



SANYO Semiconductors

DATA SHEET

2SC6097

NPN Epitaxial Planar Silicon Transistor

High-Current Switching Applications

Applications

- DC / DC converter, relay drivers, lamp drivers, motor drivers, inverter.

Features

- Adoption of FBET, MBIT process.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- High allowable power dissipation.

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		100	V
Collector-to-Emitter Voltage	V_{CES}		100	V
Collector-to-Emitter Voltage	V_{CEO}		60	V
Emitter-to-Base Voltage	V_{EBO}		6.5	V
Collector Current	I_C		3	A
Collector Current (Pulse)	I_{CP}		5	A
Base Current	I_B		600	mA
Collector Dissipation	P_C		0.8	W
		$T_c=25^\circ\text{C}$	15	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CB0}	$V_{CB}=50\text{V}, I_E=0\text{A}$			1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0\text{A}$			1	μA
DC Current Gain	h_{FE}	$V_{CE}=2\text{V}, I_C=100\text{mA}$	300		600	

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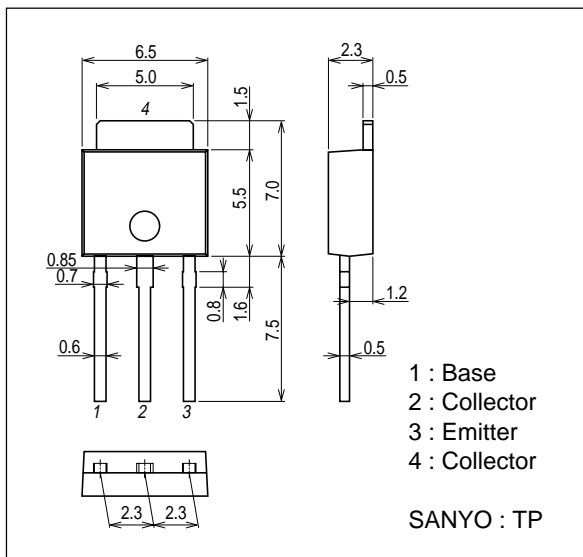
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=500mA$		390		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		18		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=1A, I_B=50mA$		100	150	mV
	$V_{CE(sat)2}$	$I_C=1A, I_B=100mA$		90	135	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1A, I_B=100mA$		0.84	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0A$	100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu A, R_{BE}=0\Omega$	100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	60			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0A$	6.5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		35		ns
Storage Time	t_{stg}	See specified Test Circuit.		680		ns
Fall Time	t_f	See specified Test Circuit.		24		ns

Package Dimensions

unit : mm

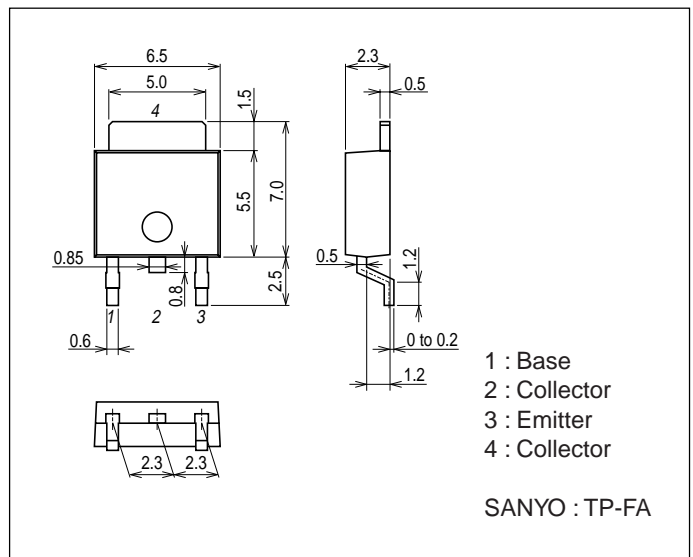
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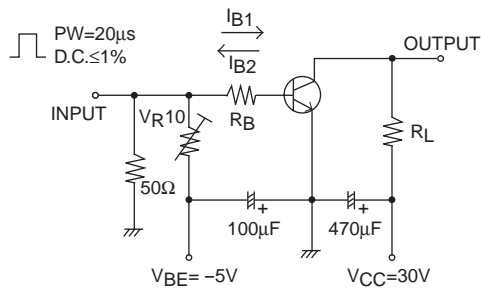
Package Dimensions

unit : mm

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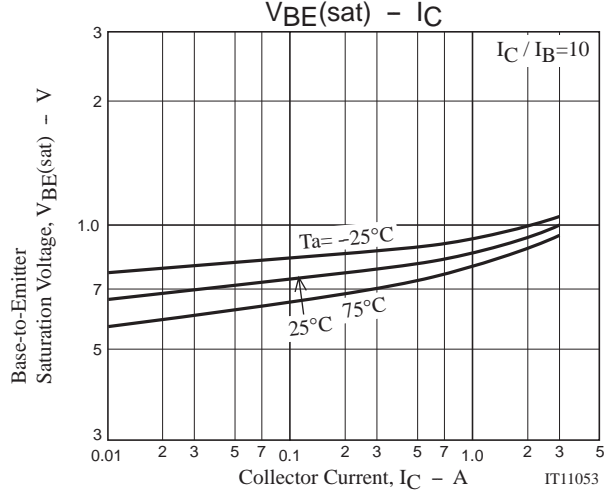
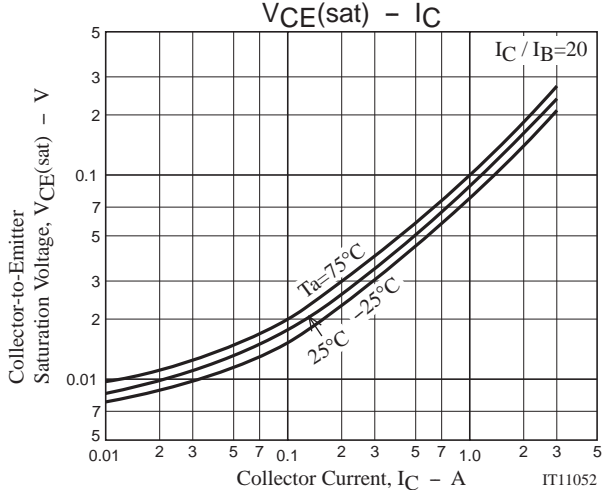
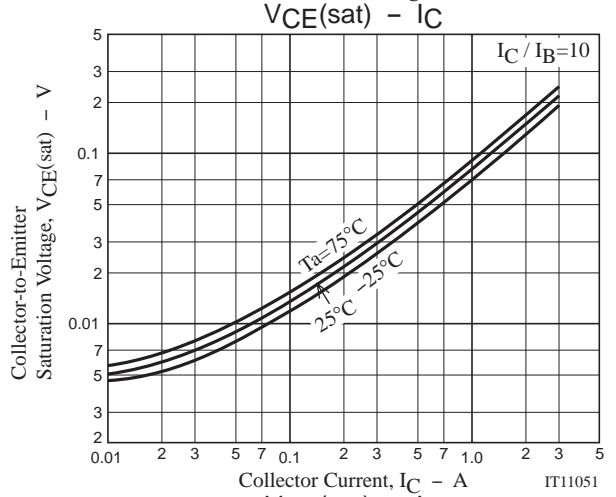
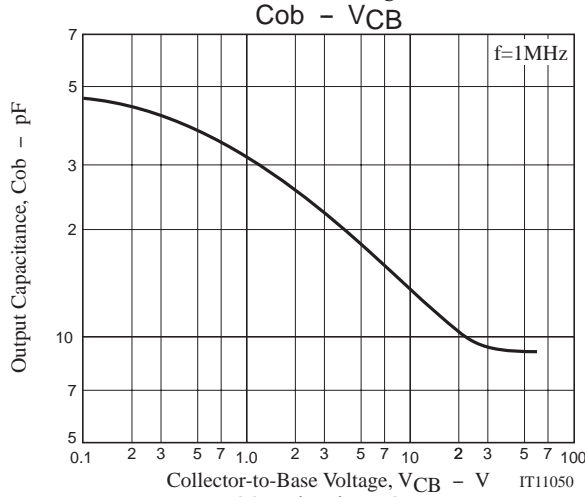
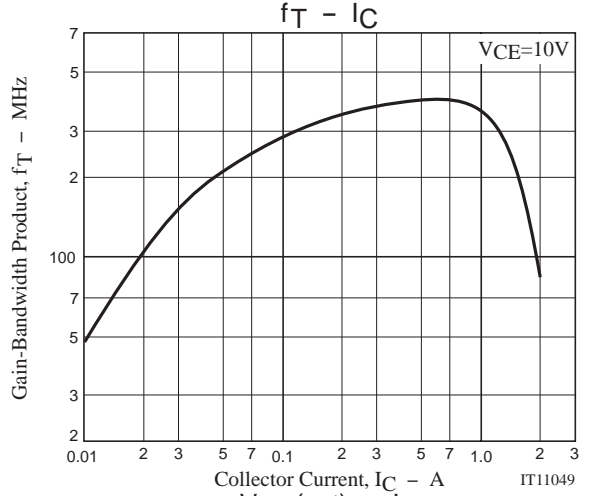
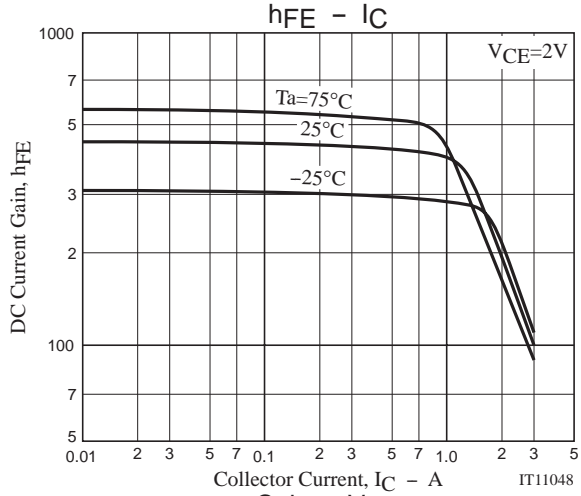
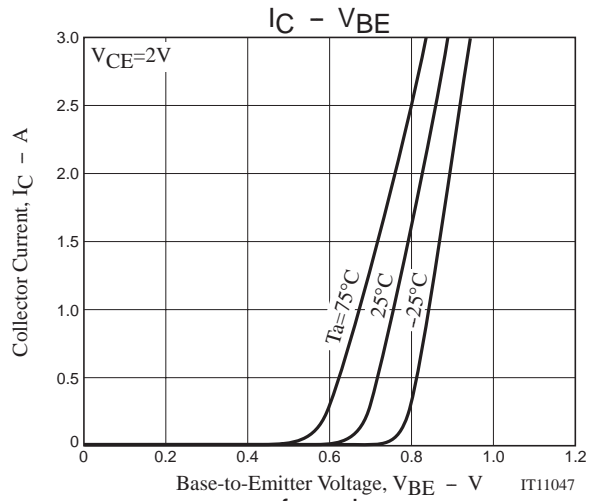
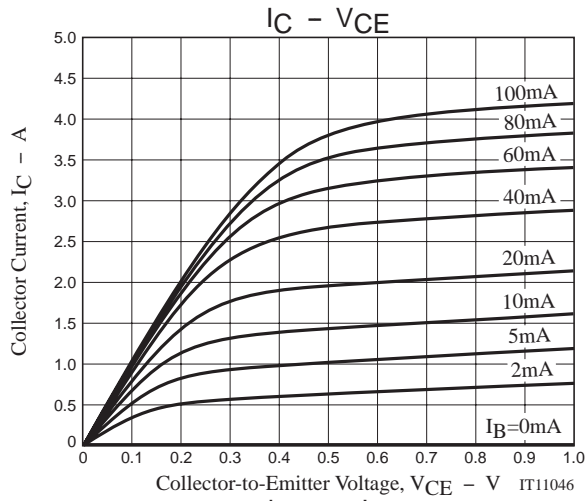


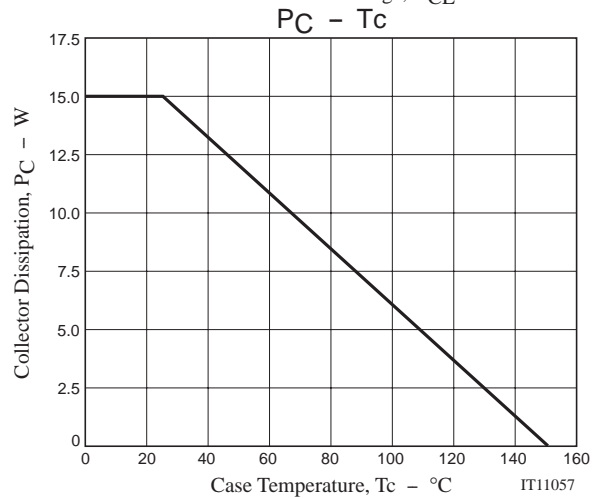
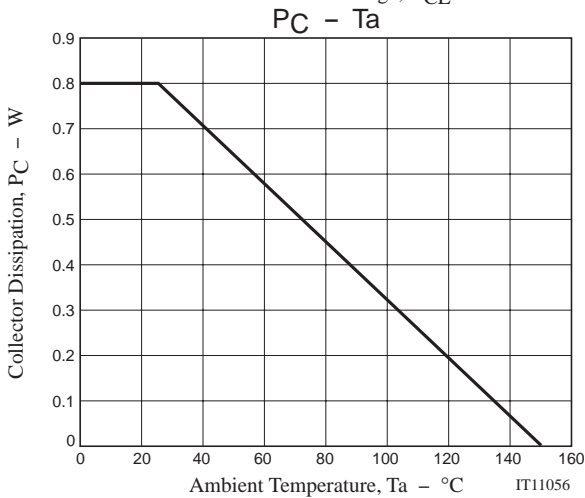
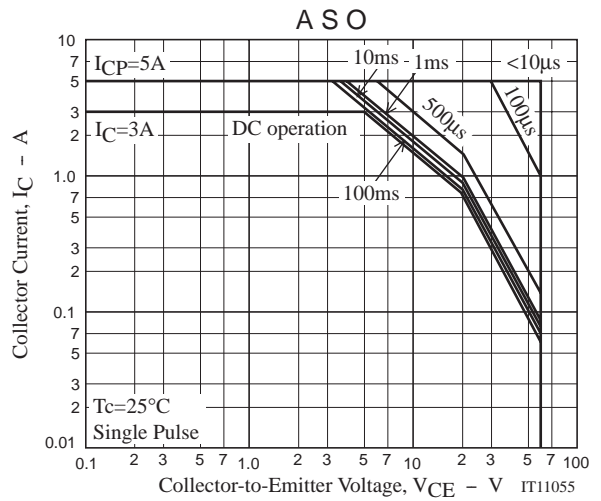
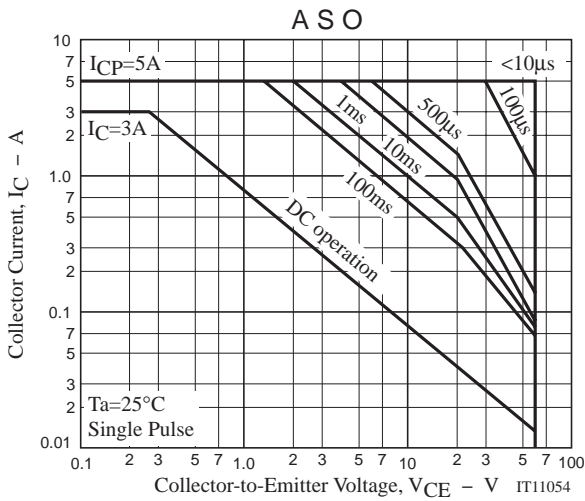
Switching Time Test Circuit



$$10I_{B1} = -10I_{B2} = I_C = 0.5A$$

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