



SANYO Semiconductors

DATA SHEET

2SC6081 — 50V / 5A High-Speed Switching Applications

NPN Epitaxial Planar Silicon Transistor

Applications

- High-speed switching applications (switching regulator, driver circuit).

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		60	V
Collector-to-Emitter Voltage	V _{CES}		60	V
Collector-to-Emitter Voltage	V _{CEO}		50	V
Emitter-to-Base Voltage	V _{EBO}		6	V
Collector Current	I _C		5	A
Collector Current (Pulse)	I _{CP}	PW≤10μs, duty cycle≤10%	8	A
Base Current	I _B		1	A
Collector Dissipation	P _C		2	W
		T _C =25°C	20	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} =40V, I _E =0A			10	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} =4V, I _C =0A			10	μA
DC Current Gain	h _{FE1}	V _{CE} =2V, I _C =125mA	200		560	
	h _{FE2}	V _{CE} =2V, I _C =3.75A	50			

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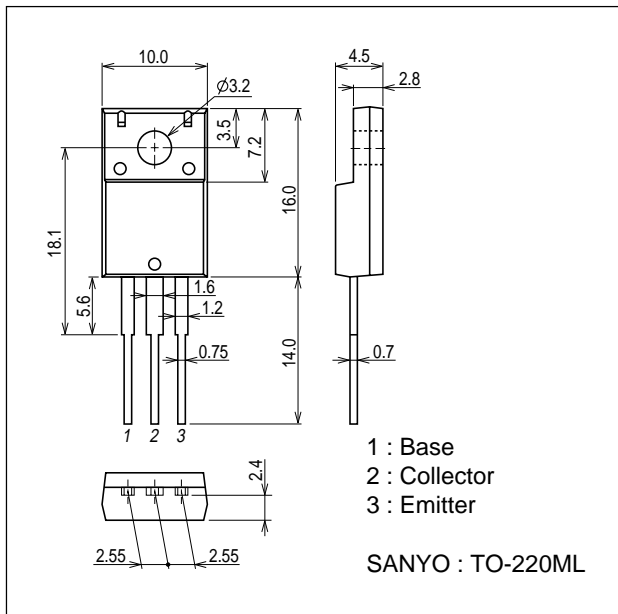
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=0.7A$		250		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		35		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2.5A, I_B=125mA$		200	400	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=2.5A, I_B=125mA$			1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0A$	60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu A, R_{BE}=0\Omega$	60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0A$	6			V
Turn-ON Time	t_{on}	See specified Test Circuit.		49		ns
Storage Time	t_{stg}	See specified Test Circuit.		600		ns
Fall Time	t_f	See specified Test Circuit.		42		ns

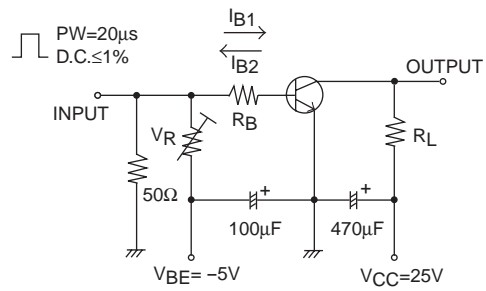
Package Dimensions

unit : mm

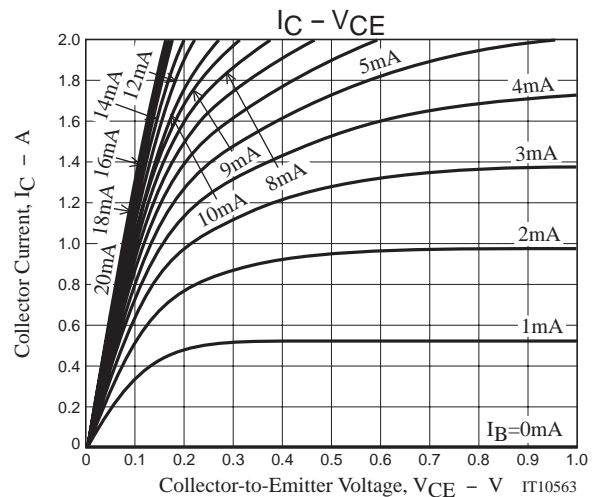
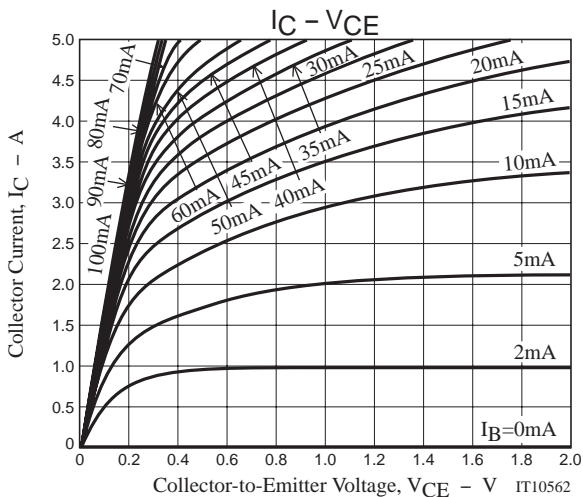
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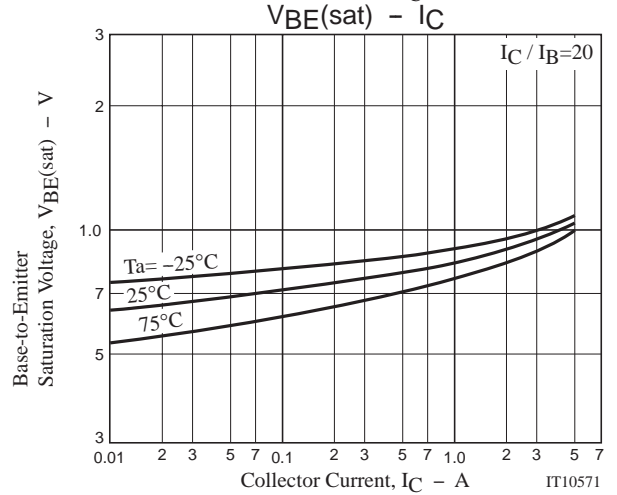
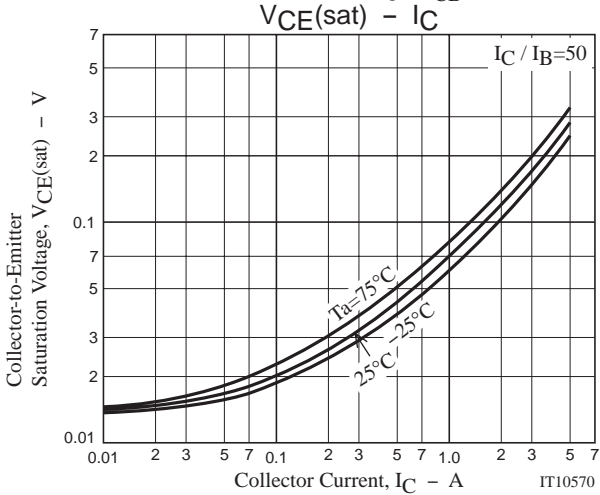
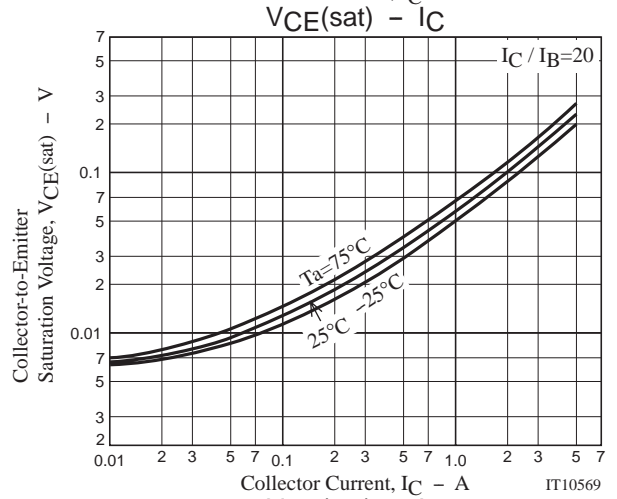
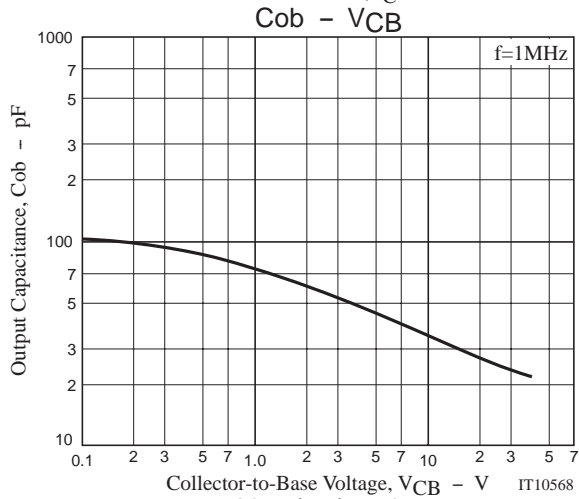
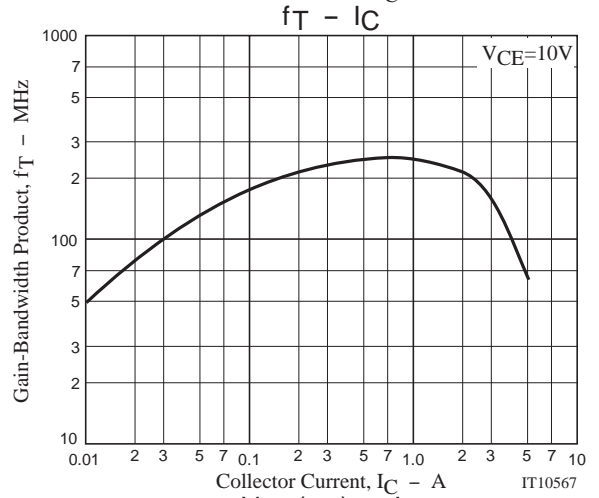
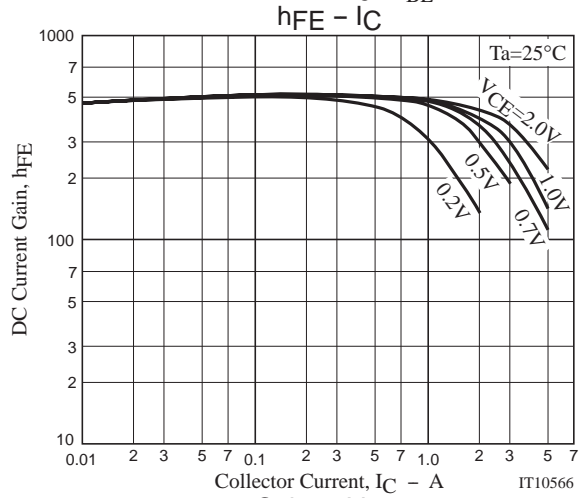
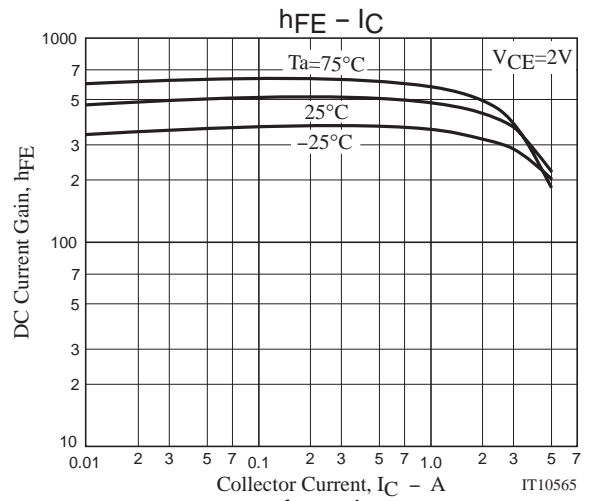
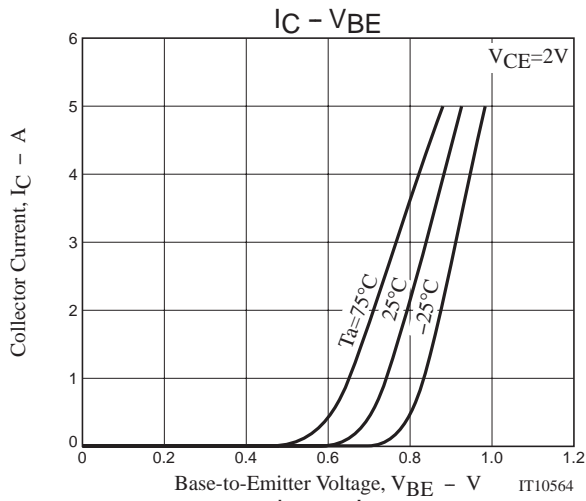
Switching Time Test Circuit

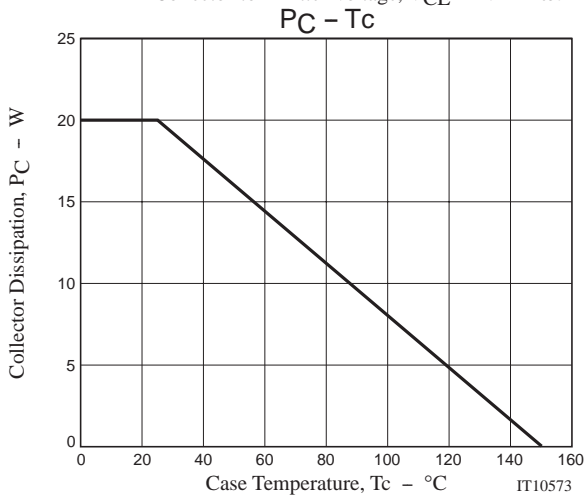
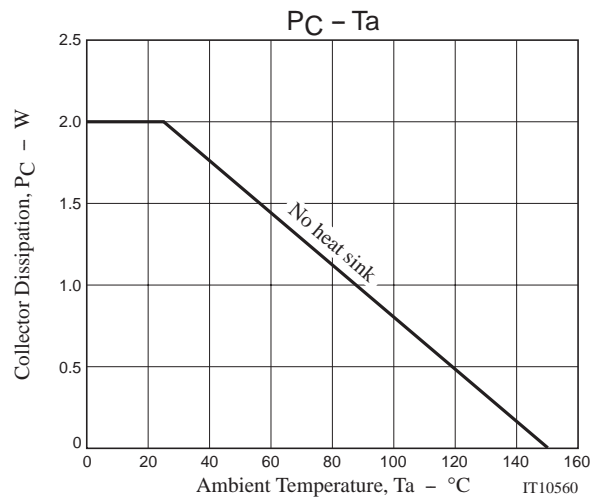
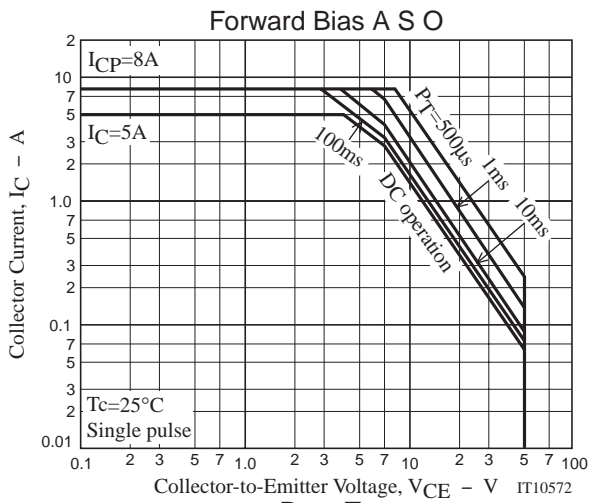


$$I_C = 20I_{B1} = -20I_{B2} = 1.5A$$



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