

**DC / DC Converter Applications****Applications**

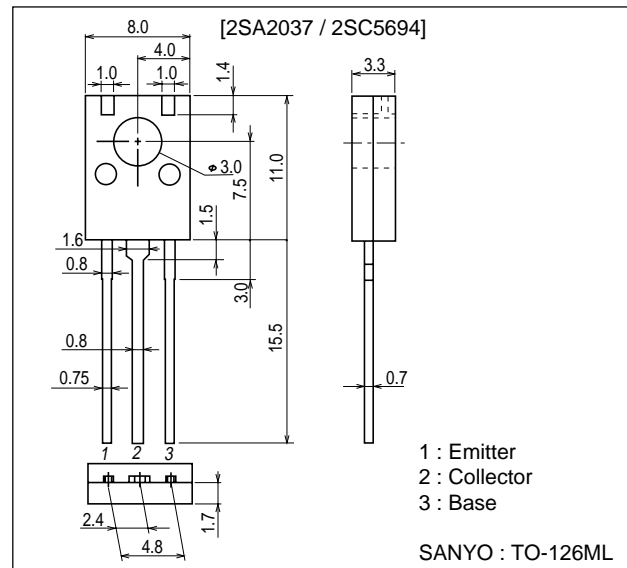
- Relay drivers, lamp drivers, motor drivers and printer drivers.

**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  $T_a=25^\circ\text{C}$

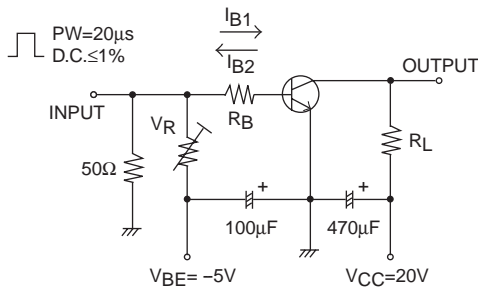
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		(-50)60	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-50)	V
Emitter-to-Base Voltage	$V_{EBO}$		(-6)	V
Collector Current	$I_C$		(-7)	A
Collector Current (Pulse)	$I_{CP}$		(-10)	A
Base Current	$I_B$		(-1.2)	A
Collector Dissipation	$P_C$		1.2	W
		$T_c=25^\circ\text{C}$	10	W
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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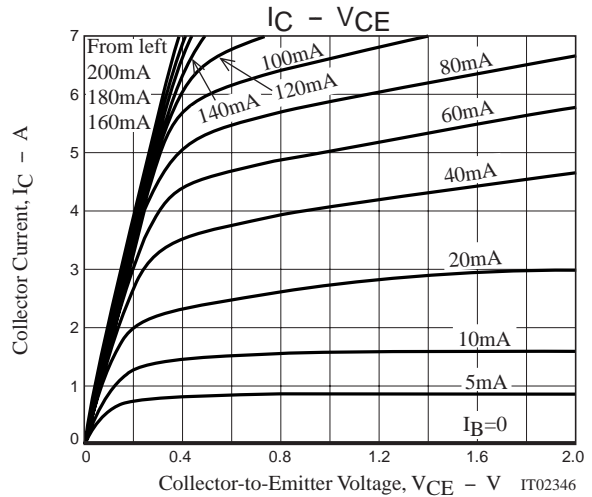
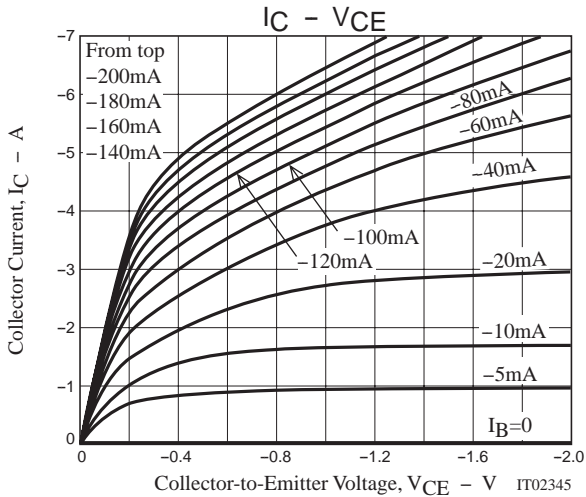
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V <sub>CB</sub> =(-)40V, I <sub>E</sub> =0			(-)0.1	μA
Emitter Cutoff Current	IEBO	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0			(-)0.1	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)1A	150		300	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =(-)10V, I <sub>C</sub> =(-)500mA		(290)330		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =(-)10V, f=1MHz		(50)28		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =(-)2.5A, I <sub>B</sub> =(-)125mA		(-150)130	(-300)260	mV
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =(-)2.5A, I <sub>B</sub> =(-)125mA		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =(-)10μA, I <sub>E</sub> =0	(-50)60			V
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =(-)1mA, R <sub>BE</sub> =∞	(-)50			V
Emitter-to-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =(-)10μA, I <sub>C</sub> =0	(-)6			V
Turn-On Time	t <sub>on</sub>	See specified test circuit.		30		ns
Storage Time	t <sub>stg</sub>	See specified test circuit.		(250)300		ns
Fall Time	t <sub>f</sub>	See specified test circuit.		15		ns

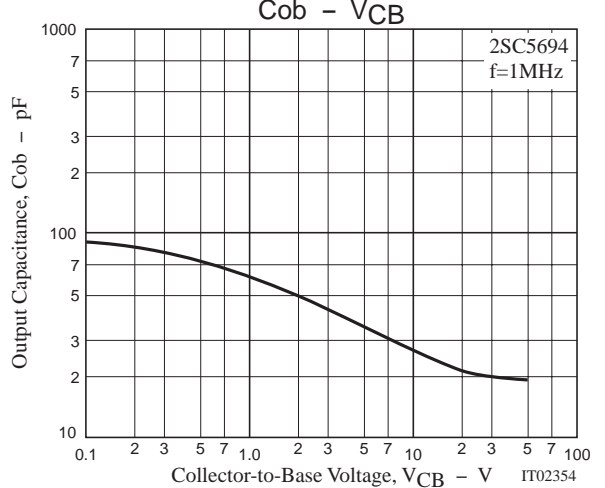
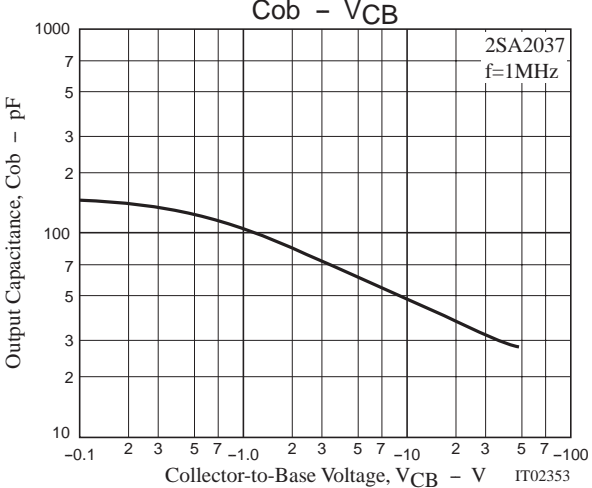
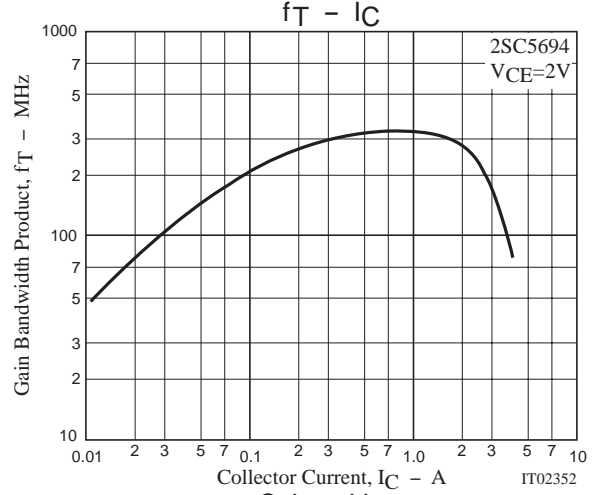
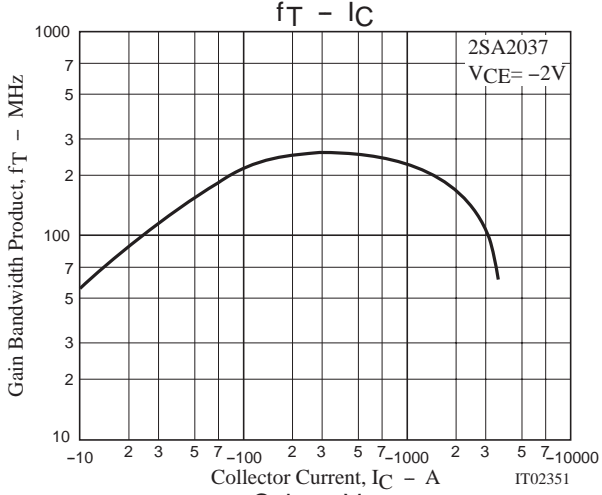
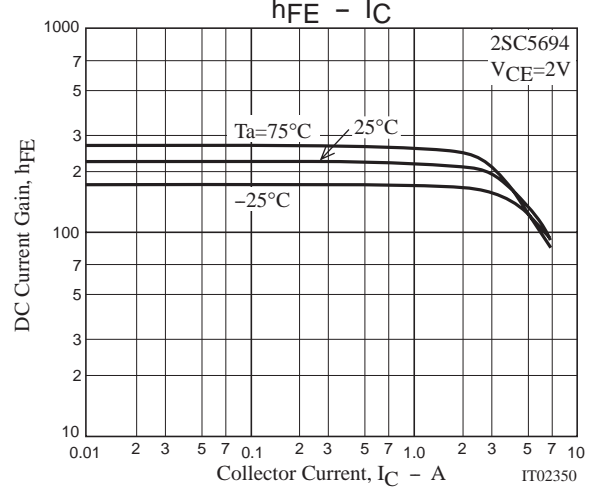
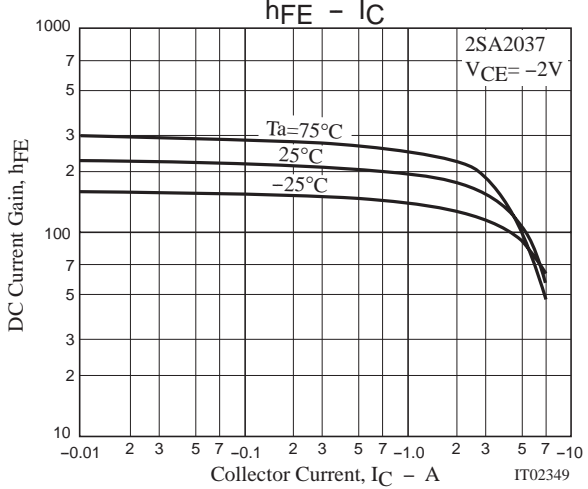
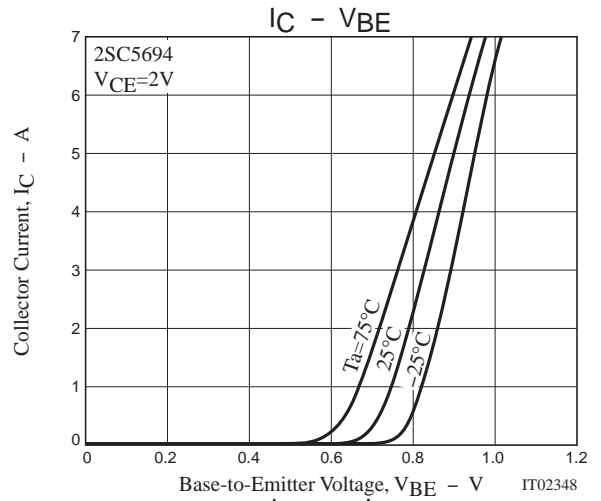
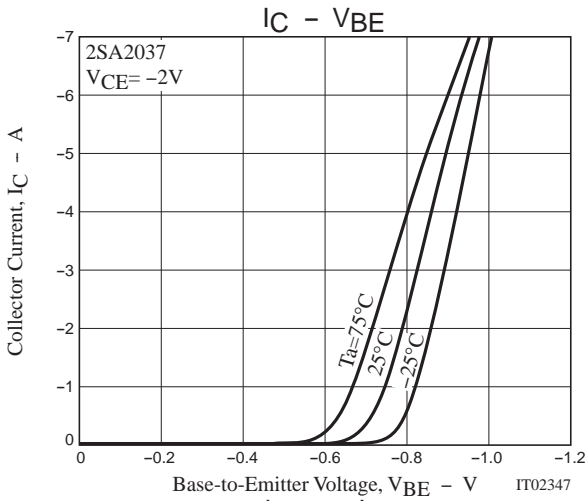
Switching Time Test Circuit



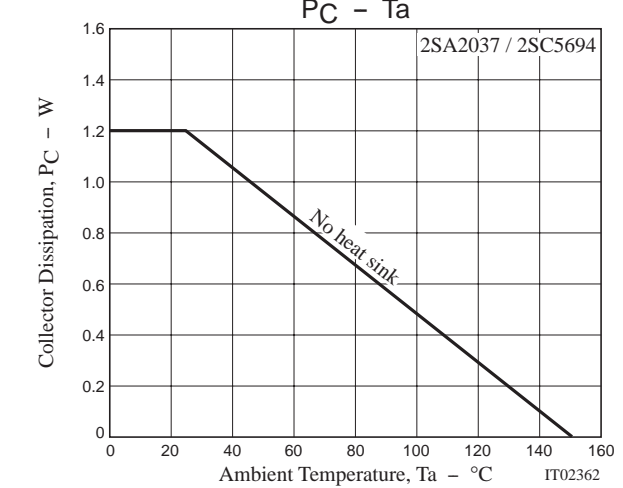
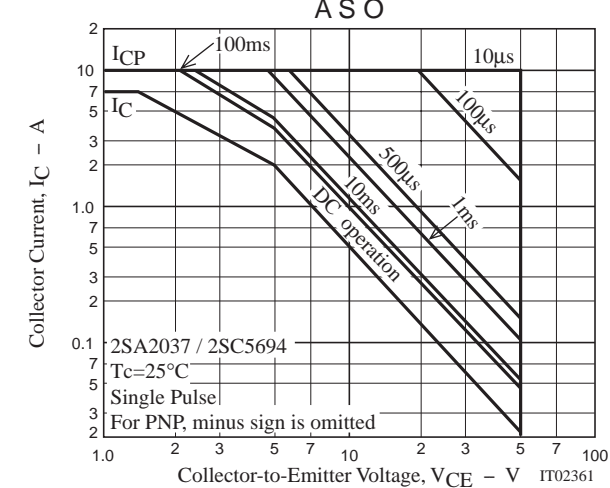
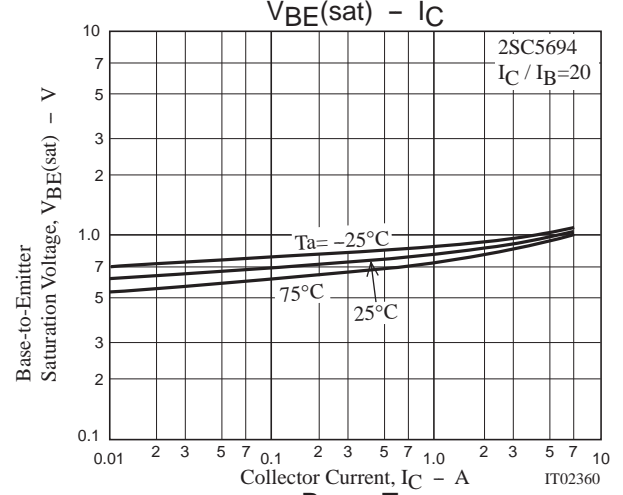
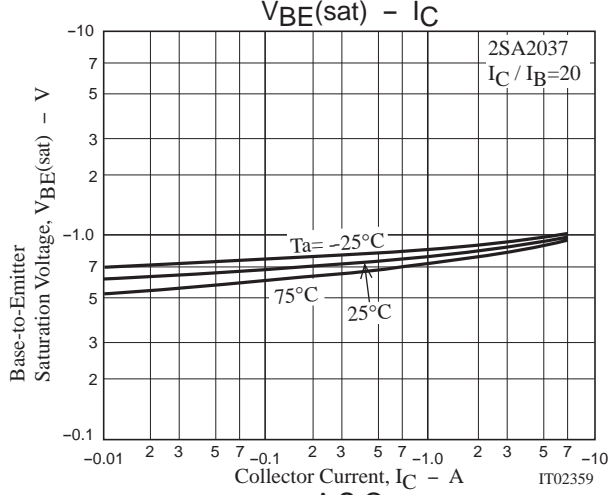
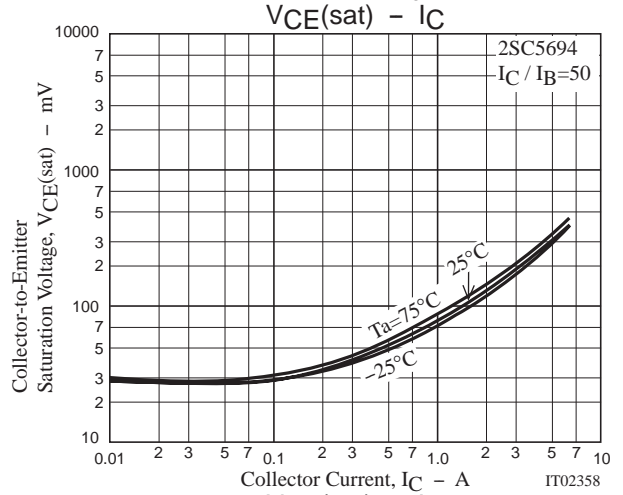
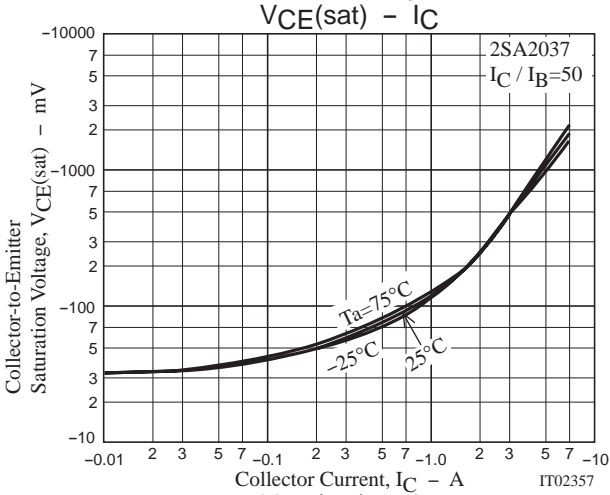
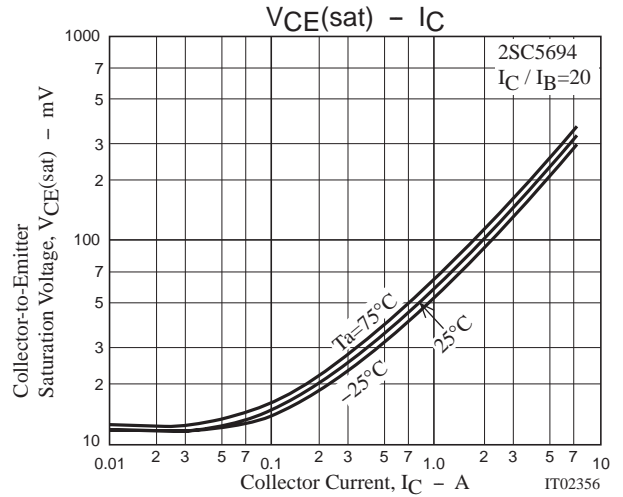
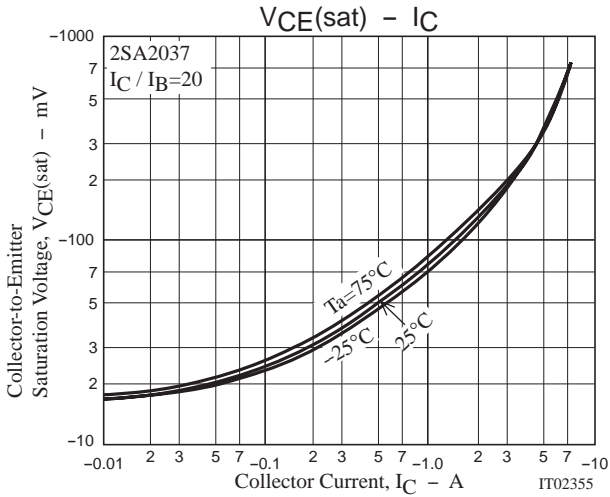
10I<sub>B1</sub> = -10I<sub>B2</sub> = I<sub>C</sub> = 2A  
 For PNP, the polarity is reversed.

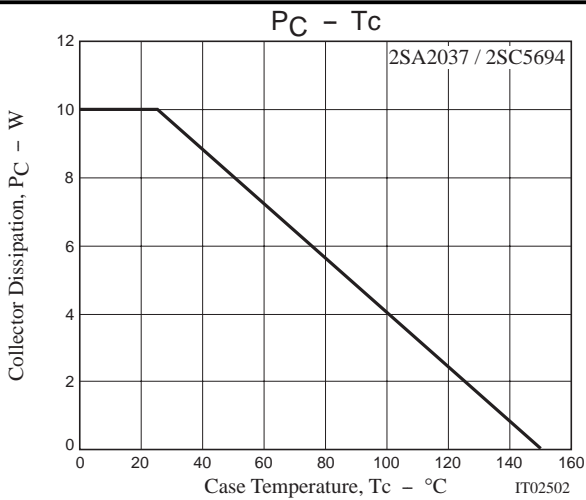


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