Ordering number : ENN6587

PNP / NPN Epitaxial Planar Silicon Transistors

2SA2037 / 2SC5694

DC / DC Converter Applications

Applications

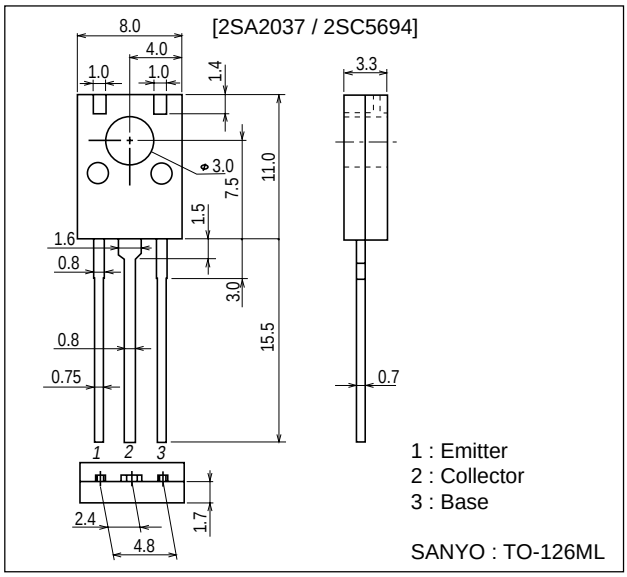
- Relay drivers, lamp drivers, motor drivers and printer drivers.

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

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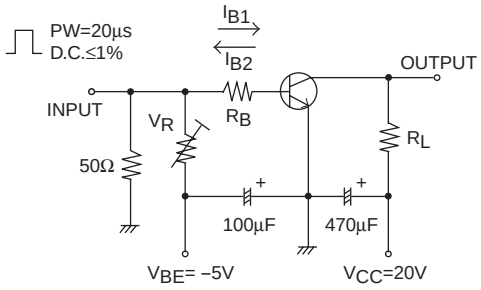
■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

Electrical Characteristics at Ta=25°C

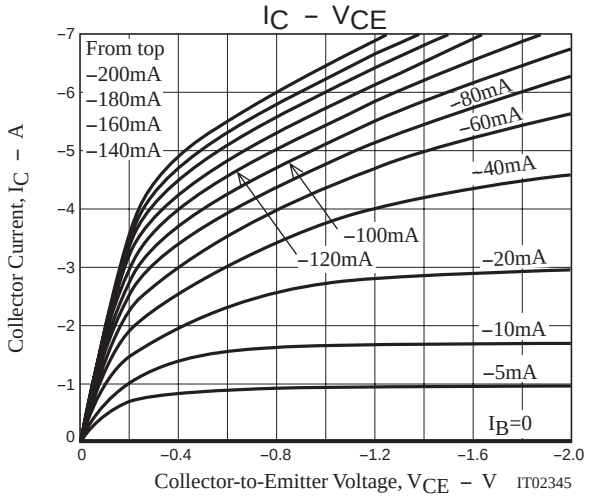
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(-)40V, I_E=0			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(-)4V, I_C=0			(-)0.1	μA
DC Current Gain	h_{FE}	V_{CE}=(-)2V, I_C=(-)1A	150		300	
Gain-Bandwidth Product	f_T	V_{CE}=(-)10V, I_C=(-)500mA		(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

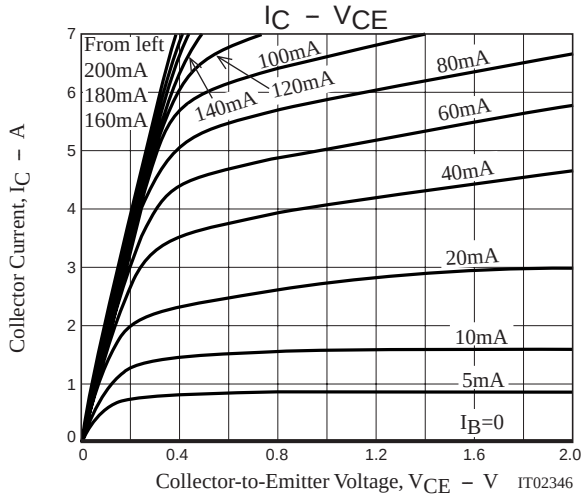
Swicthing Time Test Circuit



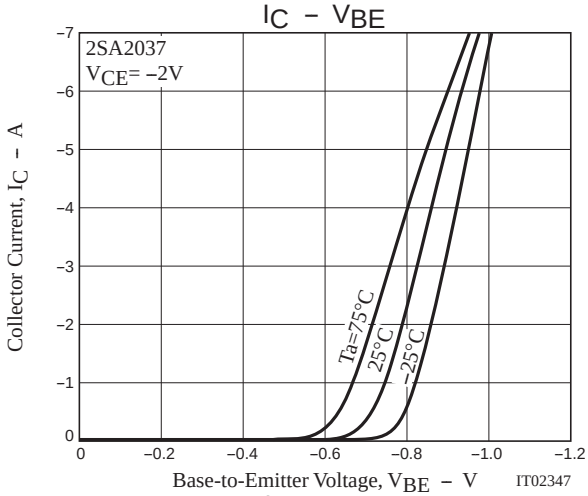
$10I_{B1}$= −$10I_{B2}$=I_C=2A

For PNP, the polarity is reversed.

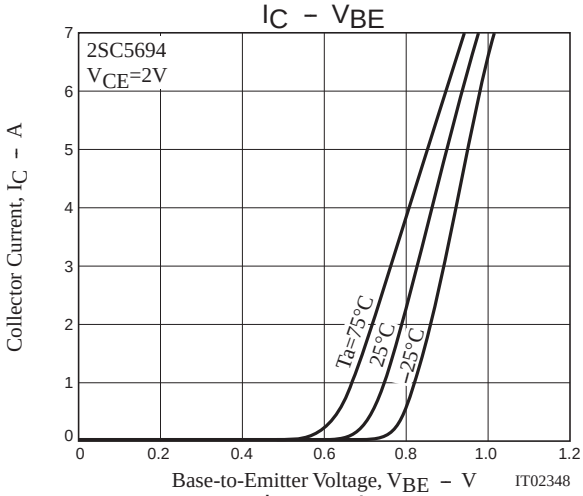




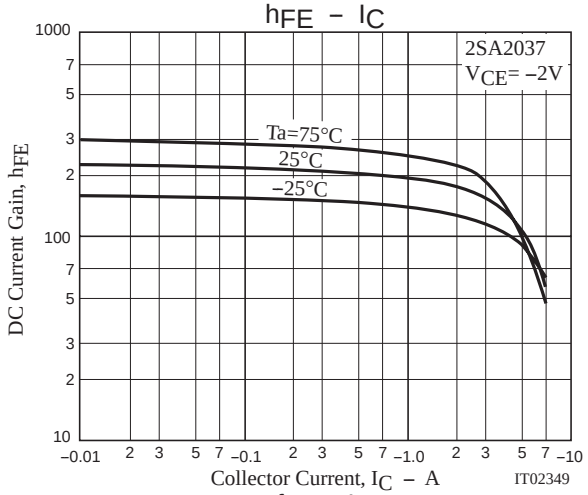
I_C – V_{BE}



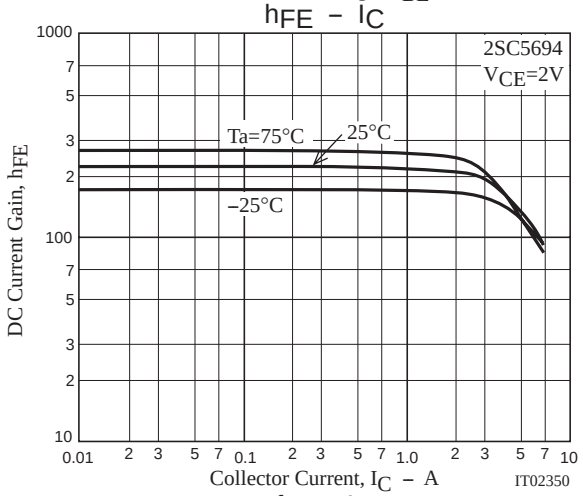
I_C – V_{BE}



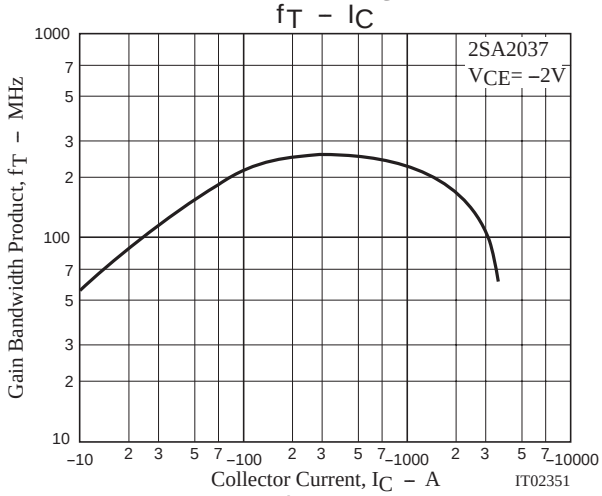
h_{FE} – I_C



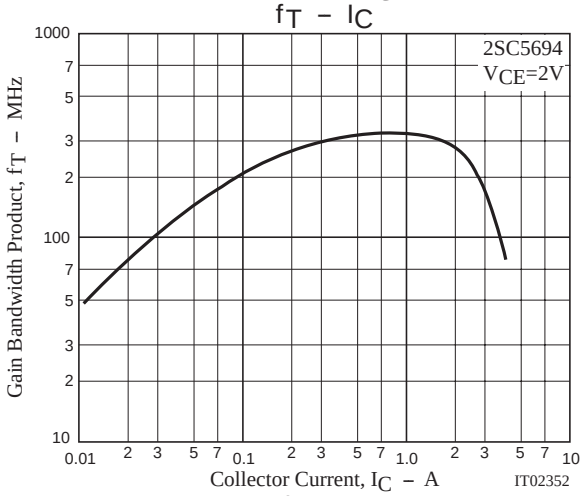
h_{FE} – I_C



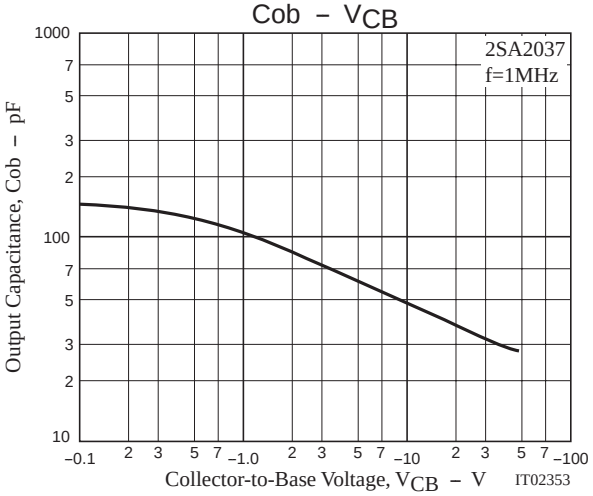
f_T – I_C



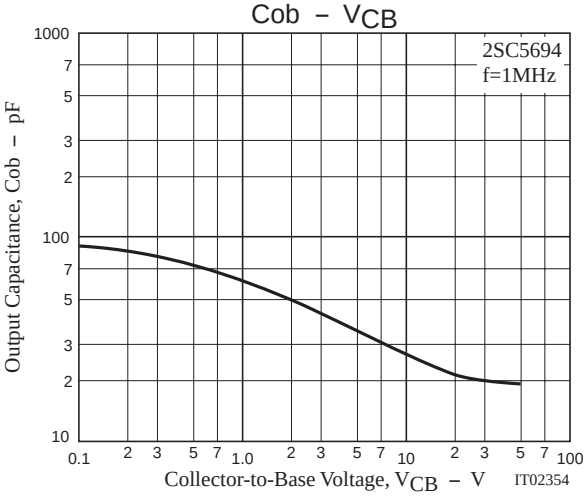
f_T – I_C

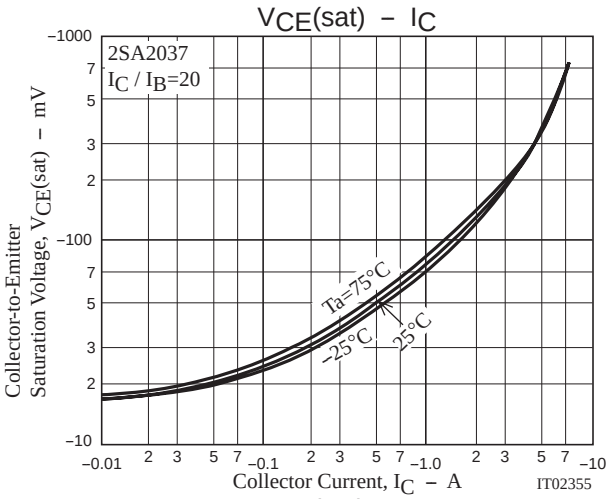


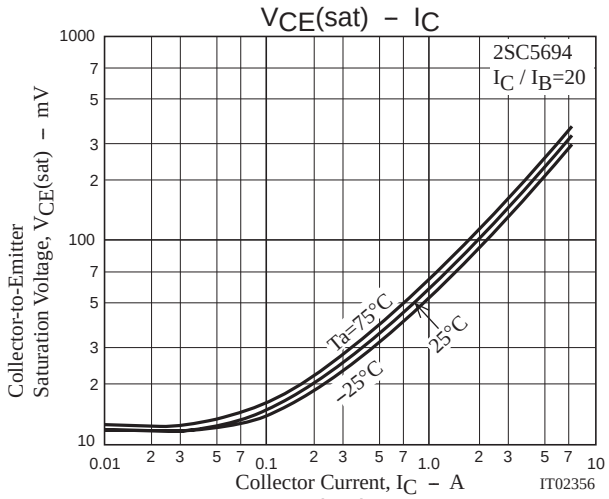
Cob – V_{CB}

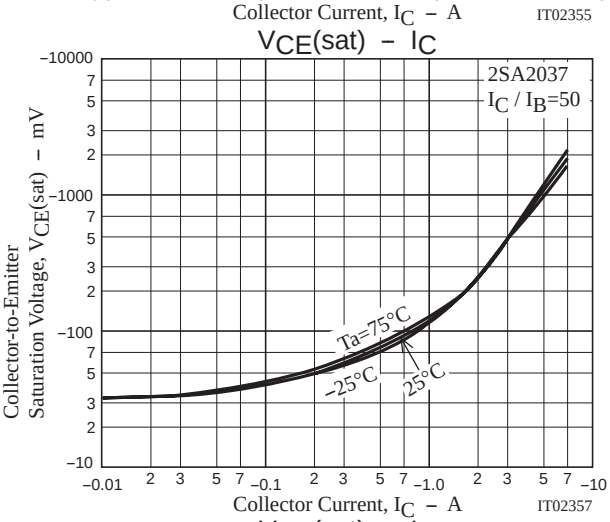


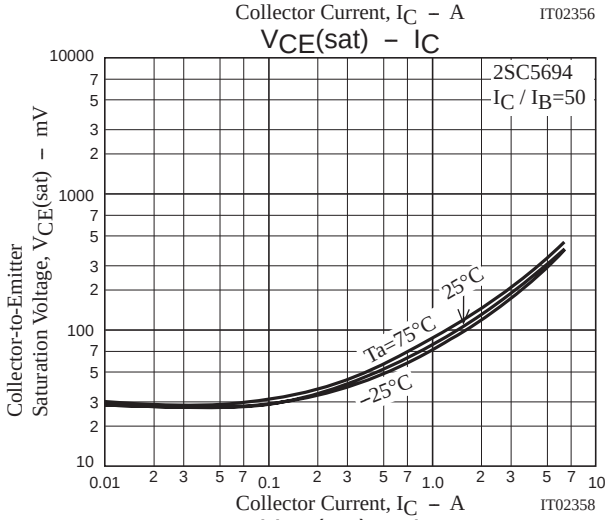
Cob – V_{CB}

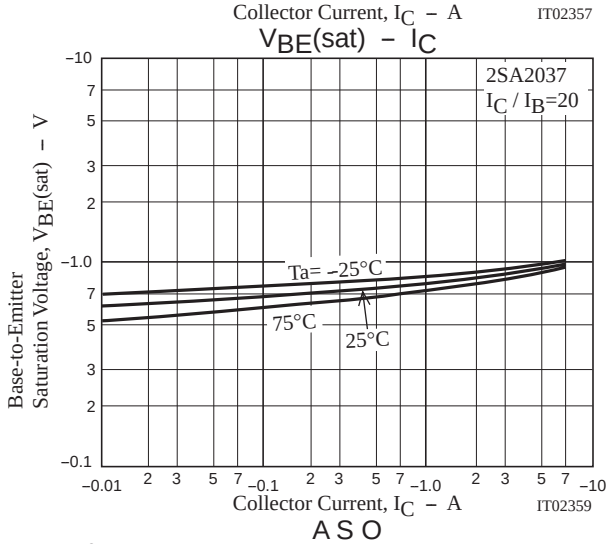


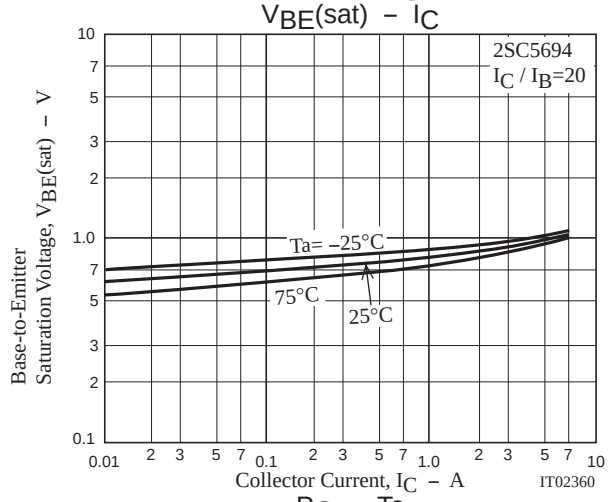

VCE(sat) – IC
2SA2037
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Ta=75°C
25°C
–25°C
Collector Current, IC – A
IT02355

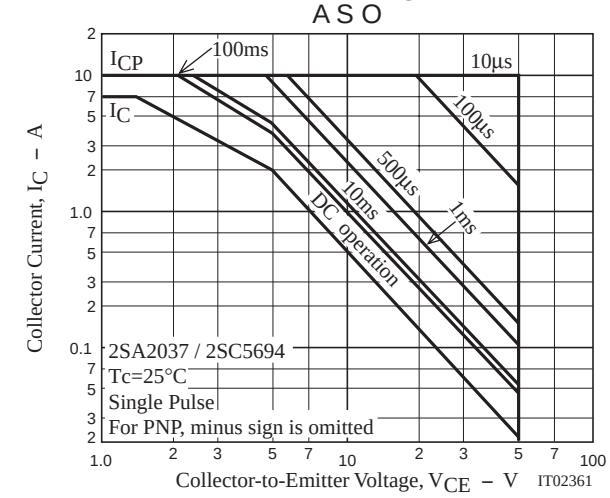

VCE(sat) – IC
2SC5694
IC / IB=20
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Ta=75°C
25°C
–25°C
Collector Current, IC – A
IT02356

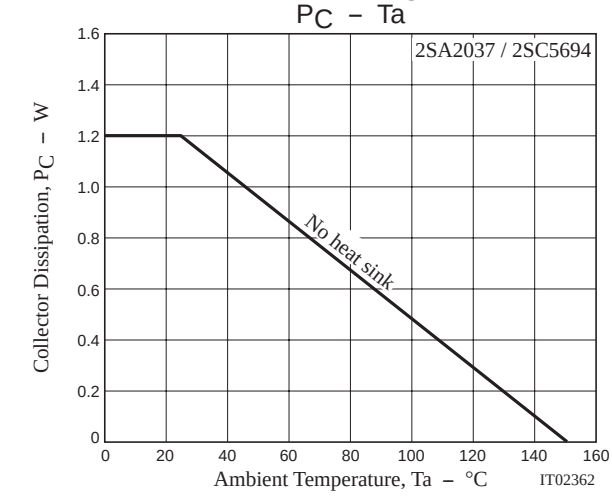

VCE(sat) – IC
2SA2037
IC / IB=50
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Ta=75°C
25°C
–25°C
Collector Current, IC – A
IT02357

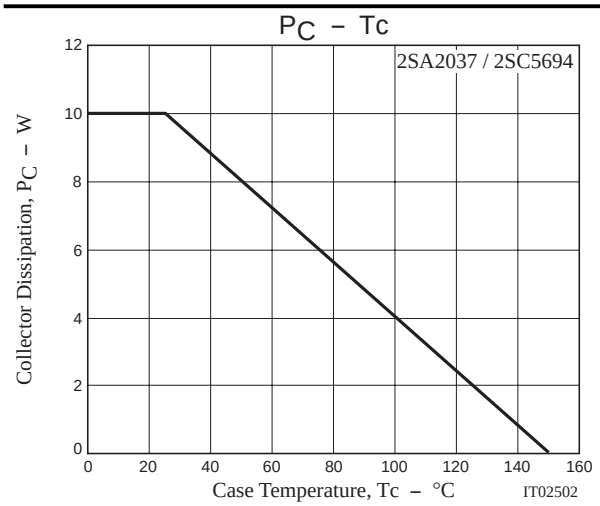

VCE(sat) – IC
2SC5694
IC / IB=50
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Ta=75°C
25°C
–25°C
Collector Current, IC – A
IT02358


VBE(sat) – IC
2SA2037
IC / IB=20
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Ta= –25°C
75°C
25°C
Collector Current, IC – A
IT02359


VBE(sat) – IC
2SC5694
IC / IB=20
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Ta= –25°C
75°C
25°C
Collector Current, IC – A
IT02360


ASO
ICP
IC
100ms
10ms
1ms
500µs
100µs
10µs
DC operation
2SA2037 / 2SC5694
Tc=25°C
Single Pulse
For PNP, minus sign is omitted
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT02361


PC – Ta
2SA2037 / 2SC5694
No heat sink.
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT02362



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