



SANYO Semiconductors

DATA SHEET

2SC6013

 — NPN Epitaxial Planar Silicon Transistor
DC / DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers, flash.

Features

- Adoption of MBIT process.
- Large current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- Narrow hFE range.
- High allowable power dissipation.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		15	V
Collector-to-Emitter Voltage	V _{CEO}		15	V
Emitter-to-Base Voltage	V _{EB0}		6	V
Collector Current	I _C		6	A
Collector Current (Pulse)	I _{CP}		9	A
Base Current	I _B		600	mA
Collector Dissipation	P _C	Mounted on a ceramic board (250mm ² ×0.8mm)	1.3	W
		T _c =25°C	3.5	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CB0}	V _{CB} =12V, I _E =0A			0.1	μA
Emitter Cutoff Current	I _{EB0}	V _{EB} =4V, I _C =0A			0.1	μA
DC Current Gain	h _{FE}	V _{CE} =2V, I _C =500mA	250		400	

Marking : QA

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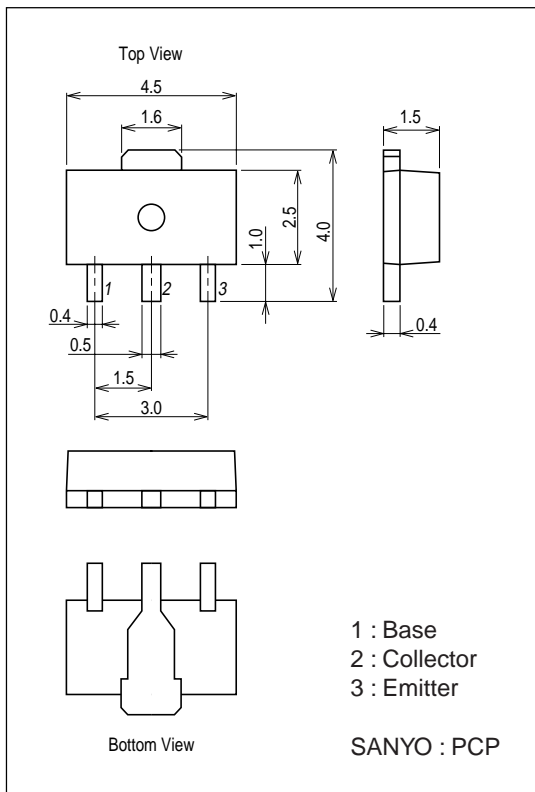
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=2V, I_C=500mA$		380		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		23		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1.5A, I_B=30mA$		90	135	mV
		$I_C=3A, I_B=60mA$		135	200	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.5A, I_B=30mA$		0.85	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0A$	15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0A$	6			V
Turn-ON Time	t_{on}	See specified Test Circuit.		30		ns
Storage Time	t_{stg}	See specified Test Circuit.		190		ns
Fall Time	t_f	See specified Test Circuit.		15		ns

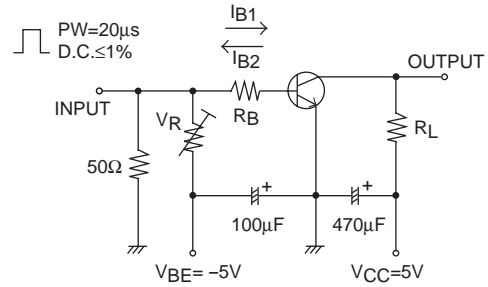
Package Dimensions

unit : mm

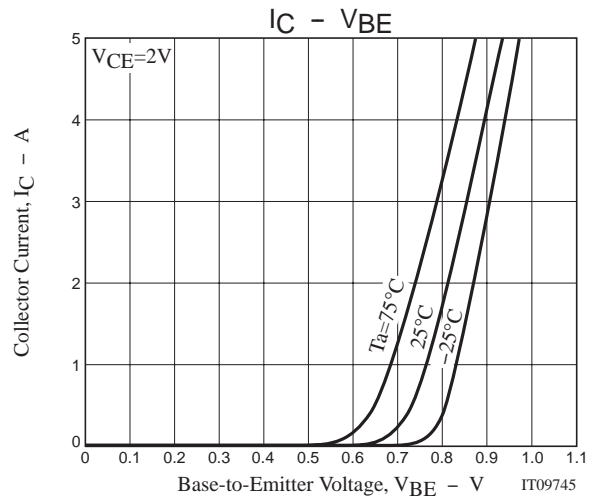
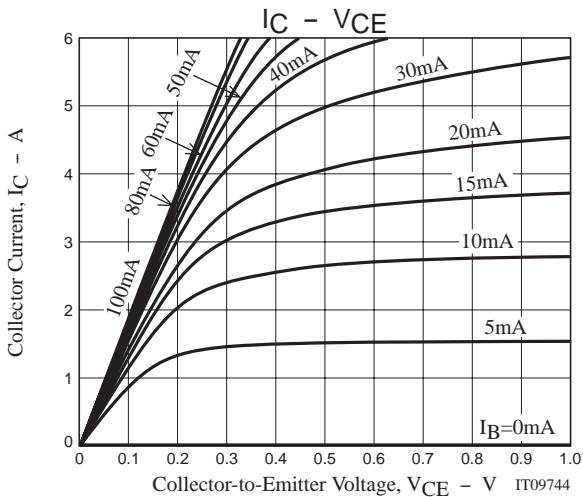
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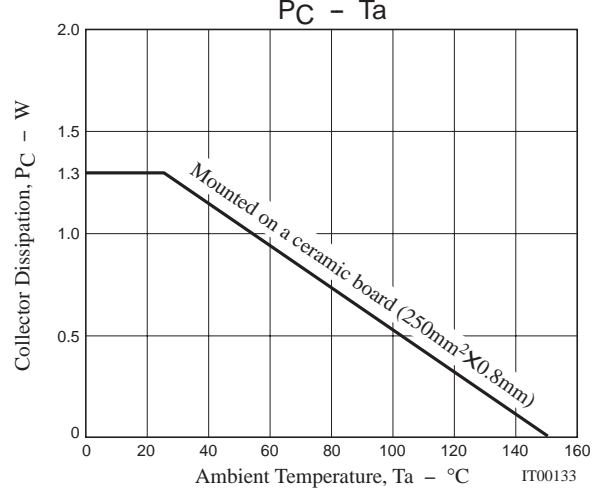
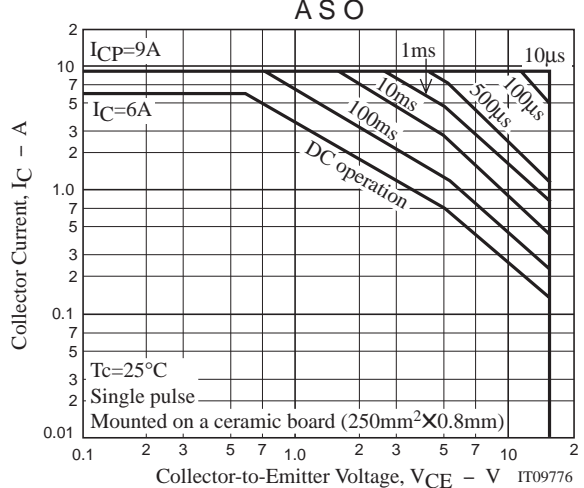
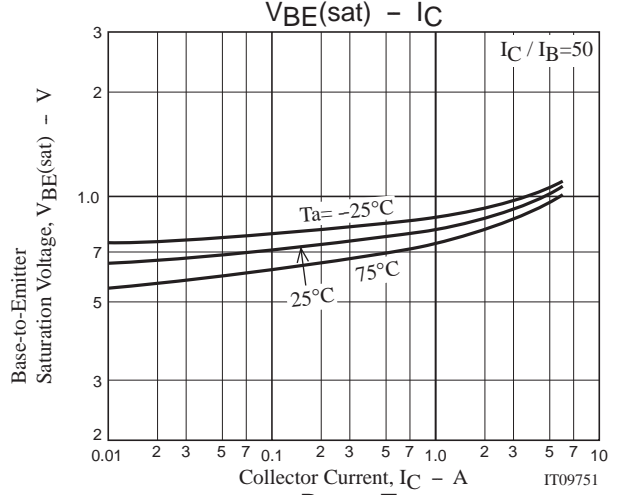
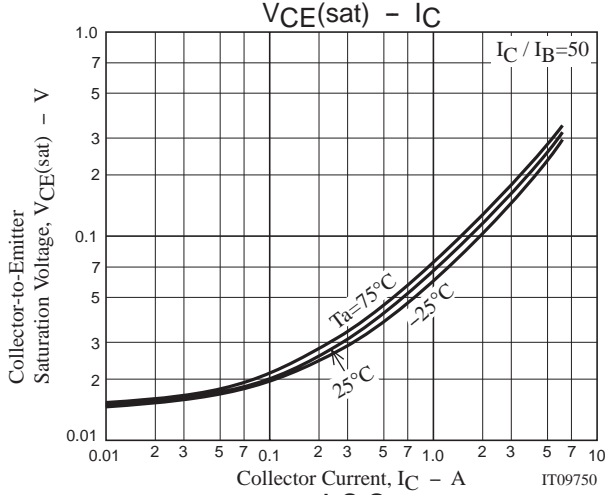
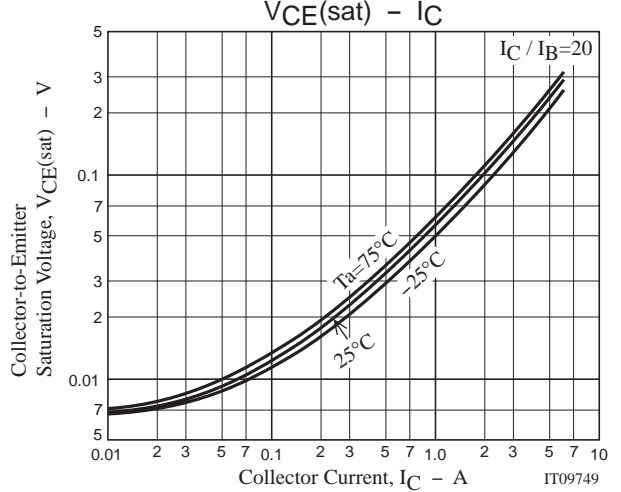
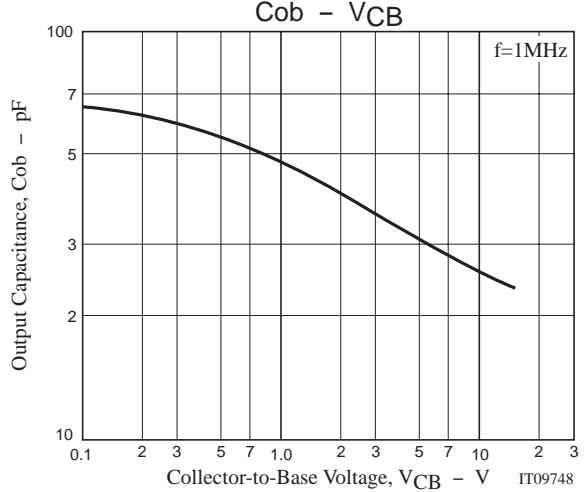
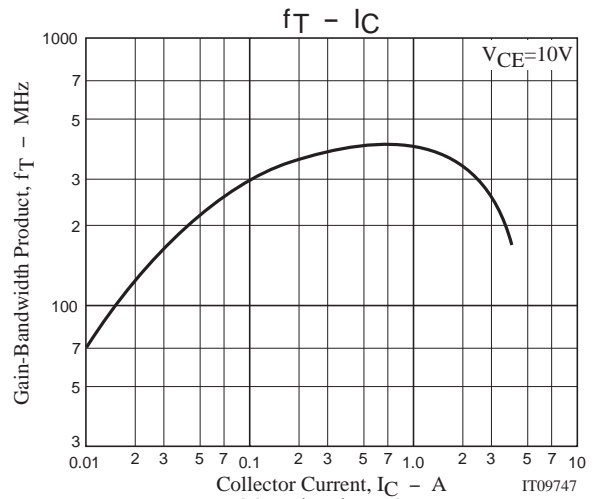
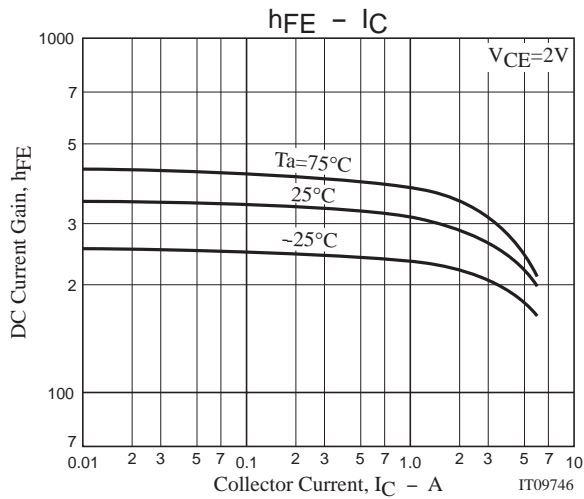
Switching Time Test Circuit

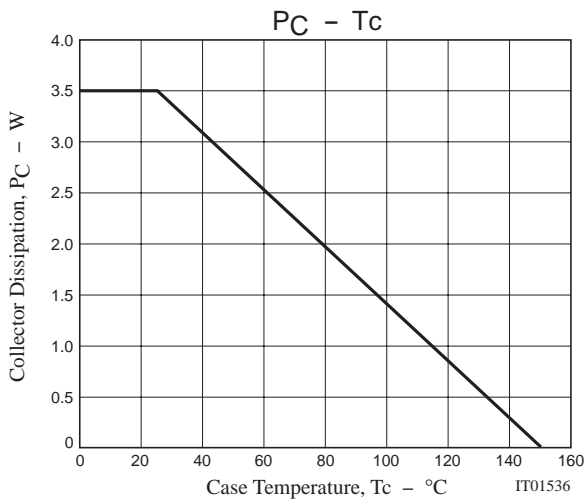


$$I_C = 20I_{B1} = -20I_{B2} = 1.5A$$



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