

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

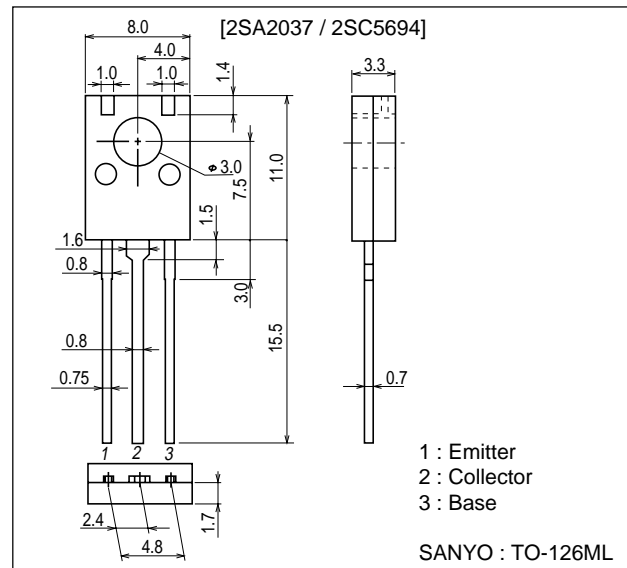
- Relay drivers, lamp drivers, motor drivers and printer drivers.

**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	$^\circ\text{C}$

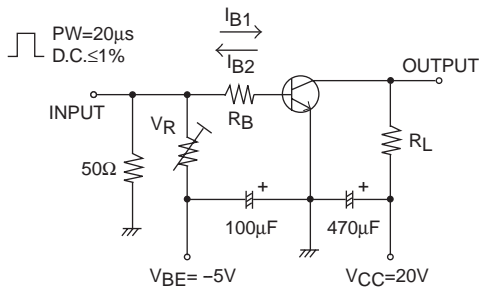
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Electrical Characteristics at Ta=25°C

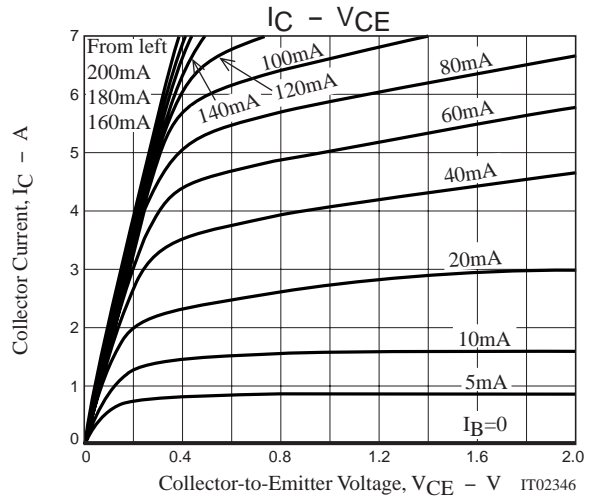
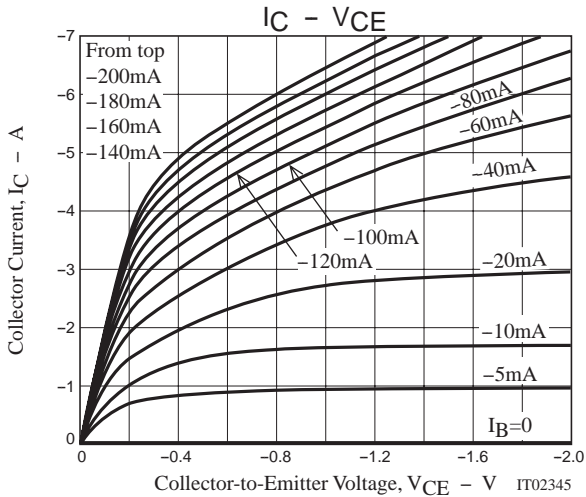
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)40V, I_E = 0$			(-)0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4V, I_C = 0$			(-)0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE} = (-)2V, I_C = (-)1A$	150		300	
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)10V, I_C = (-)500mA$		(290)330		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = (-)10V, f = 1MHz$		(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	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-50)60			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		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

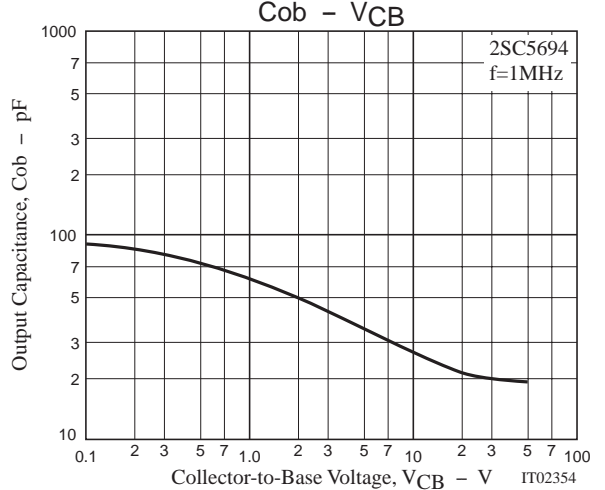
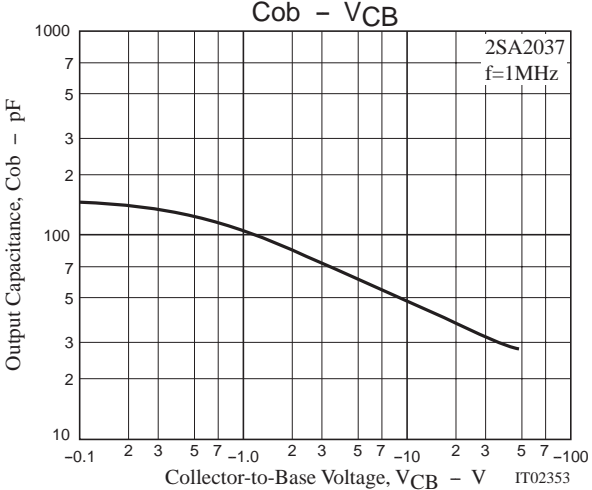
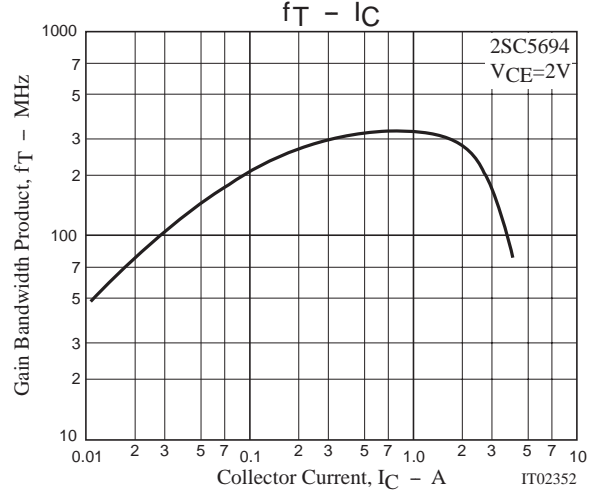
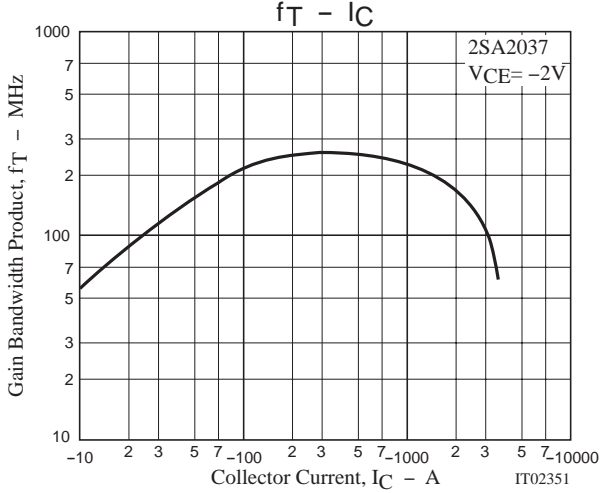
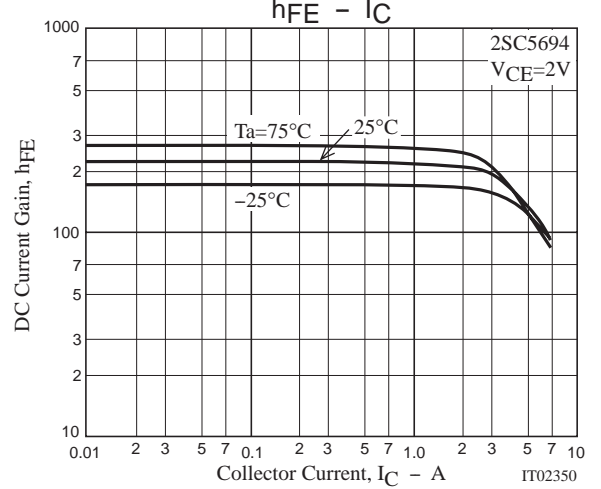
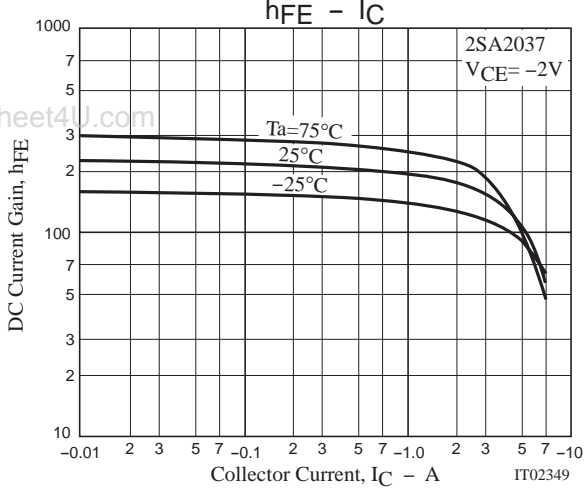
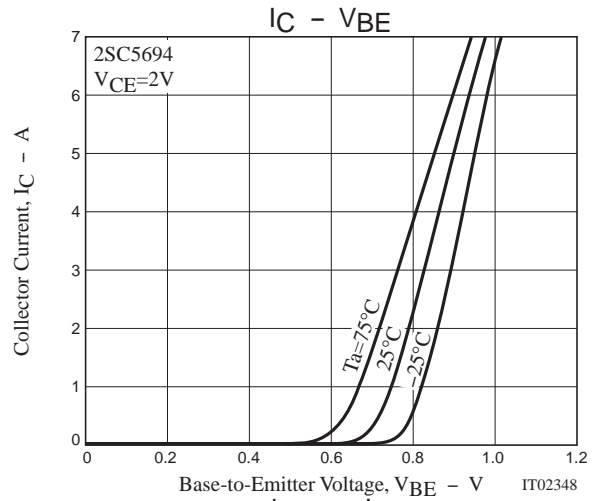
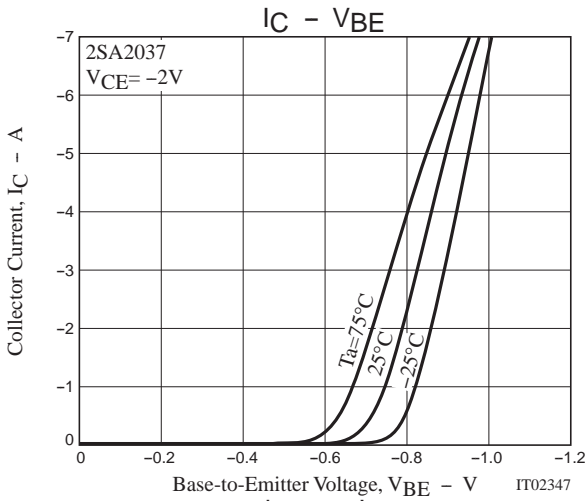
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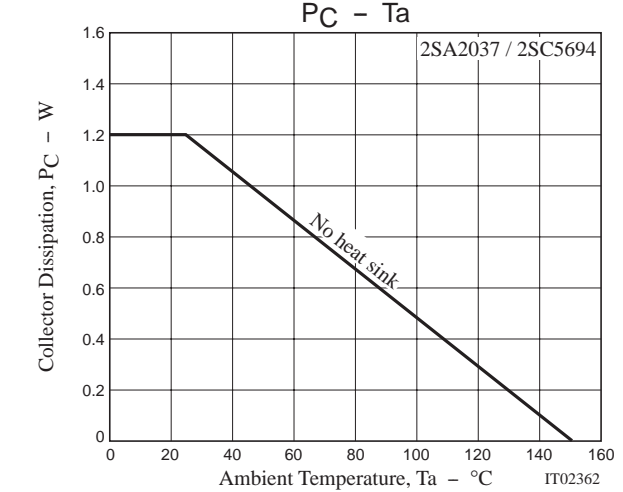
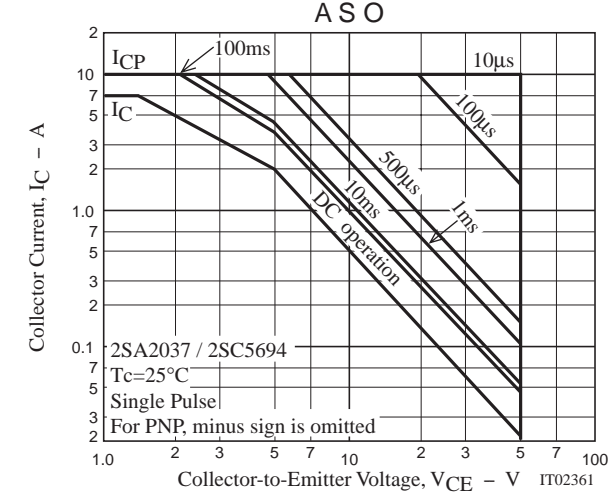
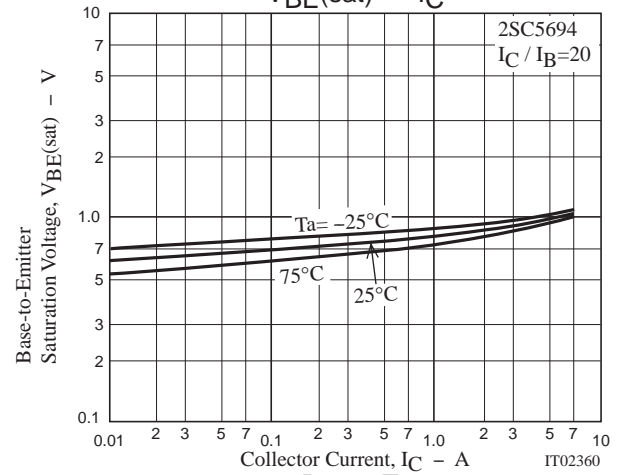
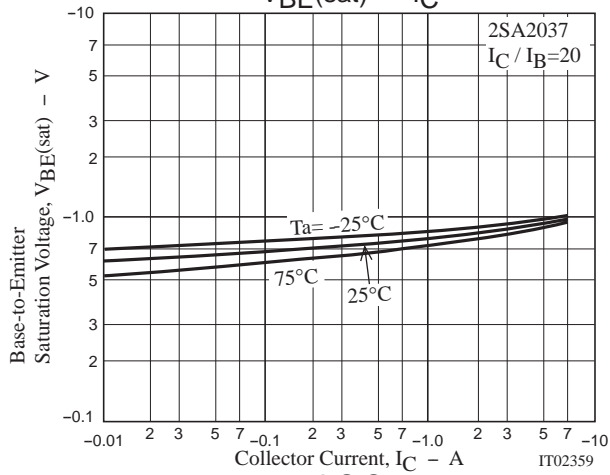
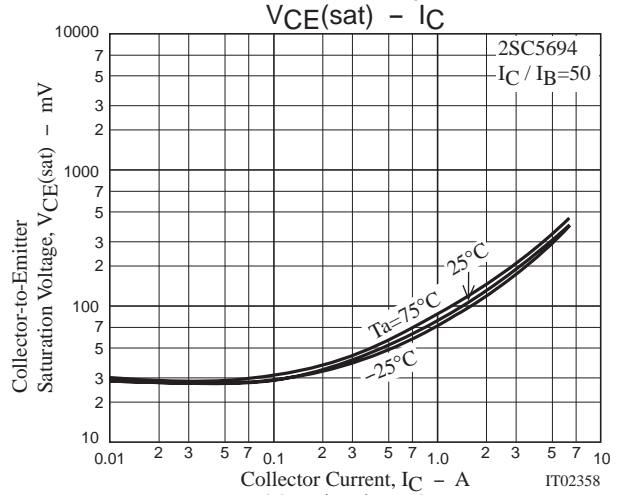
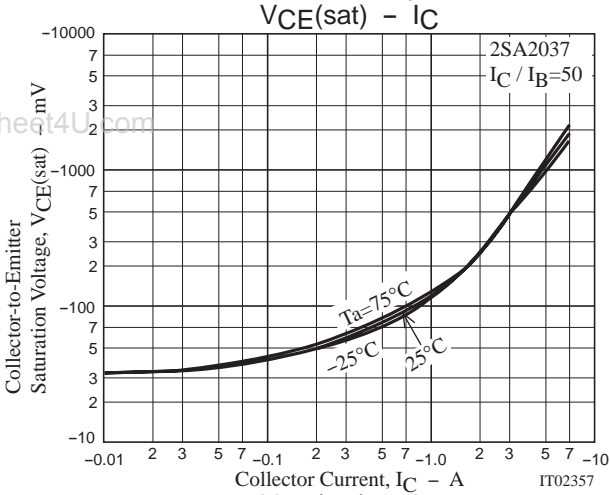
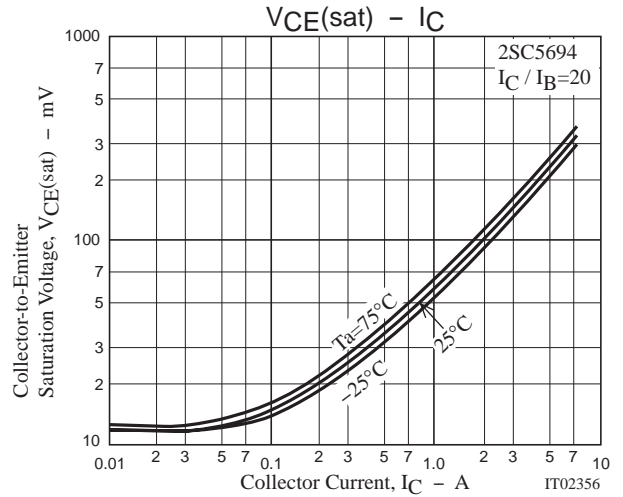
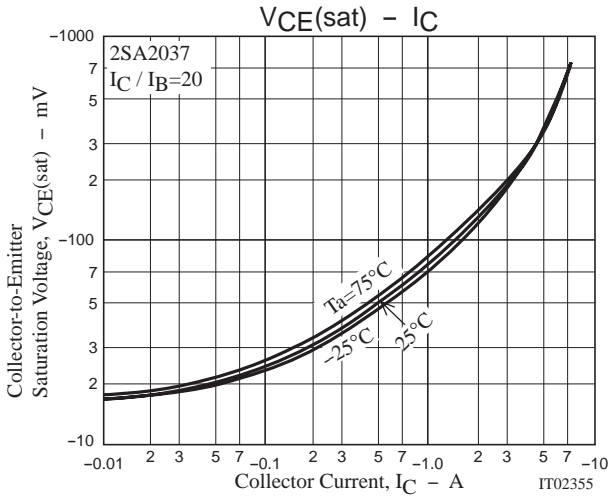
$10I_{B1} = -10I_{B2} = I_C = 2A$   
 For PNP, the polarity is reversed.



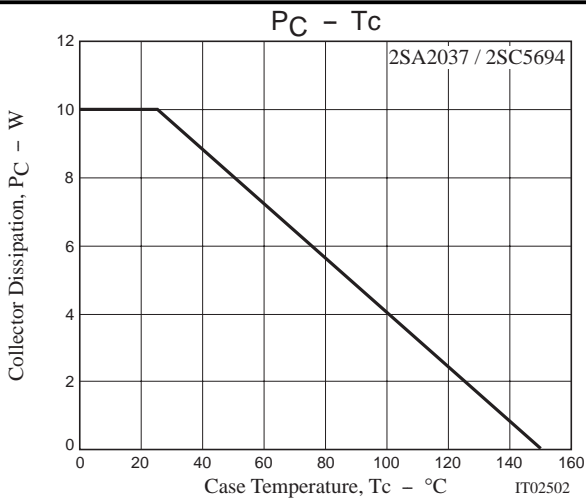
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