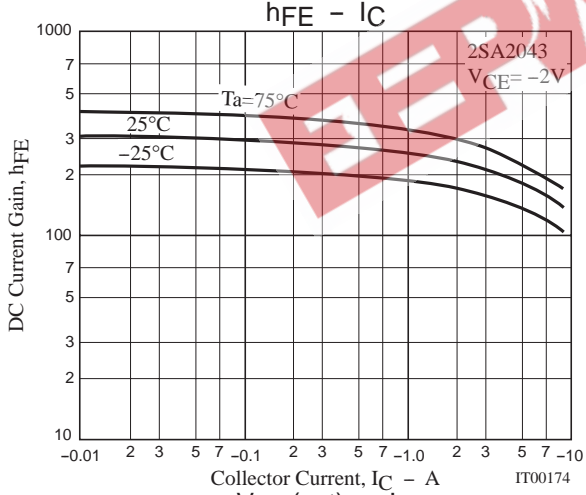
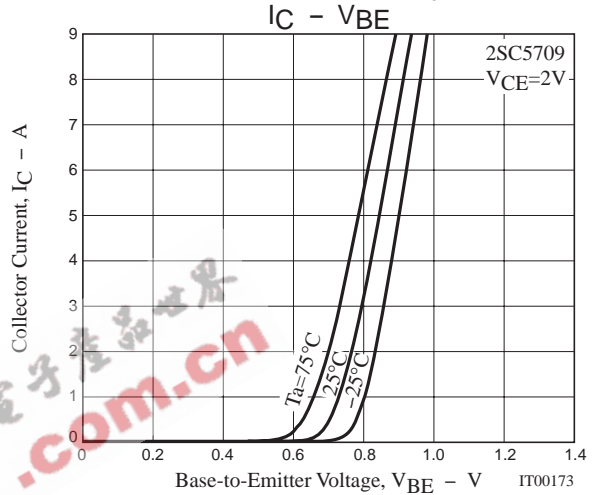
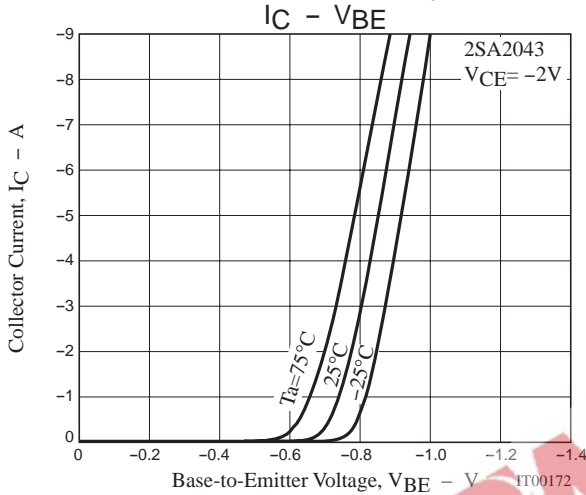
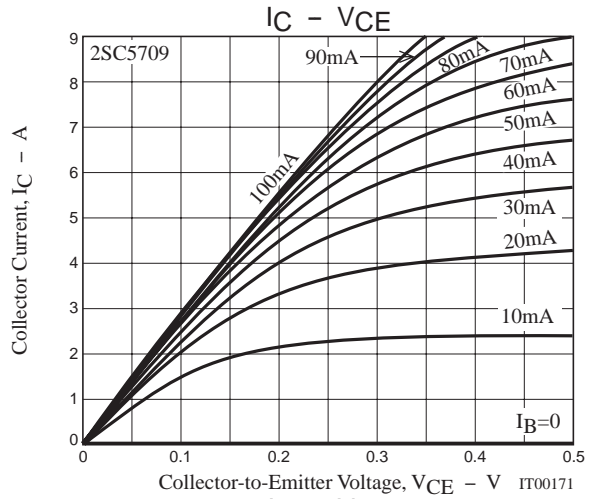
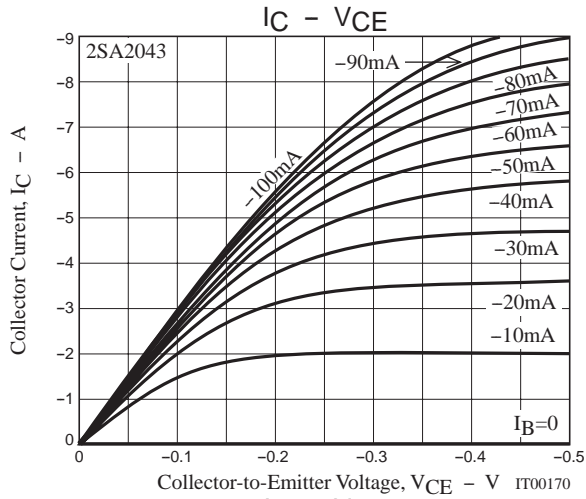
Swicthing Time Test Circuit



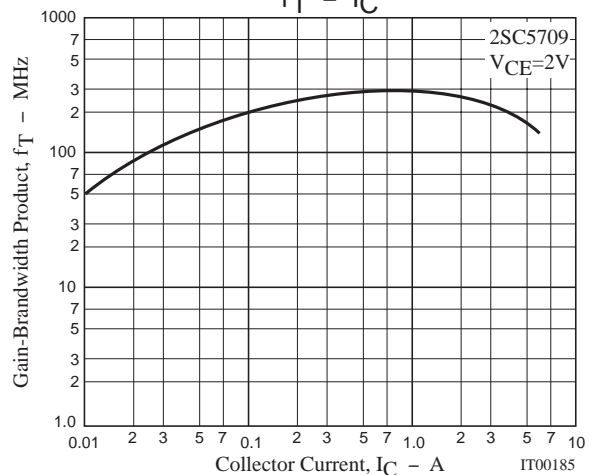
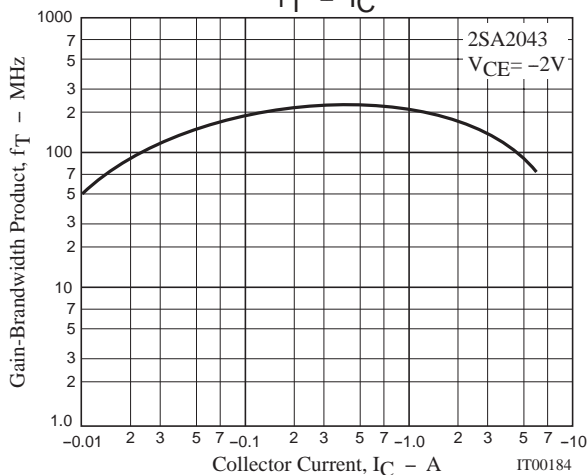
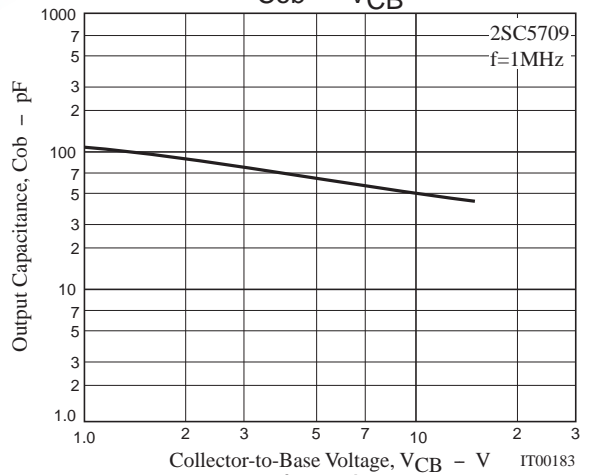
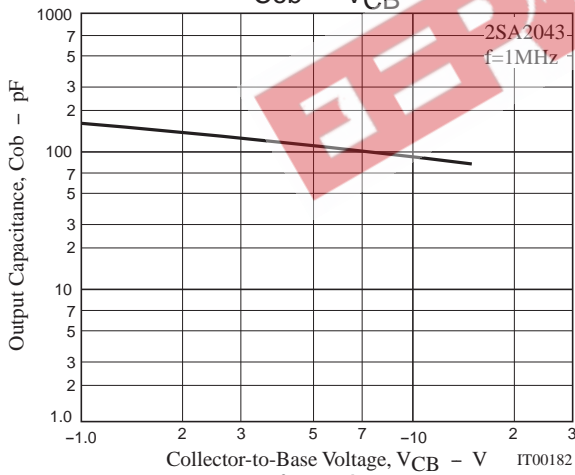
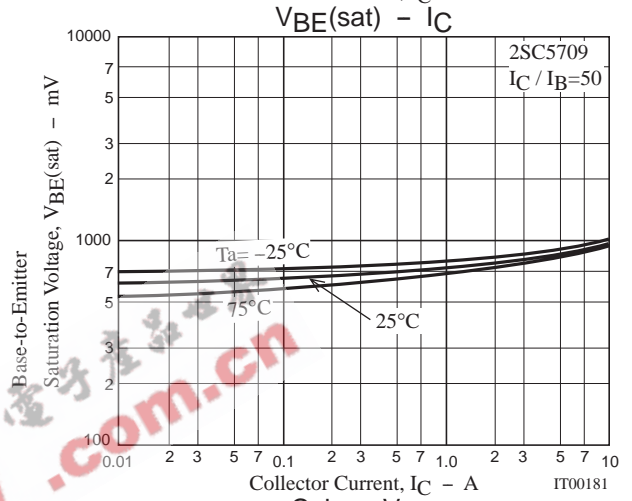
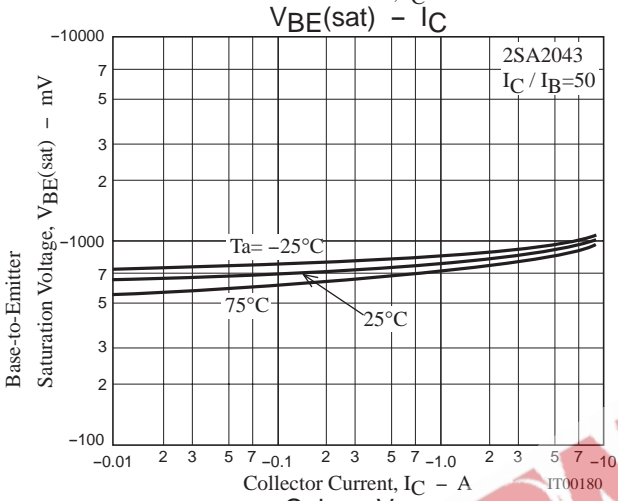
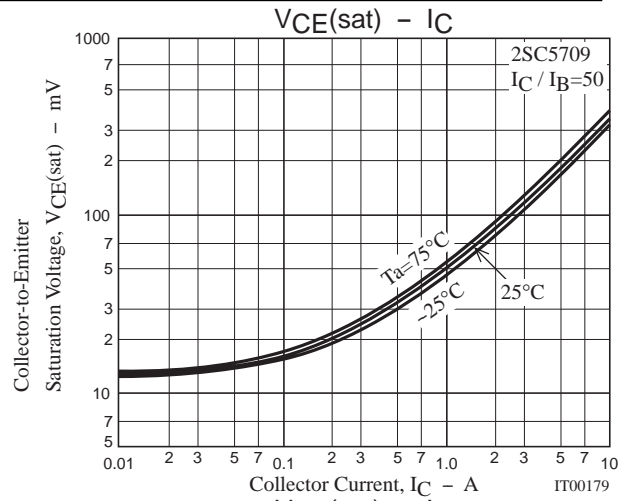
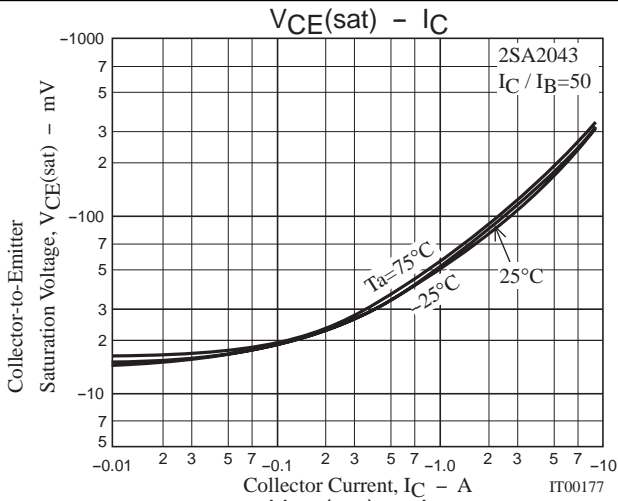
$$I_C = 20I_{B1} = -20I_{B2} = 3A$$

For PNP, the polarity is reversed.

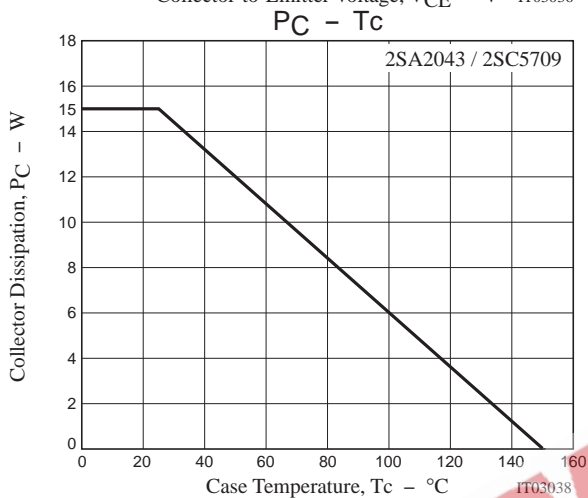
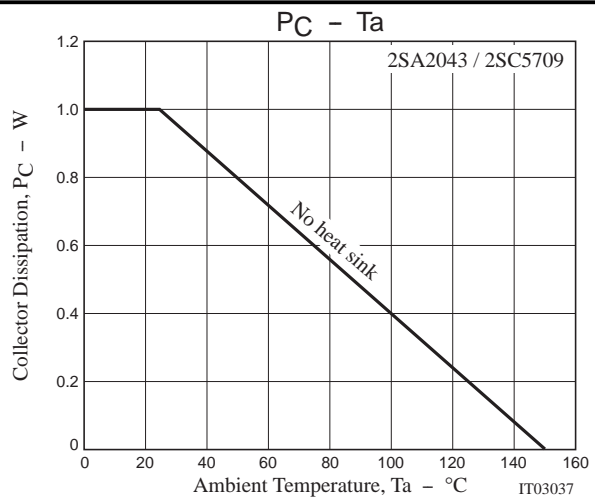
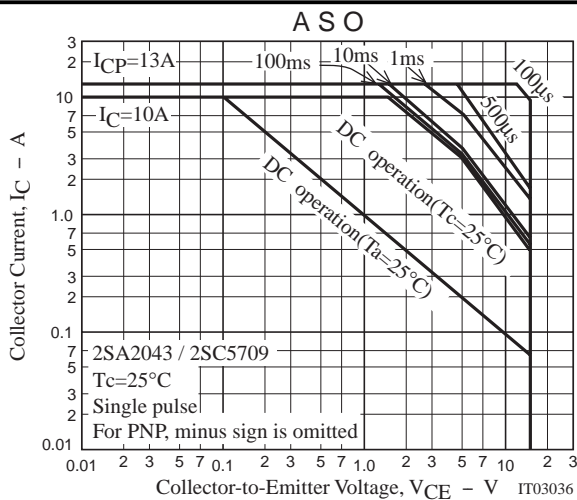
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