Ordering number : ENN8251

SANYO Semiconductors
DATA SHEET

2SC6044 — NPN Epitaxial Planar Silicon Transistors
High-Current Switching Applications

Applications

- Voltage regulators, relay drivers, lamp drivers, electrical equipment.

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		40	V
Collector-to-Emitter Voltage	V_{CEO}		30	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		2	A
Collector Current (Pulse)	I_{CP}		5	A
Base Current	I_B		400	mA
Collector Dissipation	P_C	Mounted on a ceramic board (450mm²×0.8mm)	1.3	W
		Tc=25°C	3.5	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}=30V, I_E=0			0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0			0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=2V, I_C=100mA	200		560	
	$h_{FE}2$	V_{CE}=2V, I_C=1.5A	65			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=300mA		400		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		12		pF

Marking : HB

Continued on next page.

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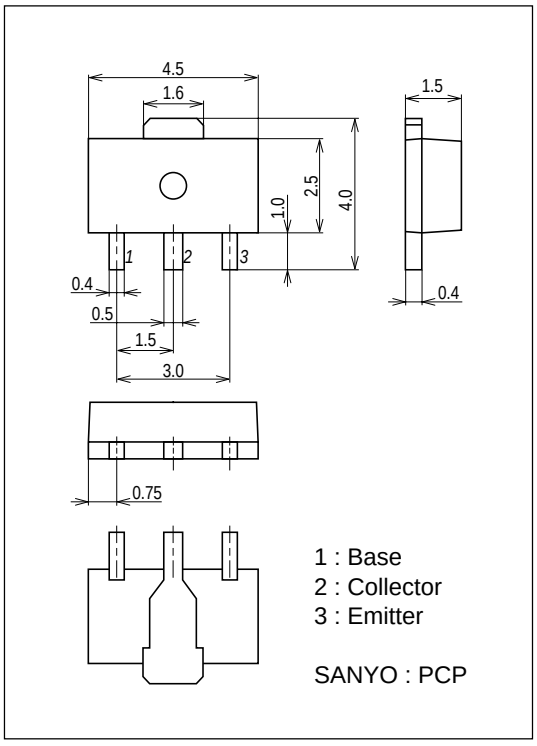
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE}(sat)$	I_C=1.5A, I_B=75mA		170	260	mV
Base-to-Emitter Saturation Voltage	$V_{BE}(sat)$	I_C=1.5A, I_B=75mA		0.94	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	30			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		40		ns
Storage Time	t_{stg}	See specified Test Circuit.		350		ns
Fall Time	t_f	See specified Test Circuit.		30		ns

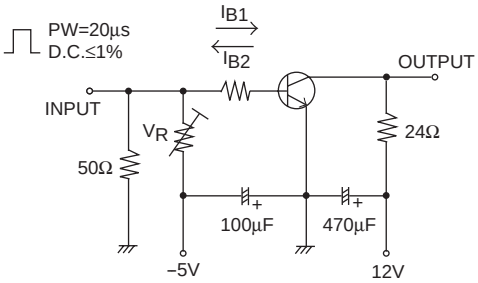
Package Dimensions

unit : mm

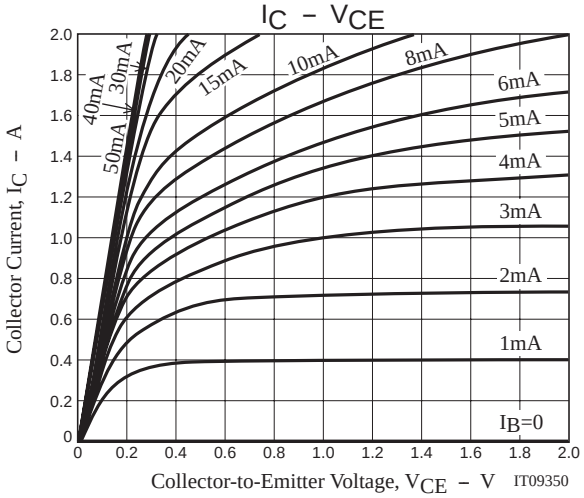
2038B

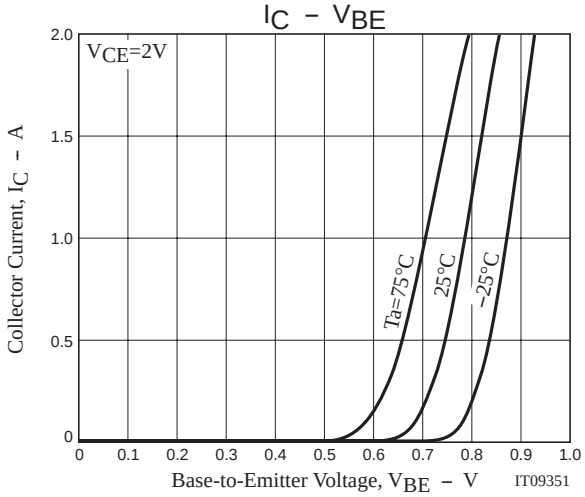


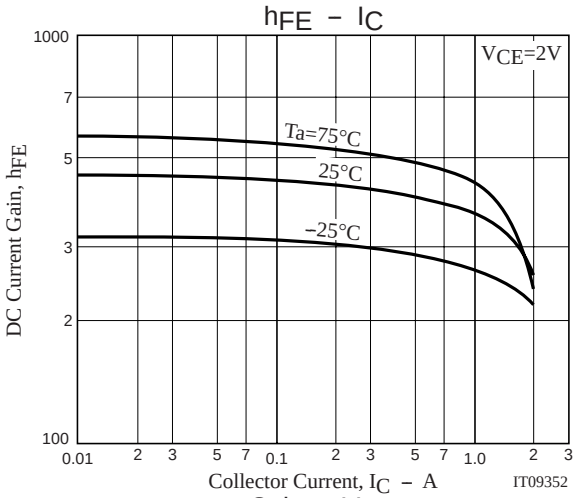
Switching Time Test Circuit

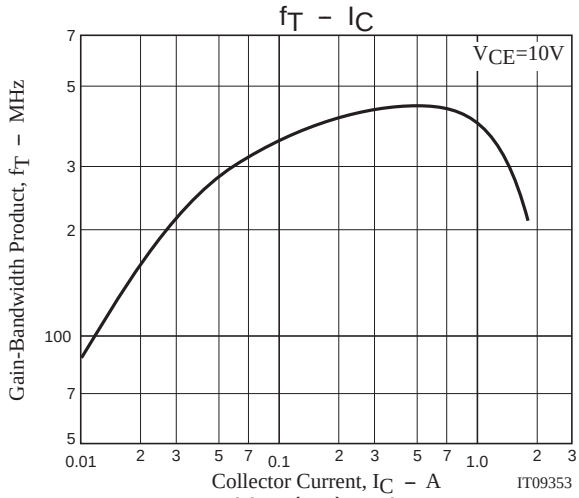


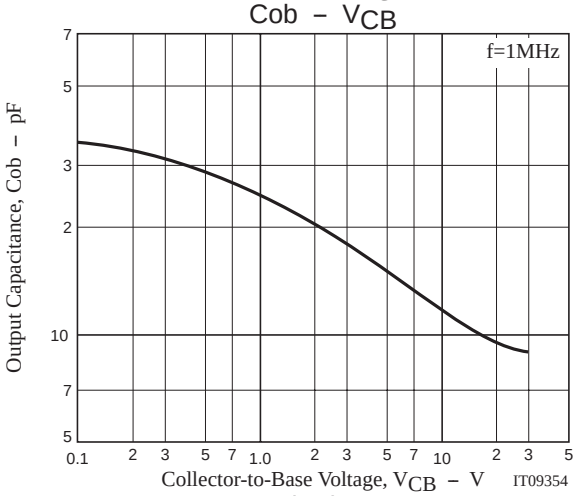
$20I_{B1}$= −$20I_{B2}$=I_C=500mA

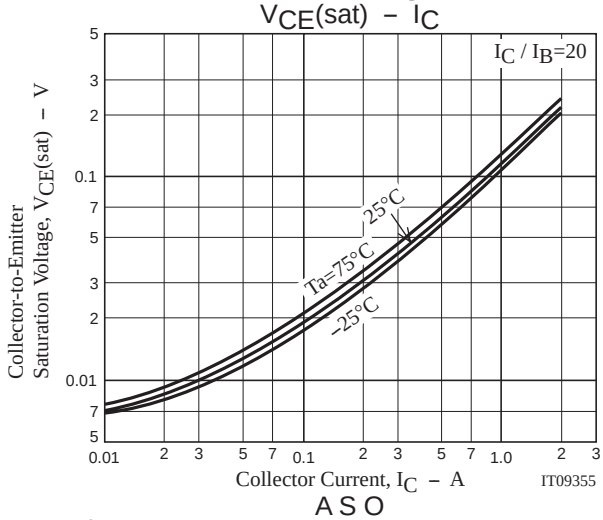


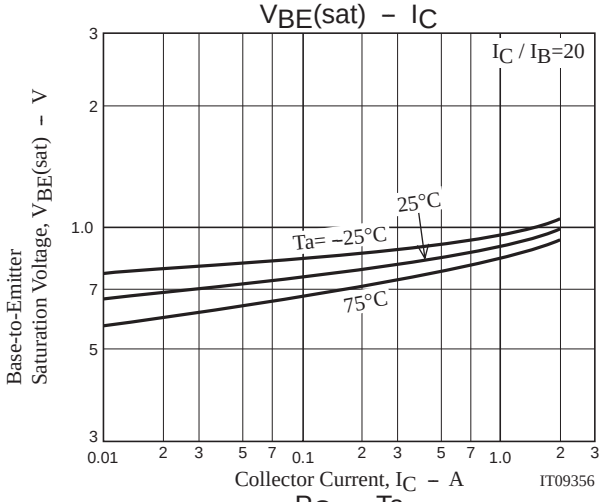


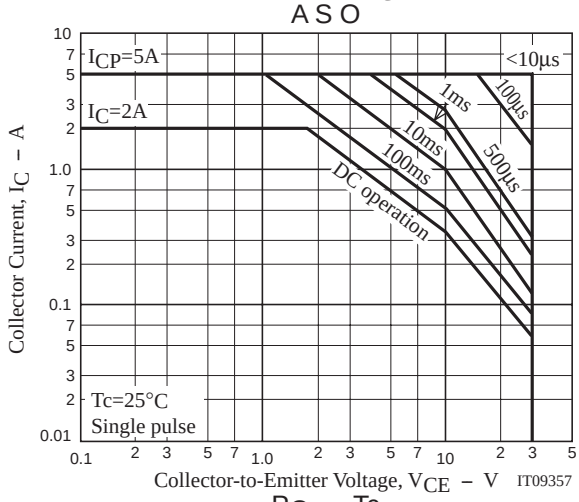

hFE – IC
VCE=2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT09352

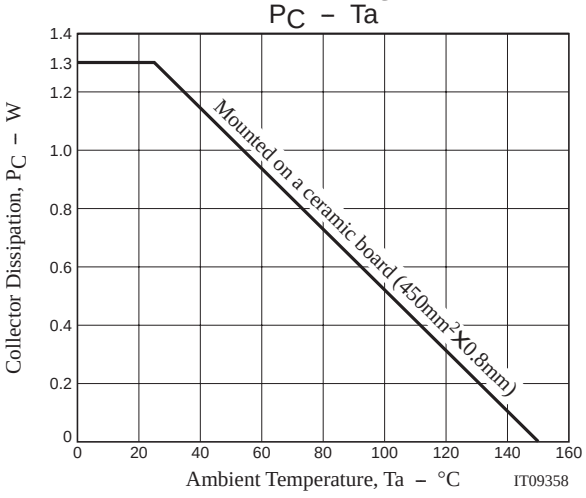

fT – IC
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT09353

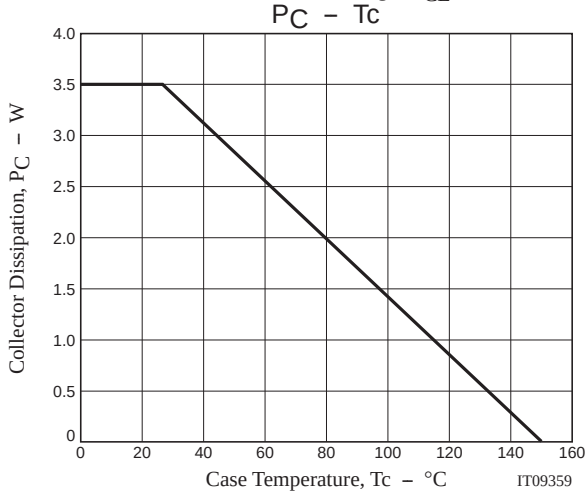

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT09354


VCE(sat) – IC
IC / IB=20
25°C
Ta=75°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT09355


VBE(sat) – IC
IC / IB=20
25°C
Ta= –25°C
75°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT09356


A S O
ICP=5A
IC=2A
<10µs
1ms
100µs
10ms
500µs
100ms
DC operation
Tc=25°C
Single pulse
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT09357


PC – Ta
Mounted on a ceramic board (450mm2×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT09358


PC – Tc
Collector Dissipation, PC – W
Case Temperature, Tc – °C
IT09359