2SA2031 / 2SC5669

PNP Epitaxial Planar Silicon Transistor
NPN Triple Diffused Planar Silicon Transistor

230V / 15A, AF100W Output Applications

Features

- Large current capacitance.
- Wide ASO and high durability against breakdown.
- Adoption of MBIT process.

Specifications Note*( ) : 2SA2031

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(-)250	V
Collector-to-Emitter Voltage	V_{CEO}		(-)230	V
Emitter-to-Base Voltage	V_{EBO}		(-)6	V
Collector Current	I_C		(-)15	A
Collector Current (Pulse)	I_{CP}		(-)30	A
Collector Dissipation	P_C		2.5	W
		Tc=25°C	140	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

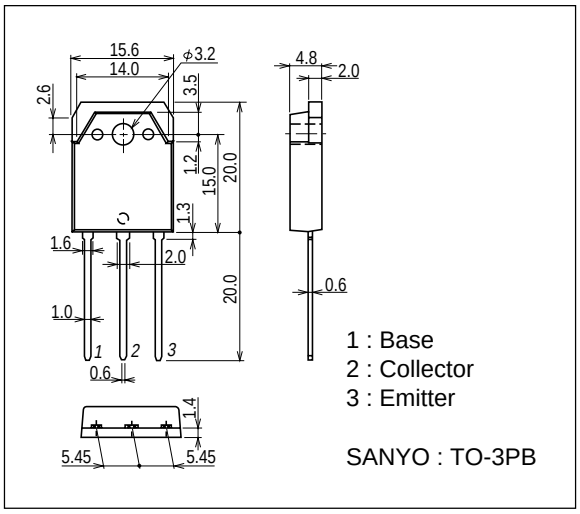
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(-)250V, I_E=0			(-)0.1	mA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(-)4V, I_C=0			(-)0.1	mA
DC Current Gain	$h_{FE}(1)$	V_{CE}=(-)5V, I_C=(-)1A	60		160	
	$h_{FE}(2)$	V_{CE}=(-)5V, I_C=(-)7.5A	35			
Gain-Bandwidth Product	f_T	V_{CE}=(-)5V, I_C=(-)1A			(10)15	MHz
Output Capacitance	Cob	V_{CB}=(-)10V, f=1MHz		(400)200		pF
Base-to-Emitter Voltage	V_{BE}	V_{CE}=(-)5V, I_C=(-)7.5A			1.5	V
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=(-)7.5A, I_B=(-)0.75A		(-0.3)0.2	(-)2.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(-)5mA, I_E=0	(-)250			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(-)50mA, R_{BE}=∞	(-)230			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(-)5mA, I_C=0	(-)6			V
Turn-On Time	t_{on}	See specified test circuit.		(0.45)0.56		µs
Storage Time	t_{stg}	See specified test circuit.		(1.75)3.3		µs
Fall Time	t_f	See specified test circuit.		(0.25)0.4		µs

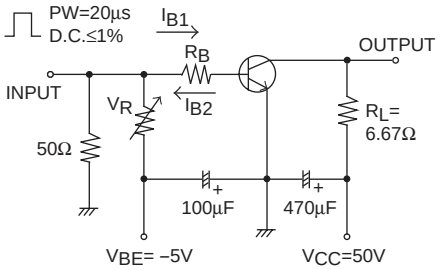
Package Dimensions

unit : mm

2022A

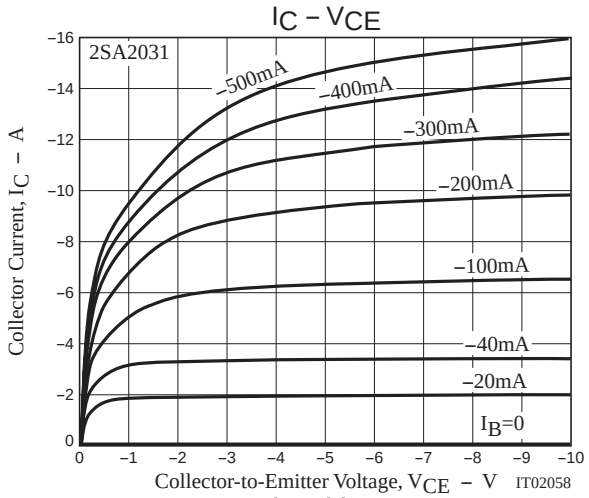


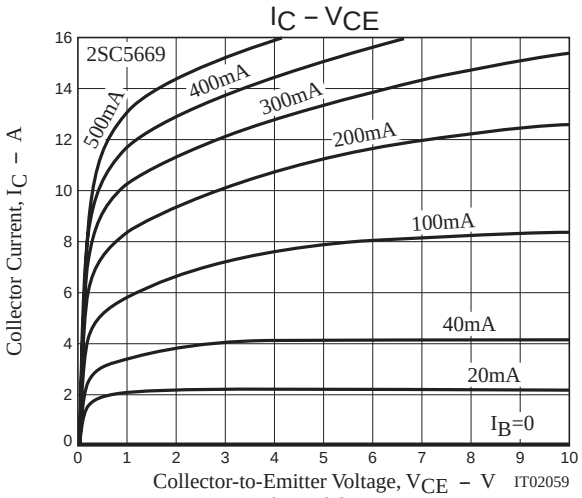
Switching Time Test Circuit

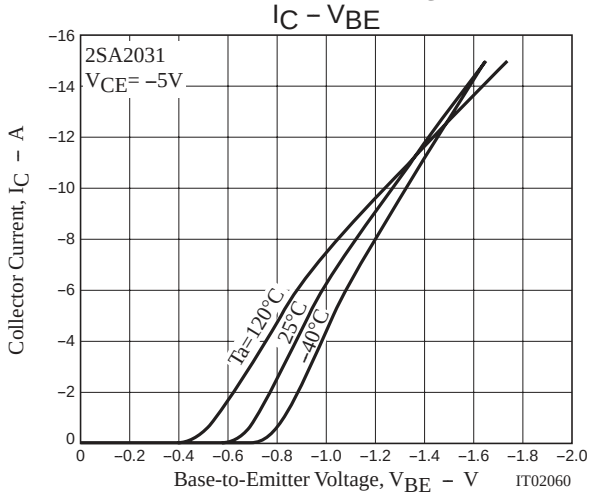


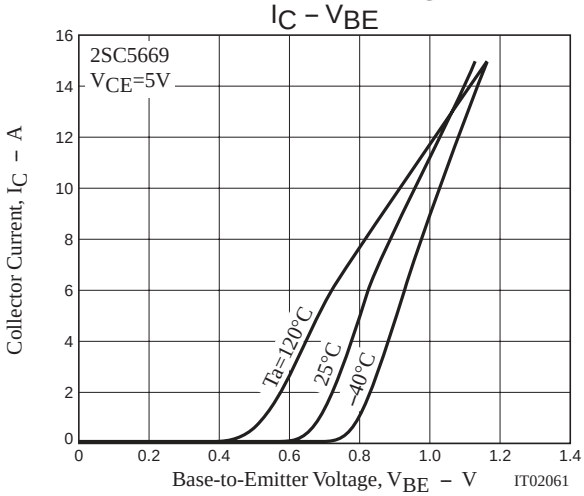
$10I_{B1} = -10I_{B2} = I_C = 7.5A$

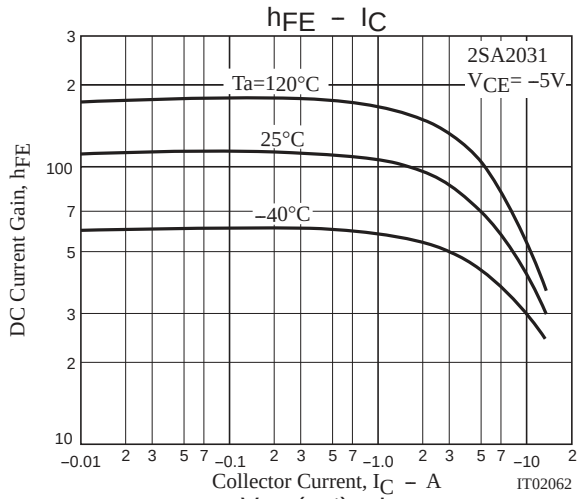
For PNP, the polarity is reversed.

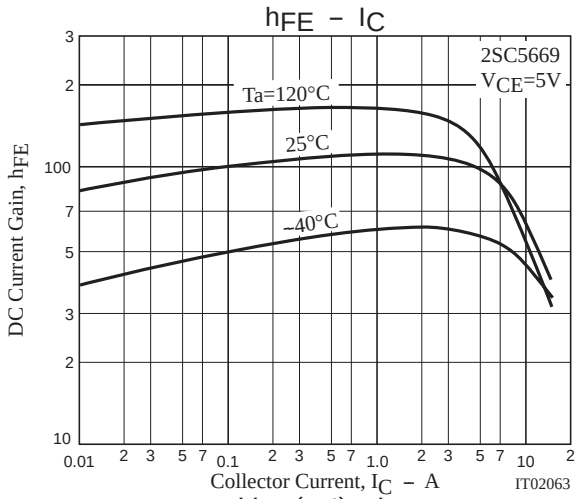


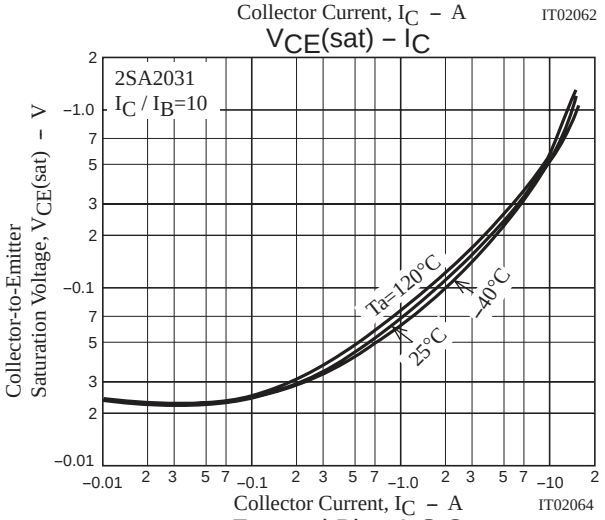


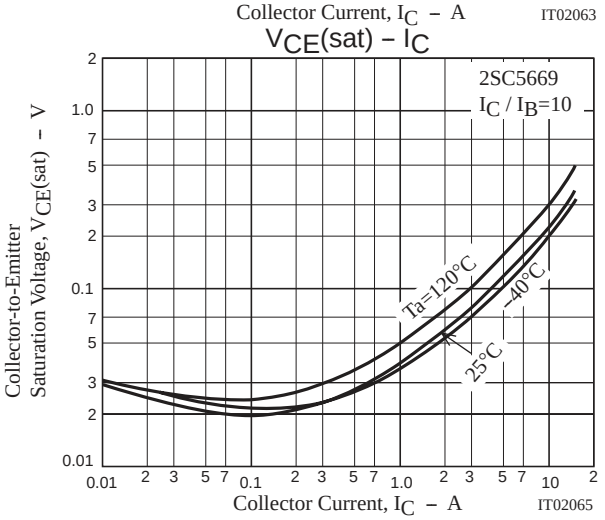


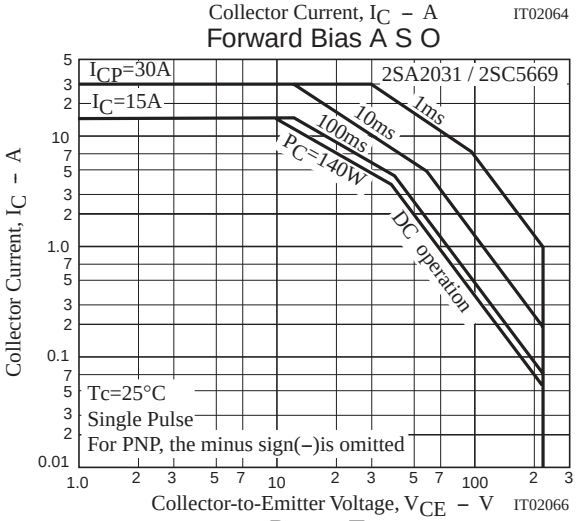


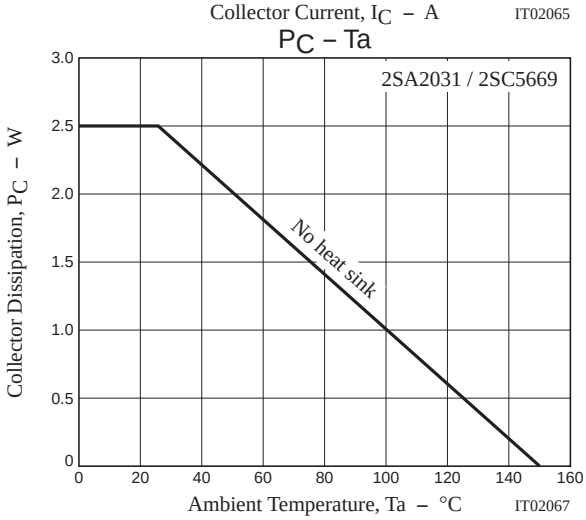

hFE – IC
2SA2031
VCE= –5V
Ta=120°C
25°C
–40°C
DC Current Gain, hFE
Collector Current, IC – A
IT02062


hFE – IC
2SC5669
VCE=5V
Ta=120°C
25°C
–40°C
DC Current Gain, hFE
Collector Current, IC – A
IT02063


VCE(sat) – IC
2SA2031
IC / IB=10
Ta=120°C
–40°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT02064


VCE(sat) – IC
2SC5669
IC / IB=10
Ta=120°C
–40°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT02065


Forward Bias A S O
ICP=30A
IC=15A
2SA2031 / 2SC5669
1ms
10ms
100ms
PC=140W
DC operation
Tc=25°C
Single Pulse
For PNP, the minus sign(–)is omitted
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT02066


PC – Ta
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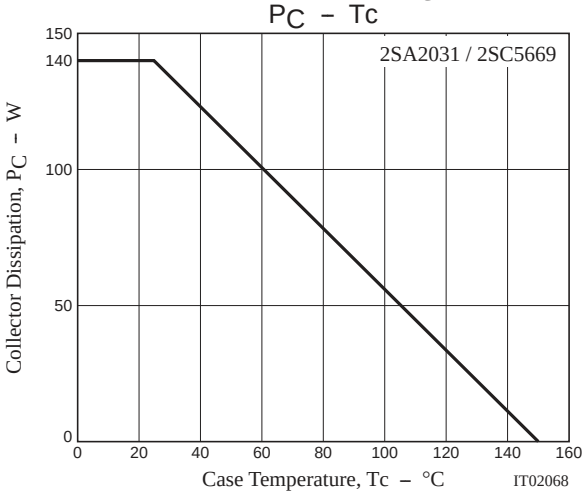
No heat sink
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT02067


PC – Tc
2SA2031 / 2SC5669
Collector Dissipation, PC – W
Case Temperature, Tc – °C
IT02068