



SANYO Semiconductors

DATA SHEET

2SA2099 / 2SC5888

PNP / NPN Epitaxial Planar Silicon Transistors

High-Current Switching Applications

Applications

- Relay drivers, lamp drivers, motor drivers.

Features

- Adoption of MBIT process.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.

Specifications () : 2SA2099

Absolute Maximum Ratings at Ta=25°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		(-)10	A
Collector Current (Pulse)	I _{CP}		(-)13	A
Base Current	I _B		(-)2	A
Collector Dissipation	P _C		2	W
		T _c =25°C	25	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

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SANYO Semiconductor Co., Ltd.

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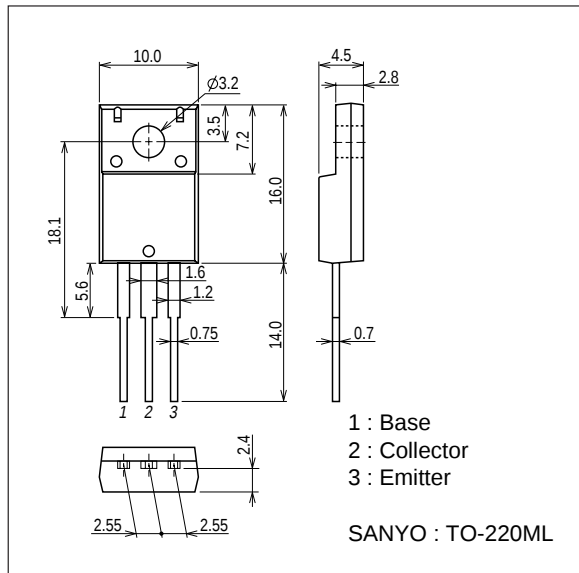
Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)40\text{V}, I_E=0\text{A}$			$(-)\text{10}$	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4\text{V}, I_C=0\text{A}$			$(-)\text{10}$	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)2\text{V}, I_C=(-)1\text{A}$	200		$(560)\text{700}$	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)5\text{V}, I_C=(-)1\text{A}$		$(130)\text{200}$		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$		$(90)\text{60}$		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)5\text{A}, I_B=(-)250\text{mA}$		$(-250)\text{180}$	$(-500)\text{360}$	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)5\text{A}, I_B=(-)250\text{mA}$		$(-)\text{0.93}$	$(-)\text{1.4}$	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)100\mu\text{A}, I_E=0\text{A}$	$(-50)\text{60}$			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}, R_{BE}=\infty$	$(-)\text{50}$			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)100\mu\text{A}, I_C=0\text{A}$	$(-)\text{6}$			V
Turn-ON Time	t_{on}	See specified Test Circuit.		$(70)\text{40}$		ns
Storage Time	t_{stg}	See specified Test Circuit.		$(650)\text{1000}$		ns
Fall Time	t_f	See specified Test Circuit.		$(60)\text{80}$		ns

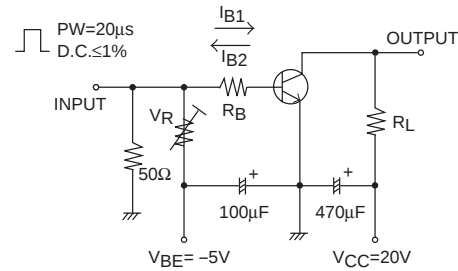
Package Dimensions

unit : mm (typ)

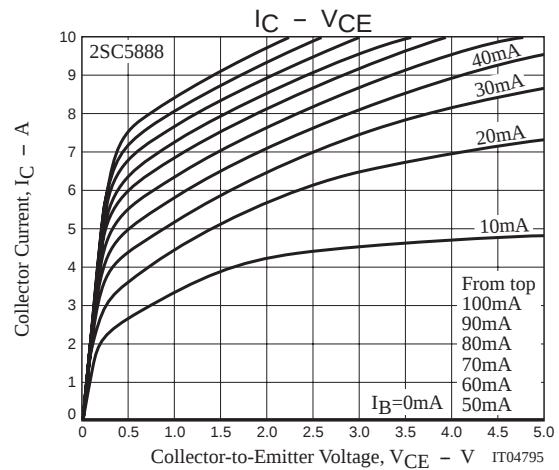
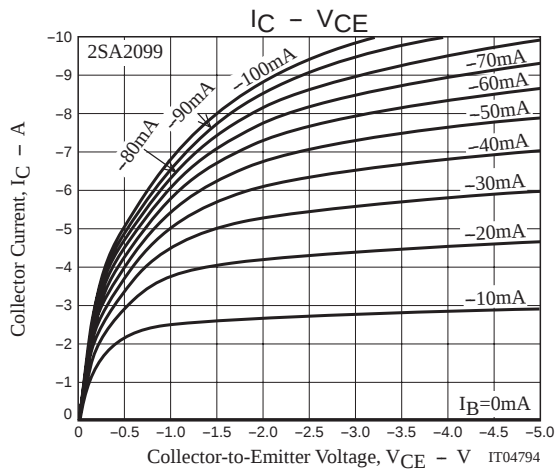
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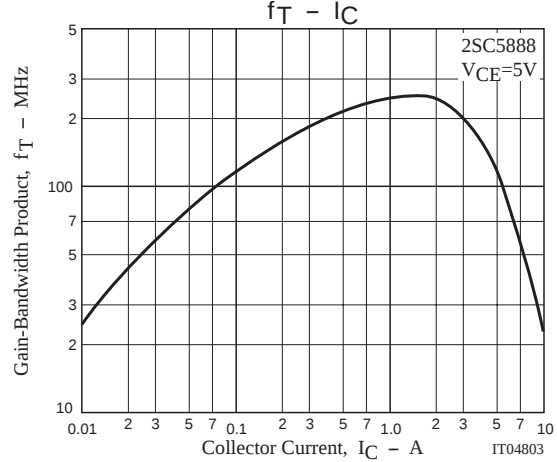
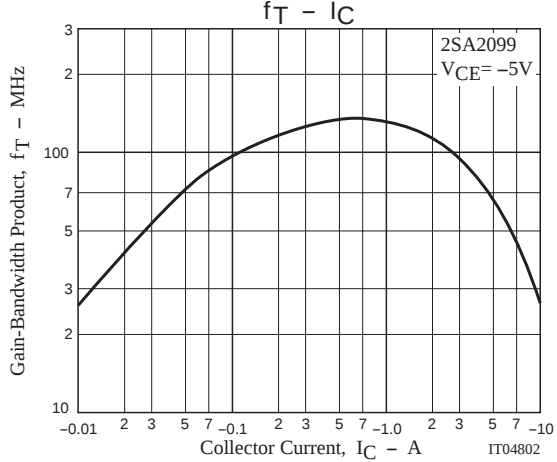
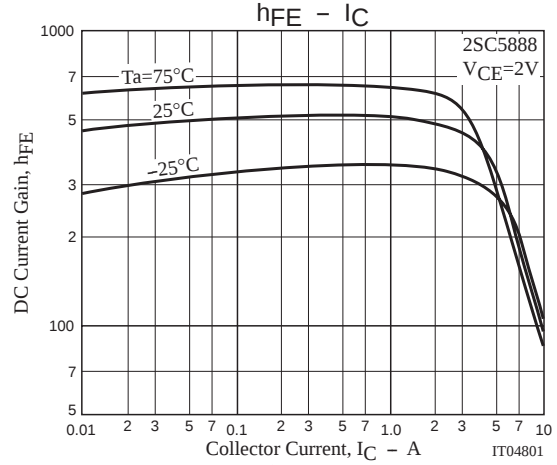
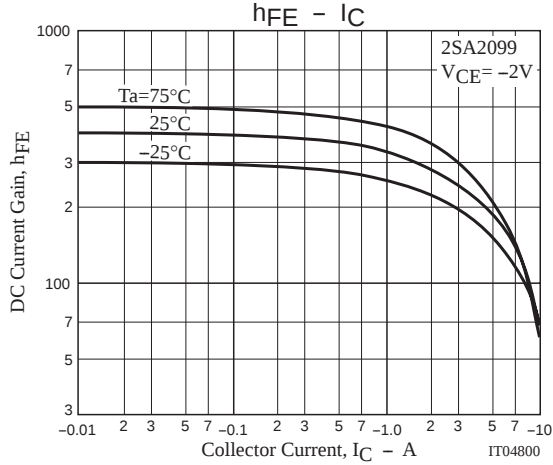
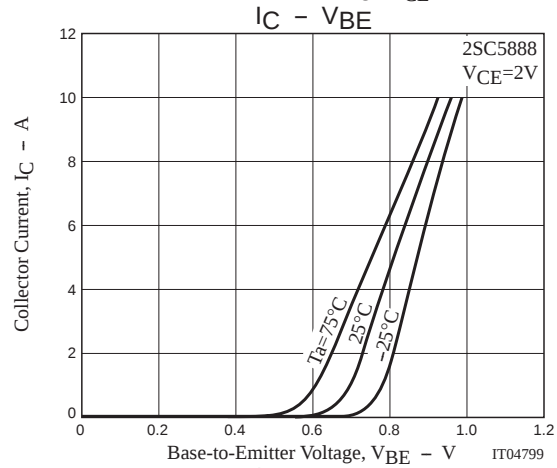
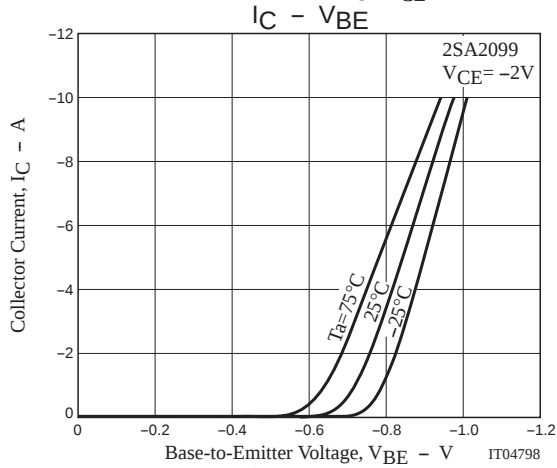
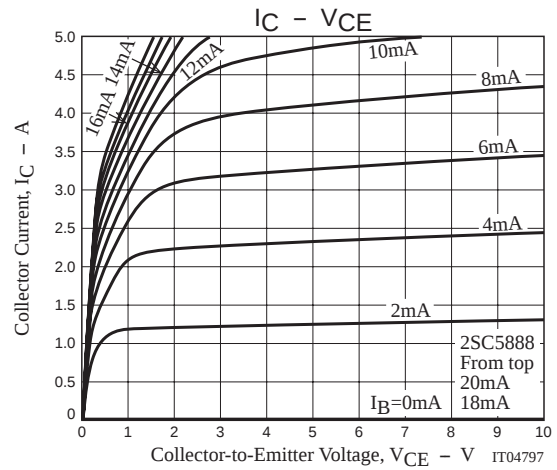
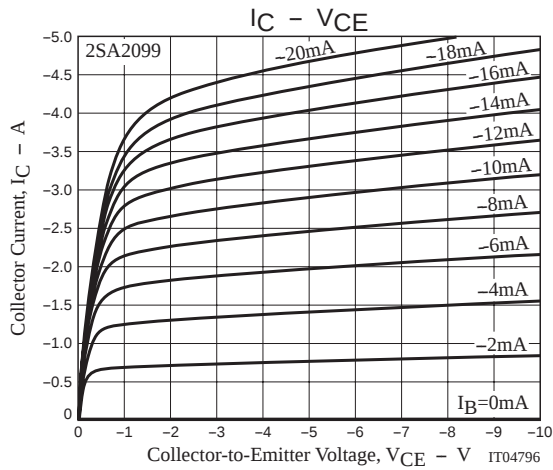


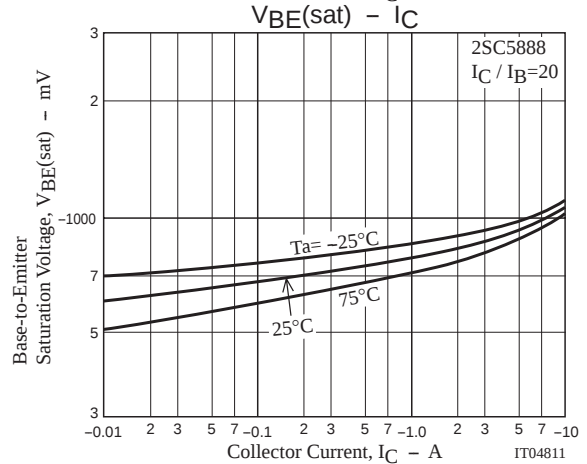
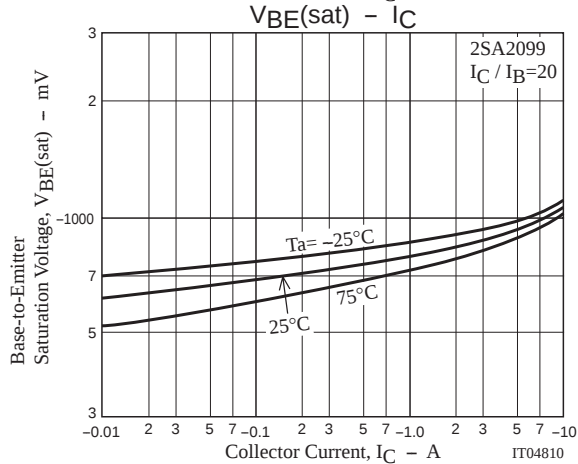
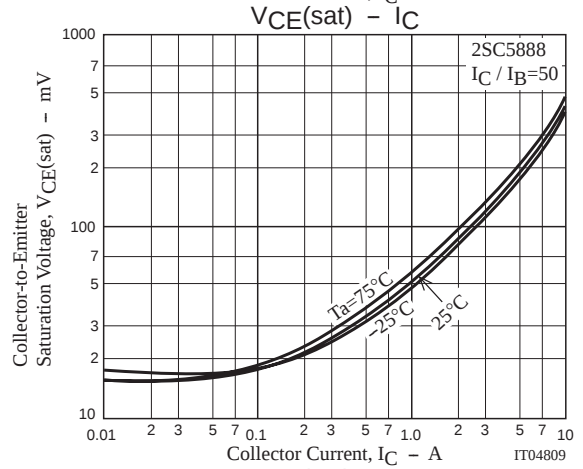
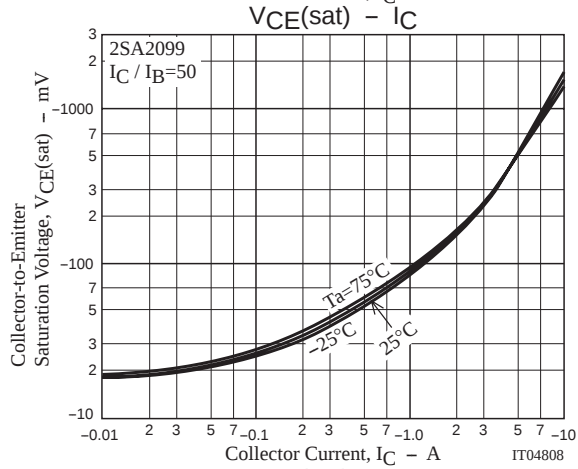
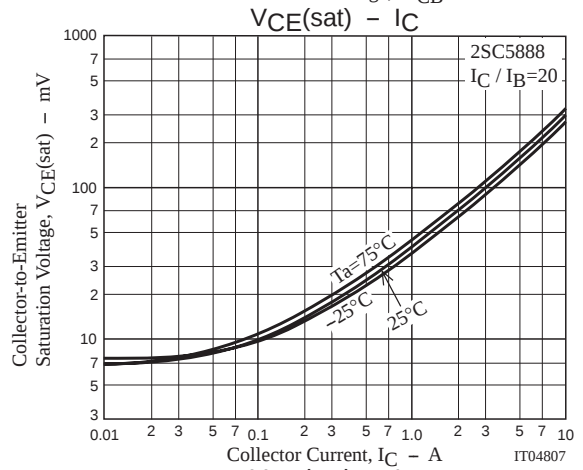
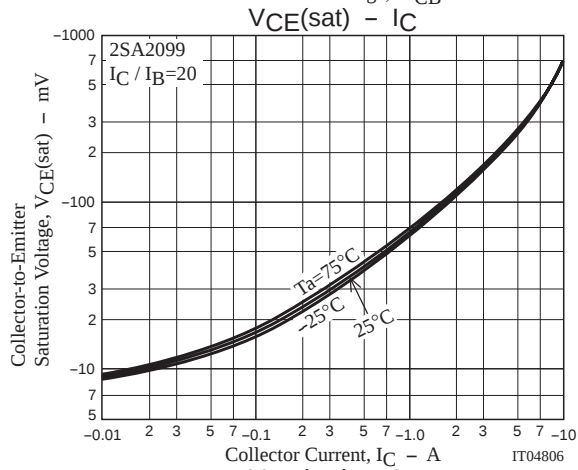
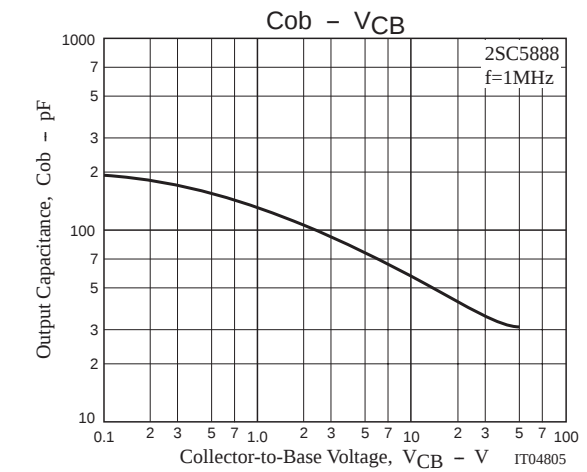
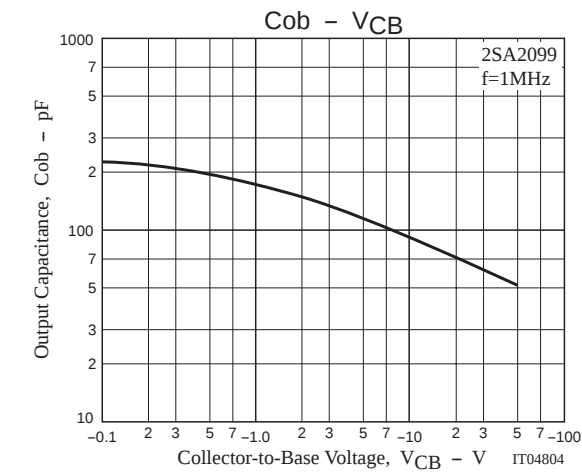
Switching Time Test Circuit

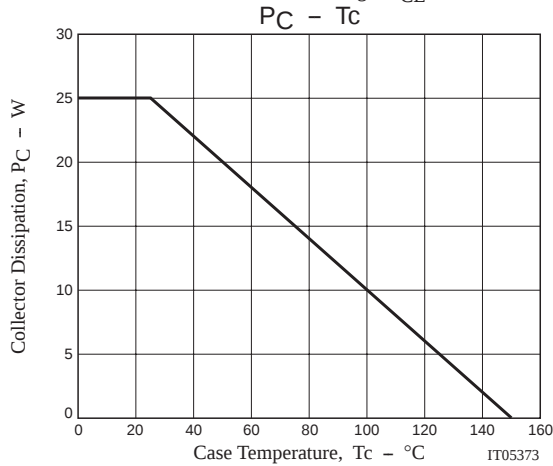
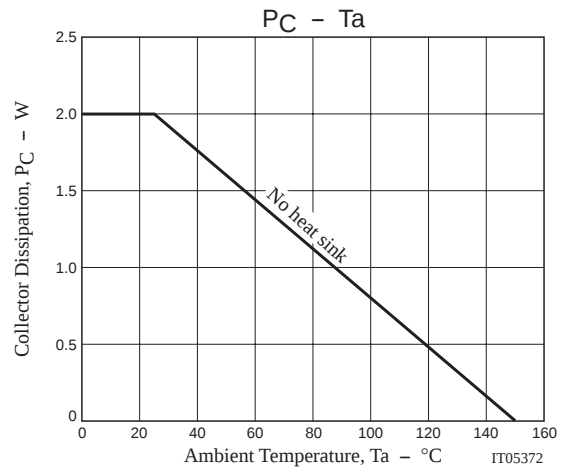
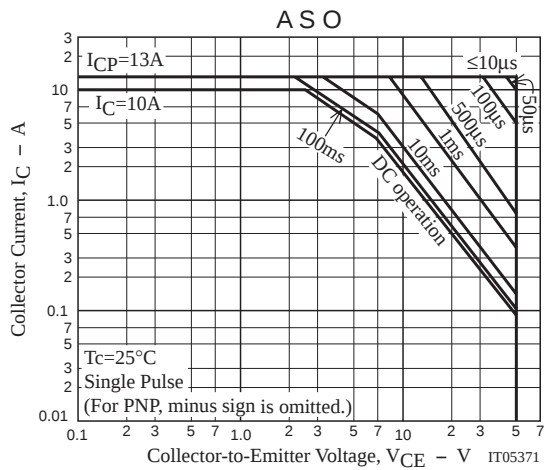


$I_C = 20I_{B1} = -20I_{B2} = 3\text{A}$
(For PNP, the polarity is reversed.)









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