



SANYO Semiconductors

DATA SHEET

2SC5980

NPN Epitaxial Planar Silicon Transistor

High-Current Switching Applications

Applications

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

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CBO}		100	V
Collector-to-Emitter Voltage	V _{CES}		100	V
Collector-to-Emitter Voltage	V _{CEO}		50	V
Emitter-to-Base Voltage	V _{EBO}		6	V
Collector Current	I _C		8	A
Collector Current (Pulse)	I _{CP}		11	A
Base Current	I _B		2	A
Collector Dissipation	P _C		1.0	W
		T _c =25°C	15	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 _{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 =500mA	250		400	

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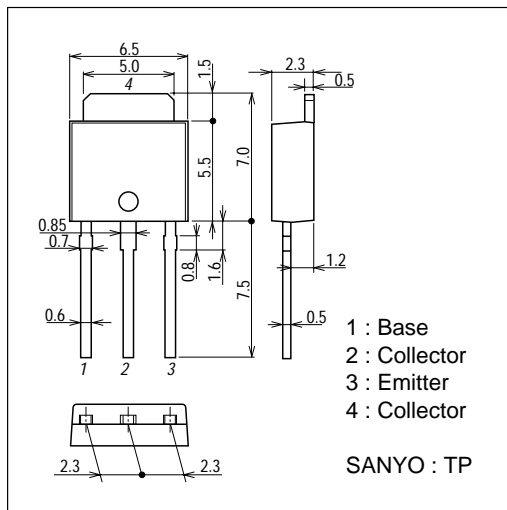
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=500mA$		330		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		28		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3.5A, I_B=175mA$		125	190	mV
		$I_C=2A, I_B=40mA$		100	150	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=2A, I_B=40mA$		0.83	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu A, R_{BE}=\infty$	100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
Turn-ON Time	t_{on}	See specified Test Circuit.		30		ns
Storage Time	t_{stg}	See specified Test Circuit.		420		ns
Fall Time	t_f	See specified Test Circuit.		25		ns

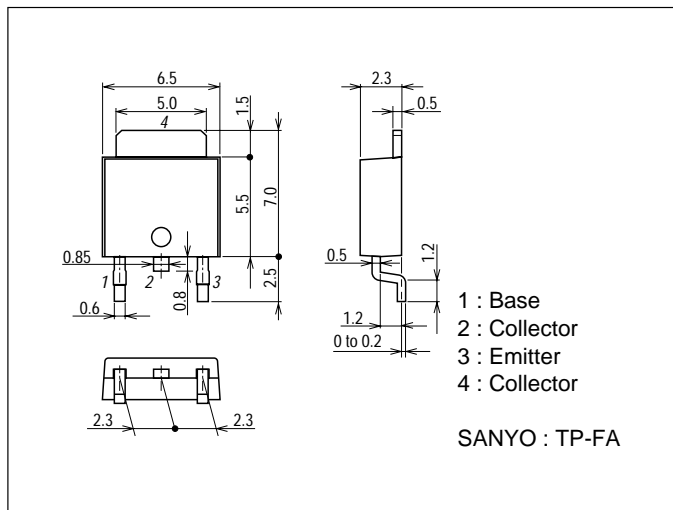
Package Dimensions

unit : mm
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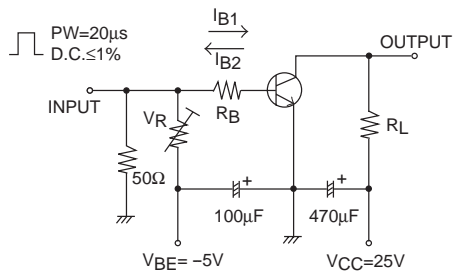


Package Dimensions

unit : mm
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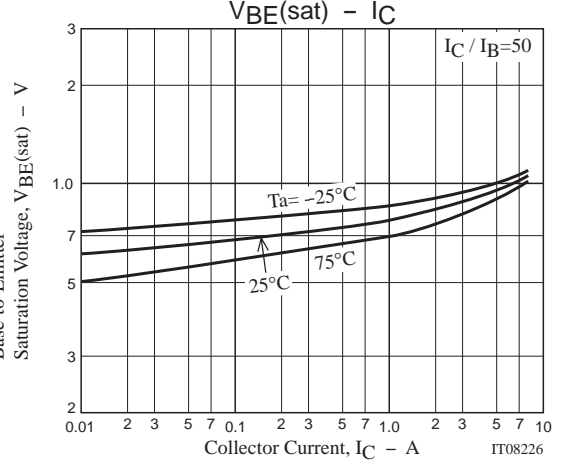
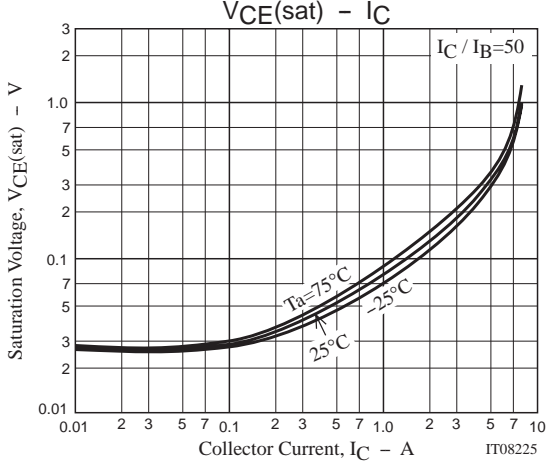
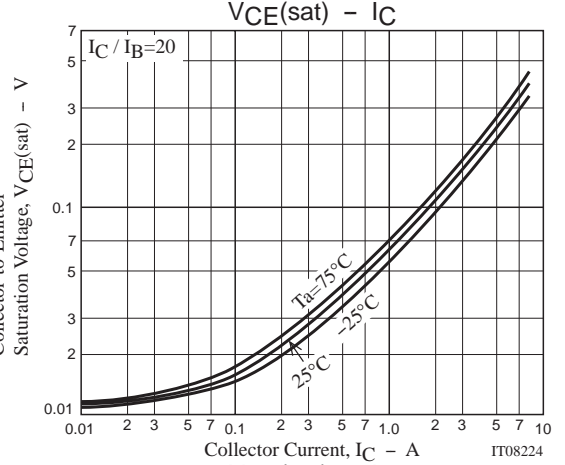
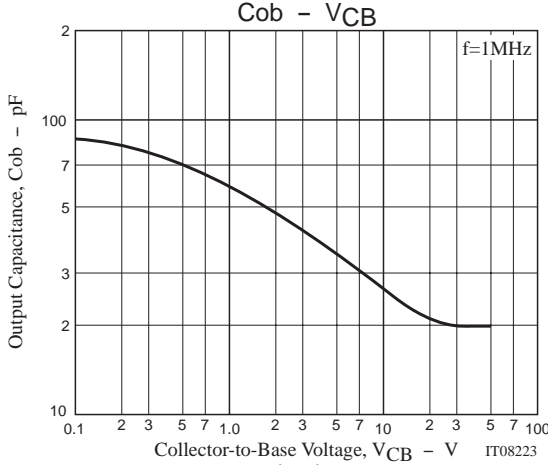
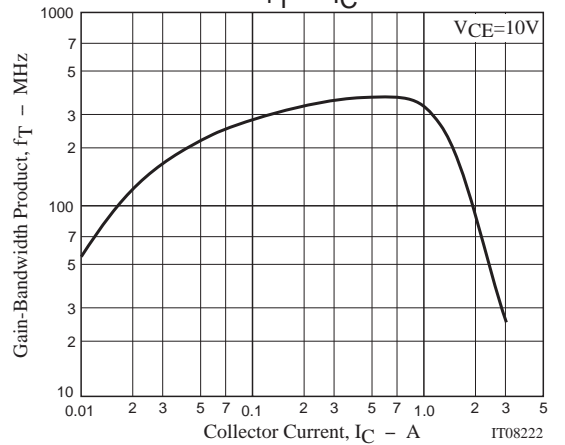
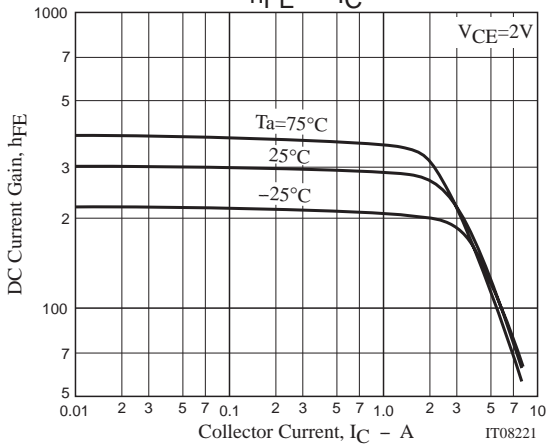
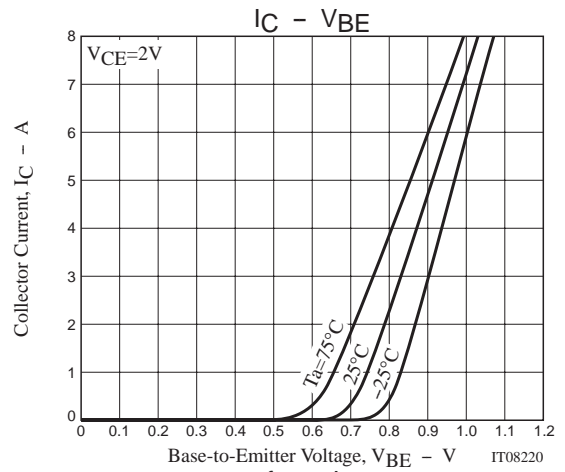
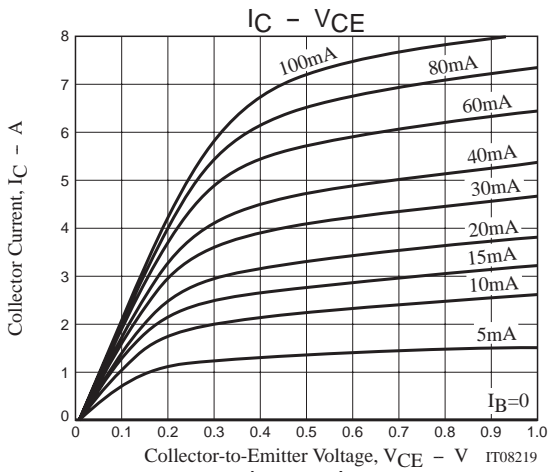


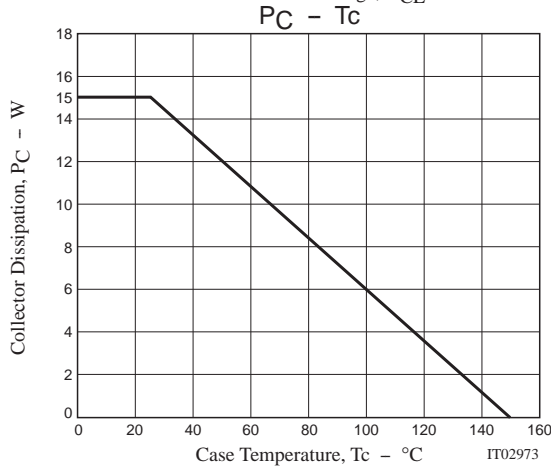
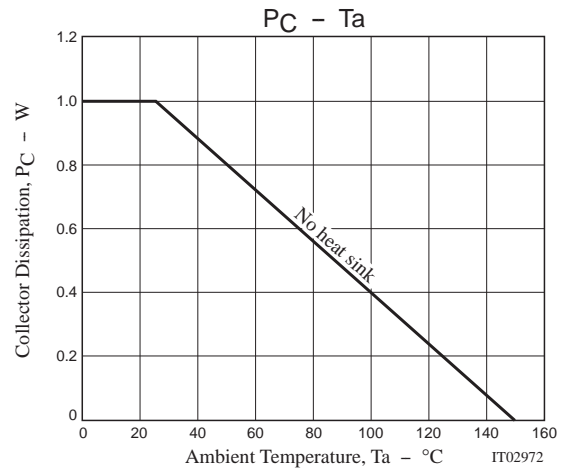
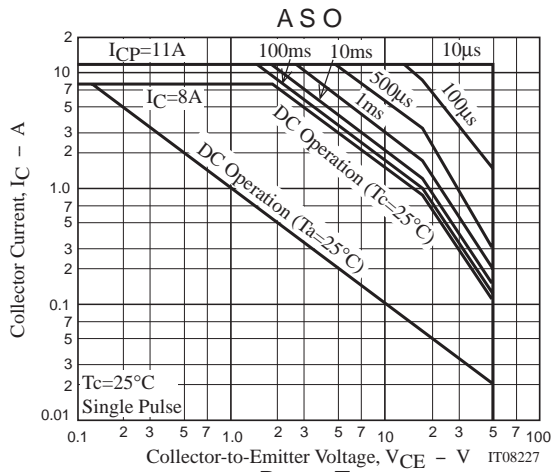
Switching Time Test Circuit



$$I_C = 20I_{B1} = -20I_{B2} = 2.5A$$

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