Ordering number : ENN6587

PNP / NPN Epitaxial Planar Silicon Transistors

2SA2037 / 2SC5694

DC / DC Converter Applications

Applications

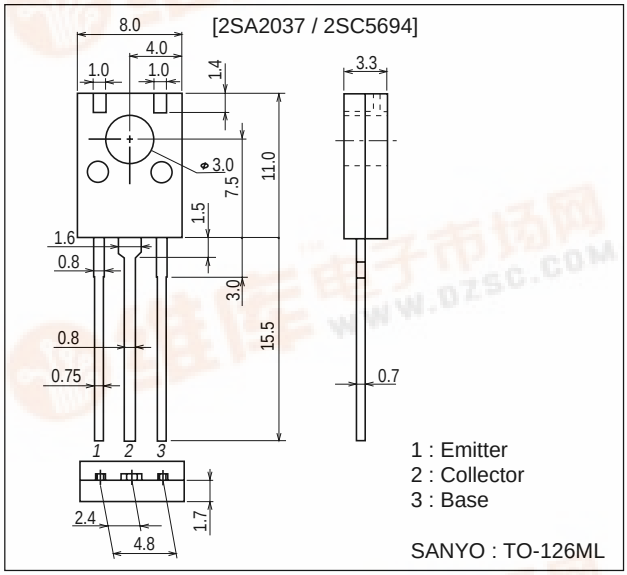
- Relay drivers, lamp drivers, motor drivers and printer drivers.

Features

- Adoption of MBIT process.
- Large current capacity.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- High allowable power dissipation.

Package Dimensions

unit : mm
2042B



Specifications

( ):2SA2037

Absolute Maximum Ratings at Ta=25°C

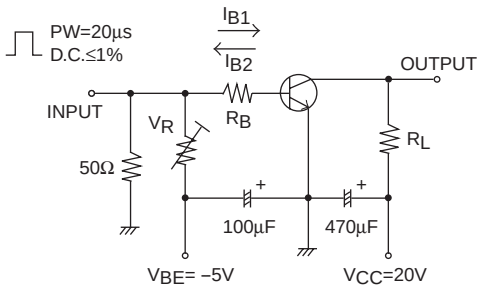
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–50)60	V
Collector-to-Emitter Voltage	V_{CEO}		(–)50	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)7	A
Collector Current (Pulse)	I_{CP}		(–)10	A
Base Current	I_B		(–)1.2	A
Collector Dissipation	P_C		1.2	W
		Tc=25°C	10	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		–55 to +150	°C

SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Electrical Characteristics at Ta=25°C

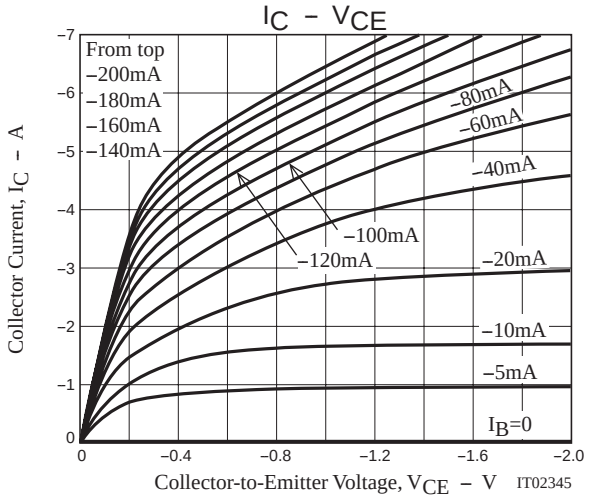
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(-)40V, I_E=0			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(-)4V, I_C=0			(-)0.1	μA
DC Current Gain	h_{FE}	V_{CE}=(-)2V, I_C=(-)1A	150		300	
Gain-Bandwidth Product	f_T	V_{CE}=(-)10V, I_C=(-)500mA		(290)330		MHz
Output Capacitance	Cob	V_{CB}=(-)10V, f=1MHz		(50)28		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=(-)2.5A, I_B=(-)125mA		(-150)130	(-300)260	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=(-)2.5A, I_B=(-)125mA		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(-)10μA, I_E=0	(-50)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(-)1mA, R_{BE}=∞	(-)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(-)10μA, I_C=0	(-)6			V
Turn-On Time	t_{on}	See specified test circuit.		30		ns
Storage Time	t_{stg}	See specified test circuit.		(250)300		ns
Fall Time	t_f	See specified test circuit.		15		ns

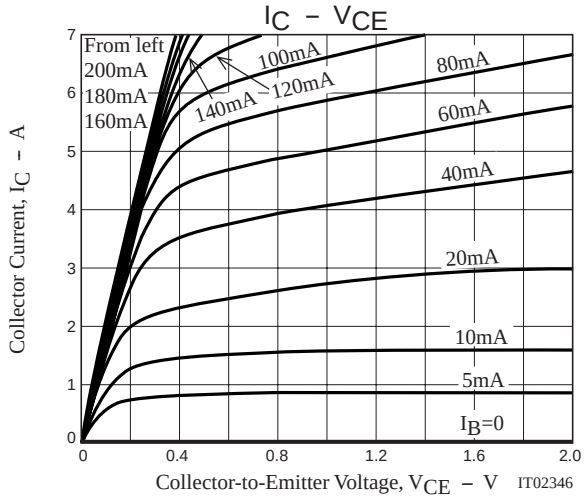
Swicthing Time Test Circuit

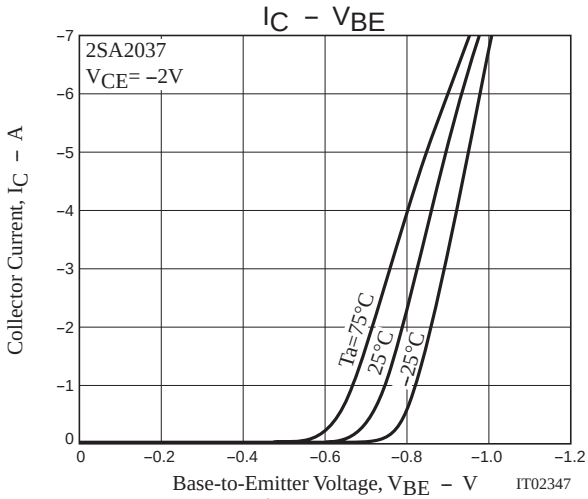


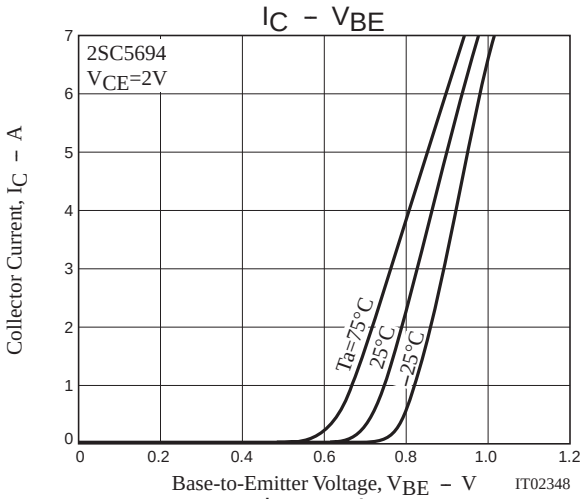
$10I_{B1}$= $-10I_{B2}$=I_C=2A

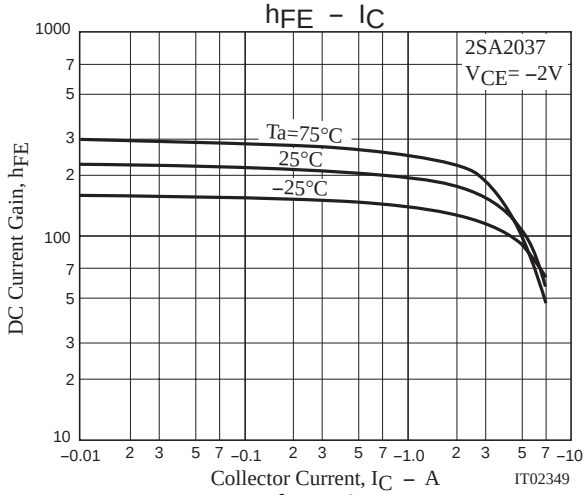
For PNP, the polarity is reversed.

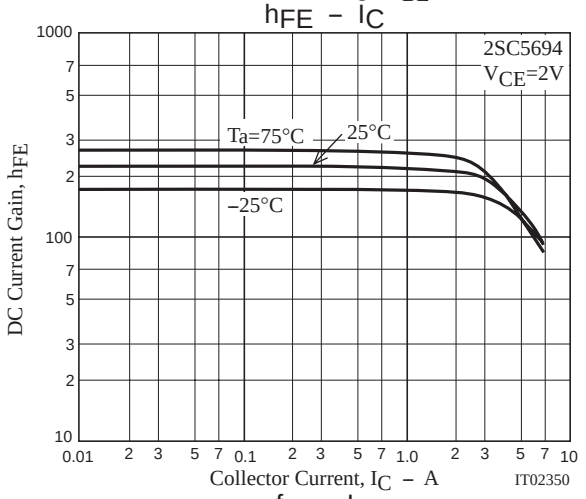


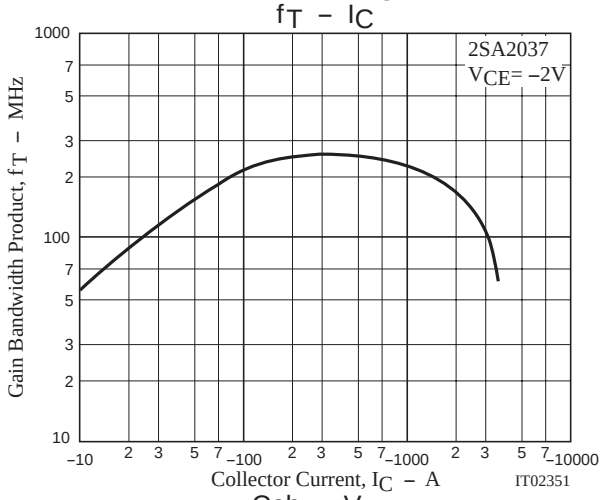


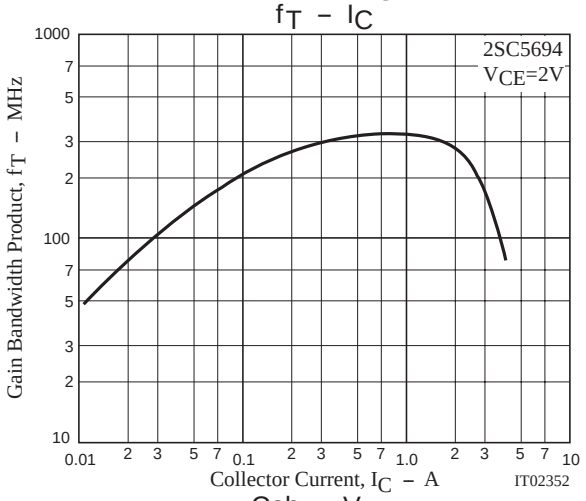

IC – VBE
2SA2037
VCE= –2V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT02347

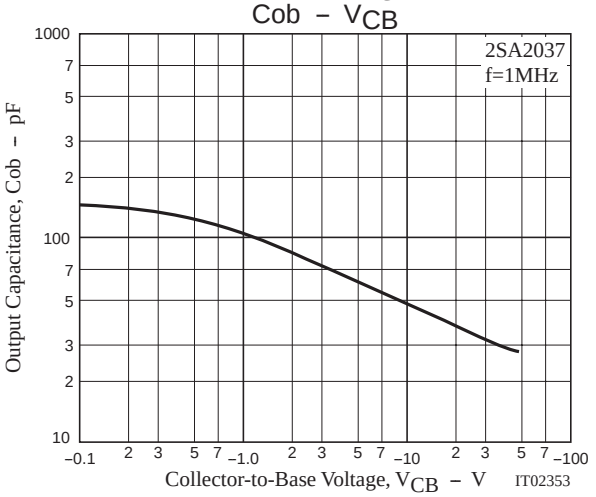

IC – VBE
2SC5694
VCE=2V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT02348

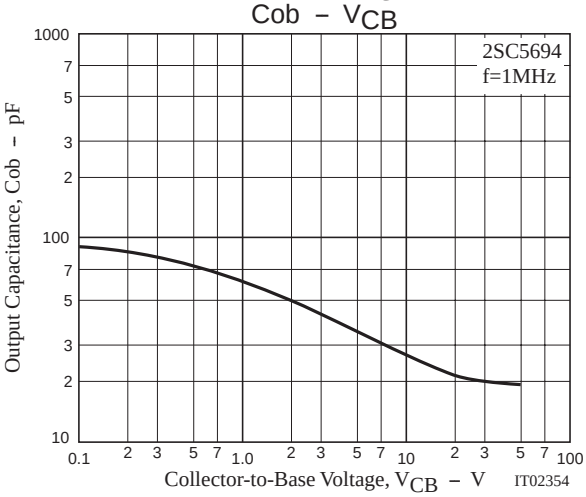

hFE – IC
2SA2037
VCE= –2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT02349


hFE – IC
2SC5694
VCE=2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT02350

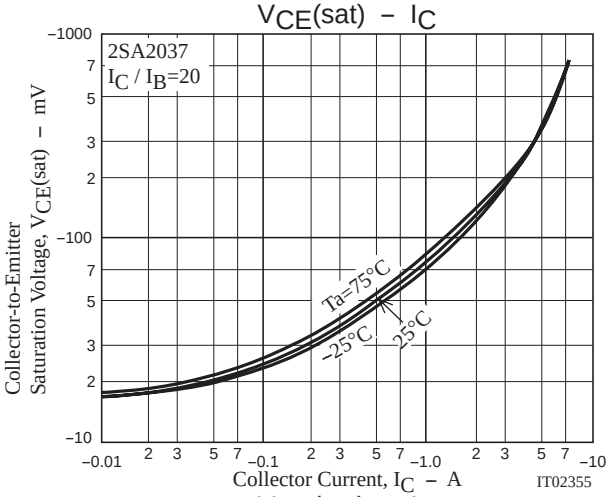

fT – IC
2SA2037
VCE= –2V
Gain Bandwidth Product, fT – MHz
Collector Current, IC – A
IT02351


fT – IC
2SC5694
VCE=2V
Gain Bandwidth Product, fT – MHz
Collector Current, IC – A
IT02352

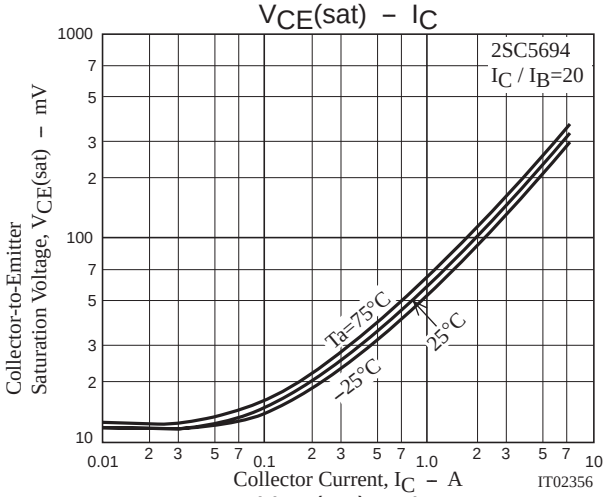

Cob – VCB
2SA2037
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT02353


Cob – VCB
2SC5694
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT02354

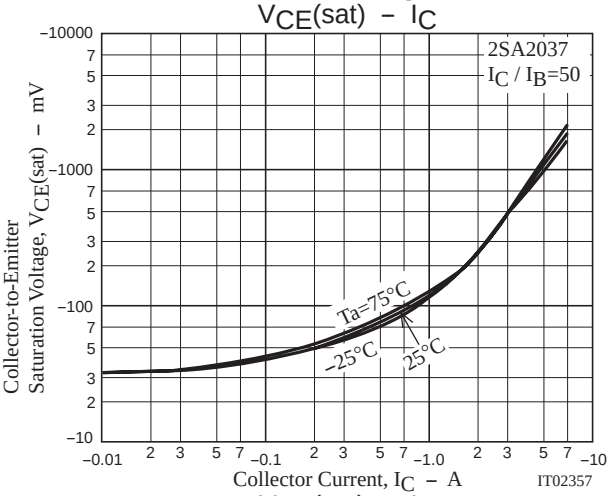
$V_{CE}(sat)$ – I_C



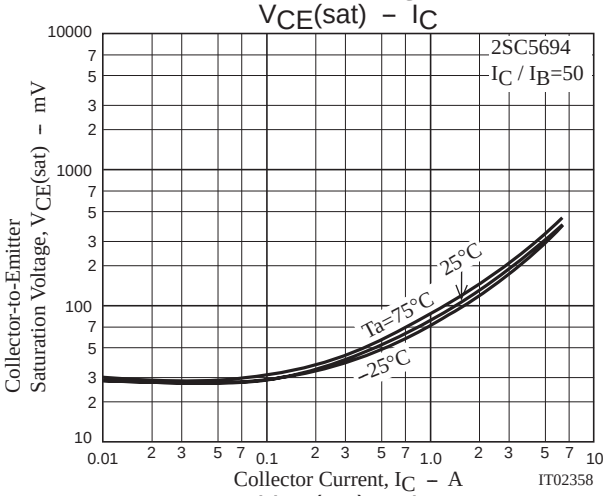
$V_{CE}(sat)$ – I_C



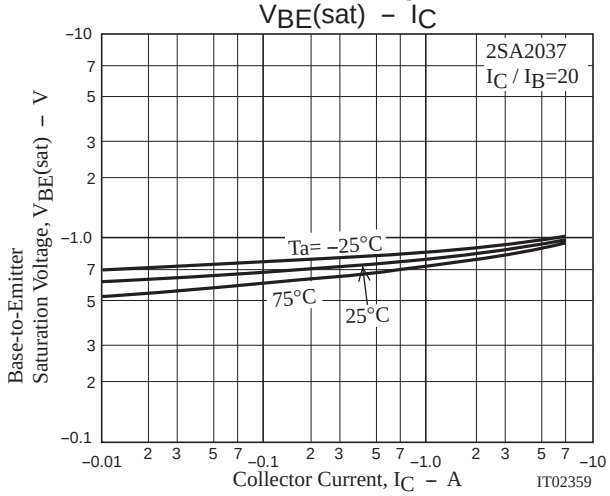
$V_{CE}(sat)$ – I_C



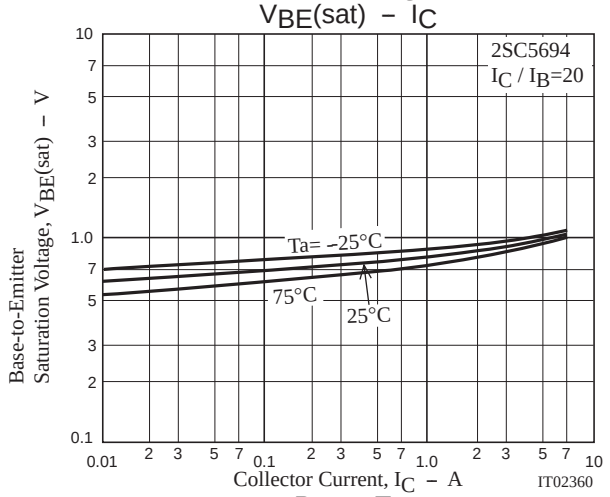
$V_{CE}(sat)$ – I_C



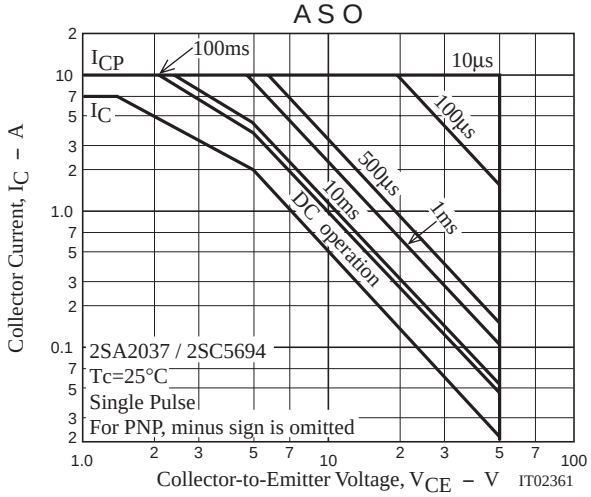
$V_{BE}(sat)$ – I_C



$V_{BE}(sat)$ – I_C



A S O



P_C – Ta