



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SA2125 / 2SC5964 — PNP / NPN Epitaxial Planar Silicon Transistors

DC / DC Converter Applications

Applications

- DC / DC converter, relay drivers, lamp drivers, motor drivers, flash.

Features

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

Specifications () : 2SA2125

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		(-50)100	V
Collector-to-Emitter Voltage	V _{CE5}		(-50)100	V
Collector-to-Emitter Voltage	V _{CEO}		(-)50	V
Emitter-to-Base Voltage	V _{EBO}		(-)6	V
Collector Current	I _C		(-)3	A
Collector Current (Pulse)	I _{CP}		(-)6	A
Base Current	I _B		(-)600	mA
Collector Dissipation	P _C	Mounted on a ceramic board (250mm ² X0.8m)	1.3	W
		T _C =25°C	3.5	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} =(-)40V, I _E =0			(-)1	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} =(-)4V, I _C =0			(-)1	μA
DC Current Gain	h _{FE}	V _{CE} =(-)2V, I _C =(-)100mA	200		560	
Gain-Bandwidth Product	f _T	V _{CE} =(-)10V, I _C =(-)500mA		(390)380		MHz
Output Capacitance	C _{ob}	V _{CB} =(-)10V, f=1MHz		(24)13		pF

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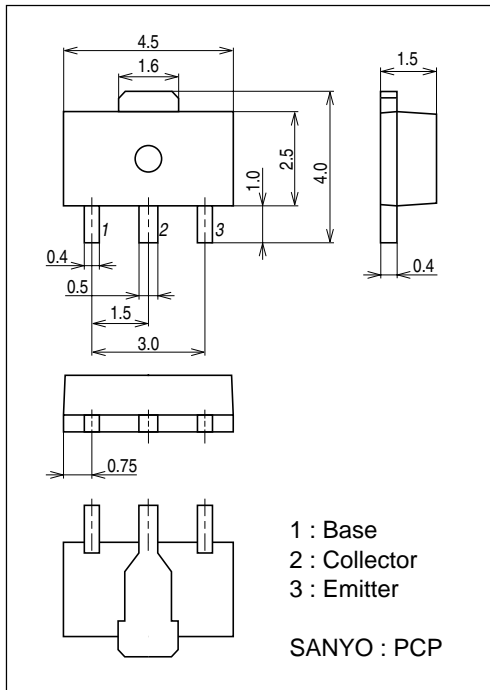
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C = (-)1A, I_B = (-)50mA$		(-125)100	(-230)150	mV
	$V_{CE(sat)2}$	$I_C = (-)2A, I_B = (-)100mA$		(-250)190	(-500)290	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$V_{CE} = (-)2V, I_B = (-)100mA$		(-0.94)	(-1.2)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-50)100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = (-)100\mu A, R_{BE} = 0$	(-50)100			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)35		ns
Storage Time	t_{stg}	See specified test circuit.		(230)300		ns
Fall Time	t_f	See specified test circuit.		(18)25		ns

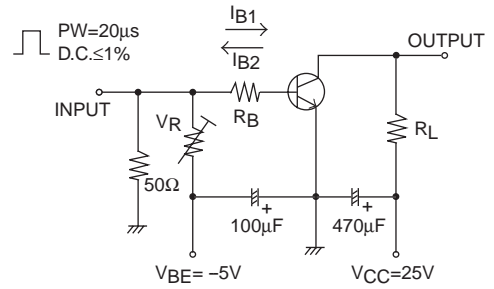
Package Dimensions

unit : mm

2038B

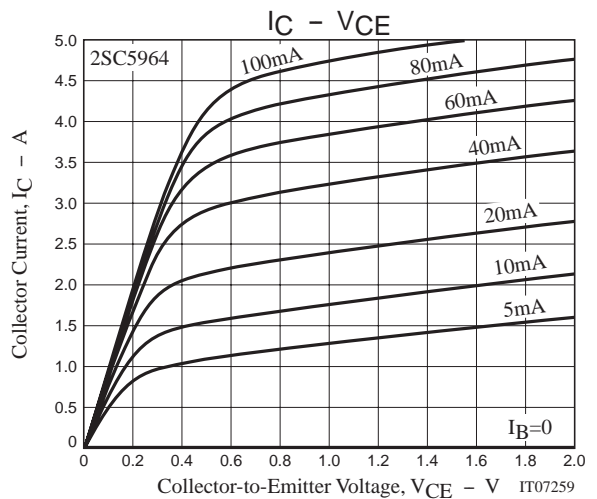
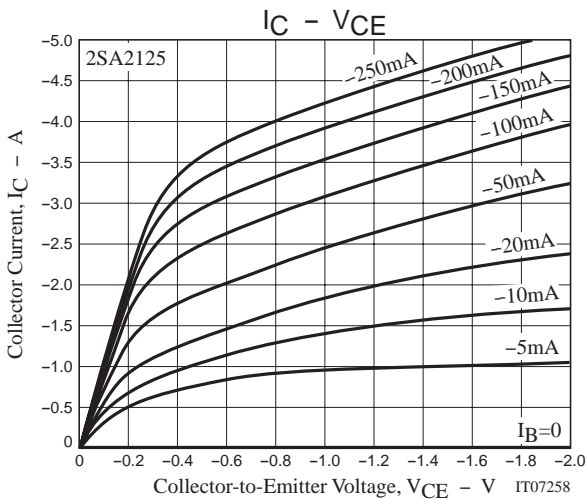


Switching Time Test Circuit

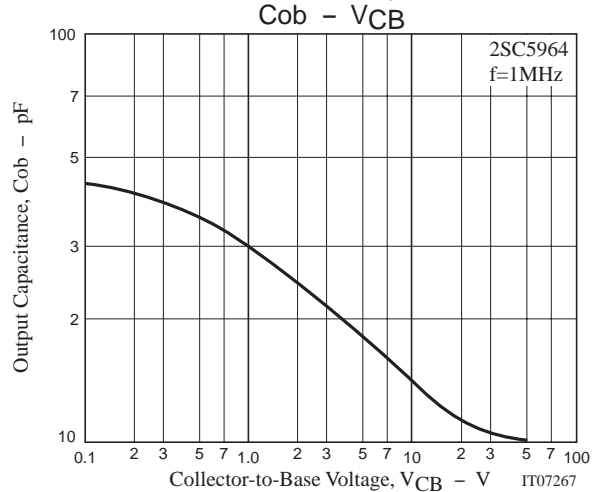
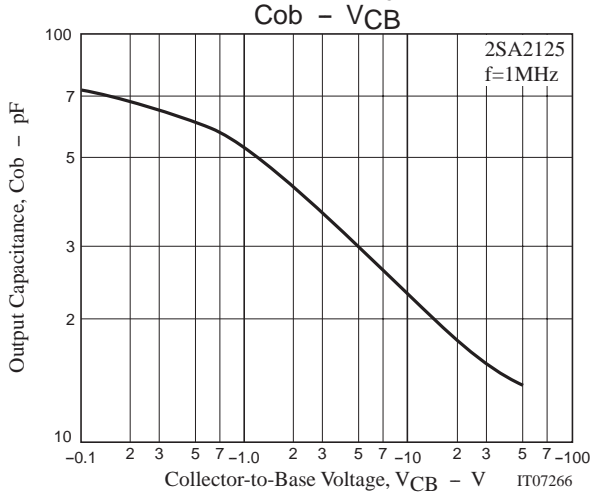
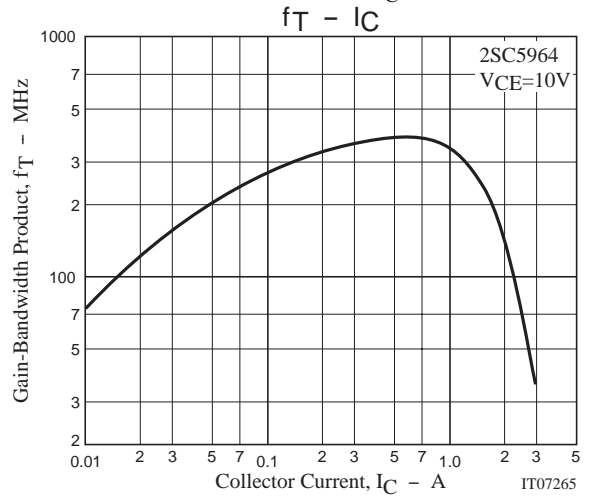
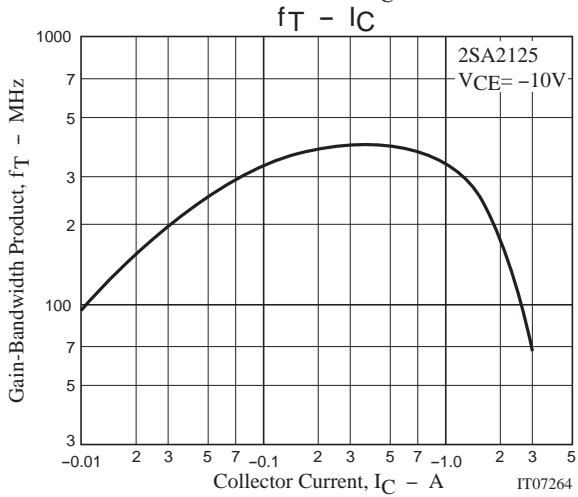
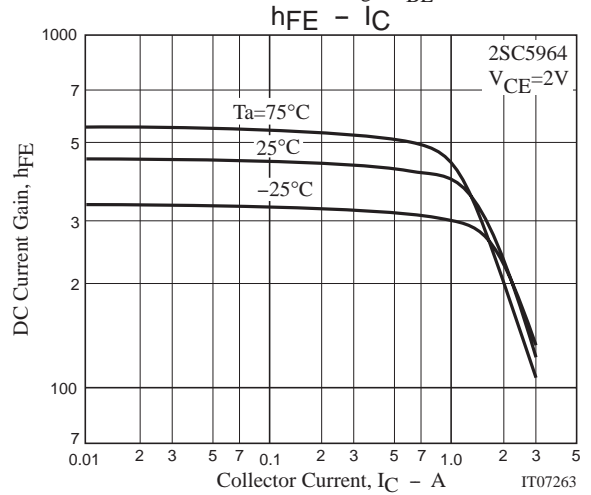
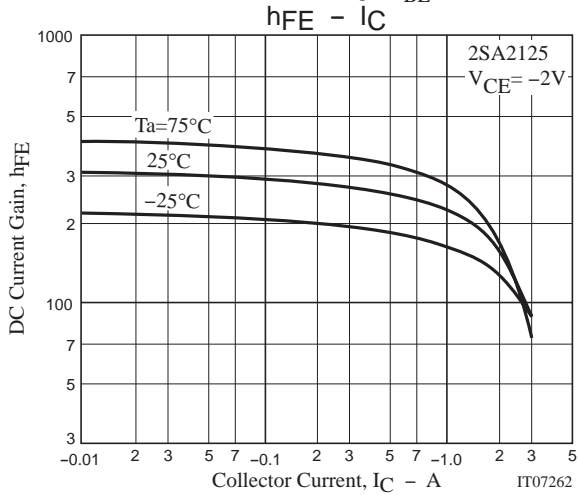
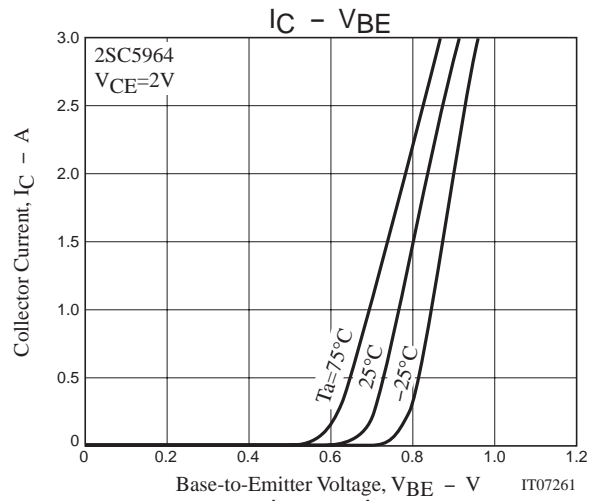
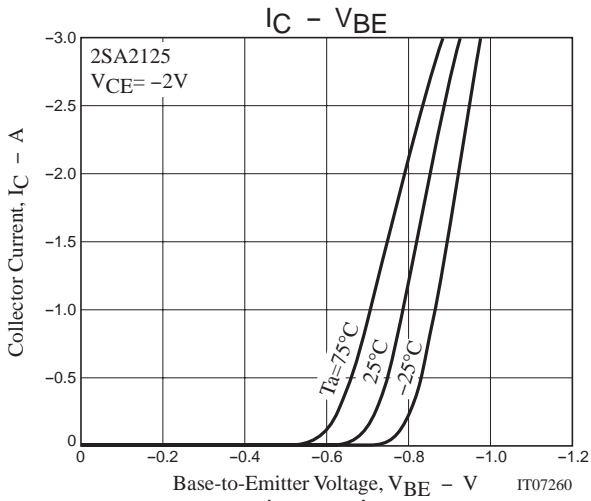


$$I_C = 10I_{B1} = -10I_{B2} = 1A$$

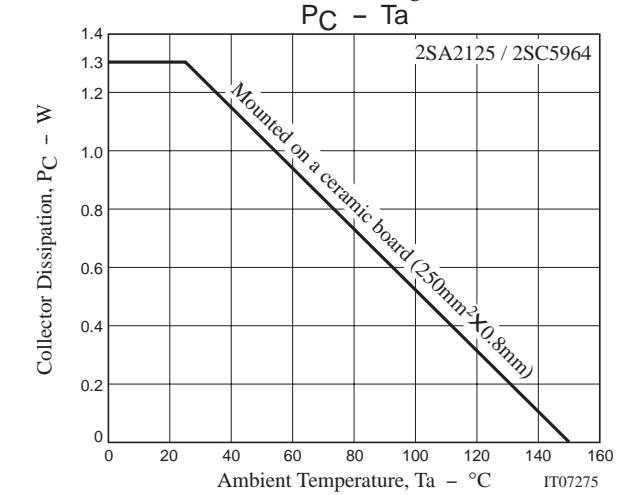
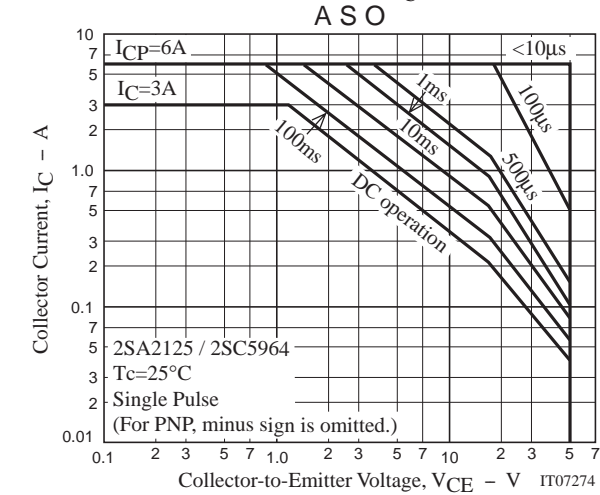
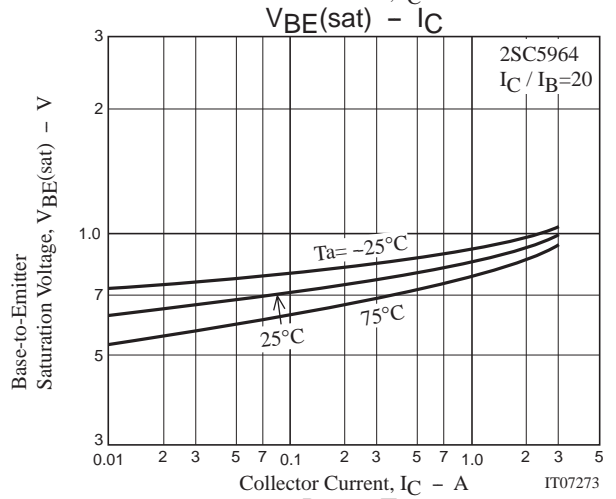
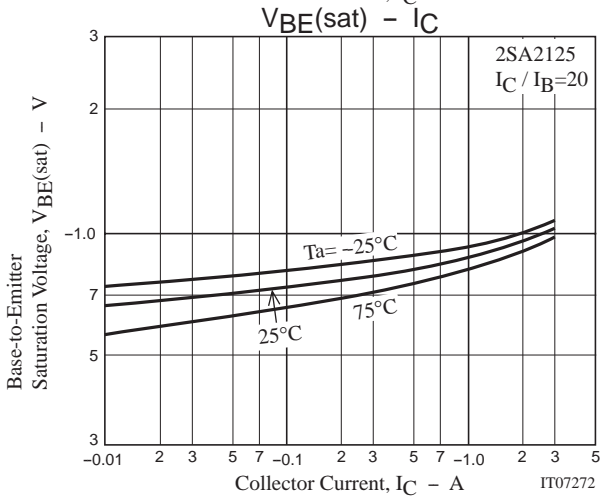
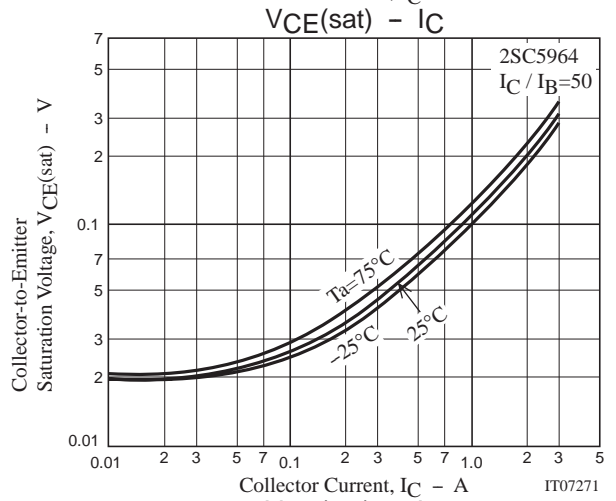
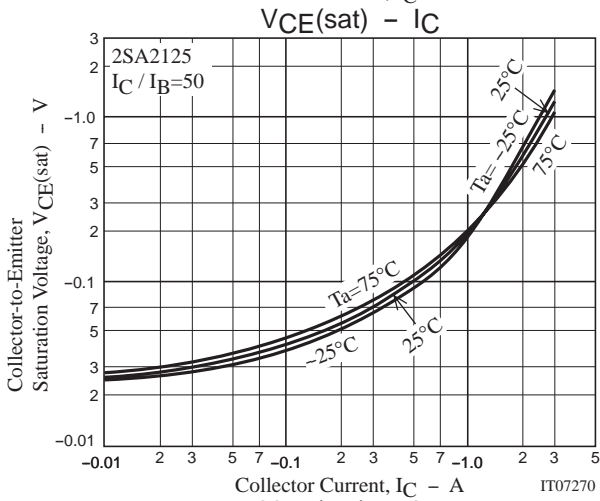
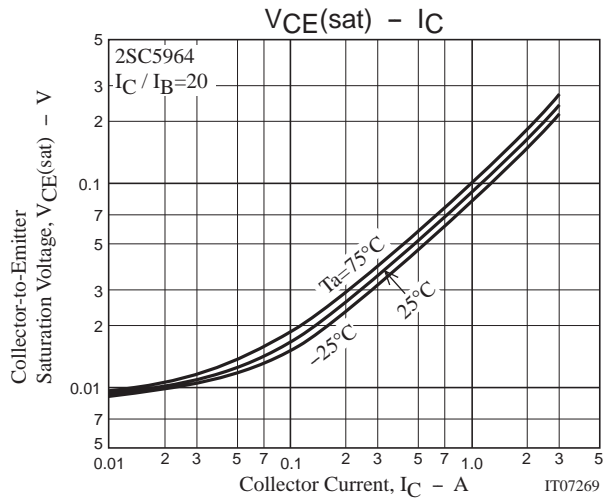
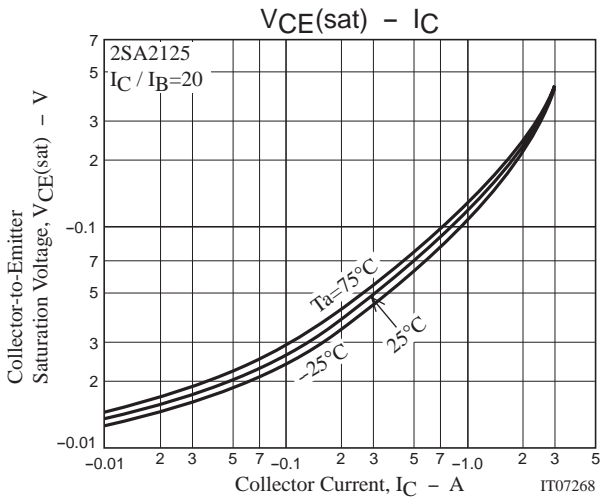
For PNP, the polarity is reversed.

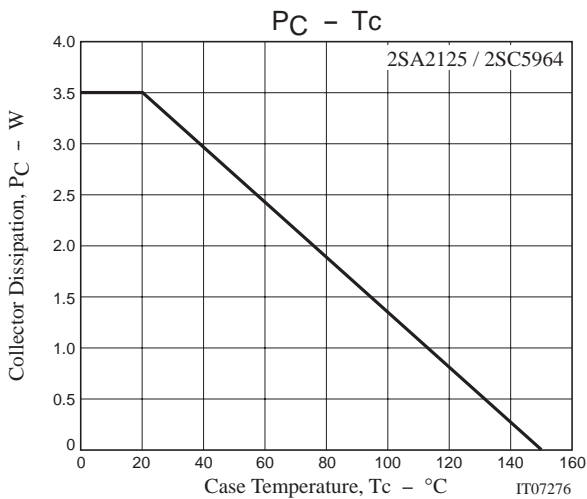


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