



2SA2181 — PNP Epitaxial Planar Silicon Transistor

50V / 15A High-Speed Switching Applications

Applications

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

Features

- Adoption of MBIT processes.
- 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 _{CBO}		-50	V
Collector-to-Emitter Voltage	V _{CEO}		-50	V
Emitter-to-Base Voltage	V _{EBO}		-6	V
Collector Current	I _C		-15	A
Collector Current (Pulse)	I _{CP}		-20	A
Base Current	I _B		-3	A
Collector Dissipation	P _C		2	W
		T _C =25°C	25	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 =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 =-330mA	200		500	
	h _{FE2}	V _{CE} =-2V, I _C =-10A	50			
Gain-Bandwidth Product	f _T	V _{CE} =-10V, I _C =-700mA		120		MHz
Output Capacitance	C _{ob}	V _{CB} =-10V, f=1MHz		140		pF

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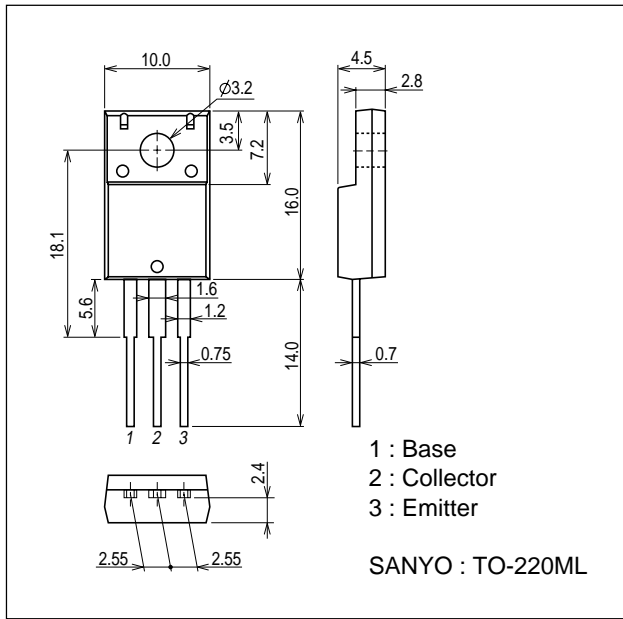
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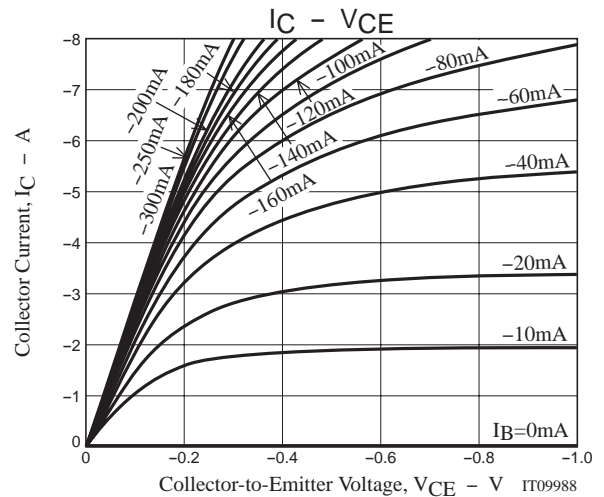
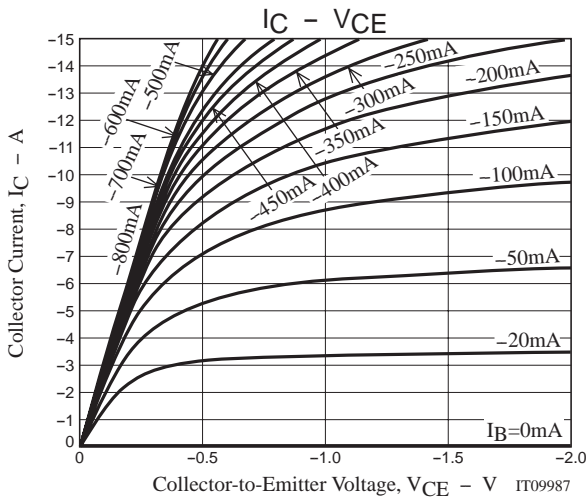
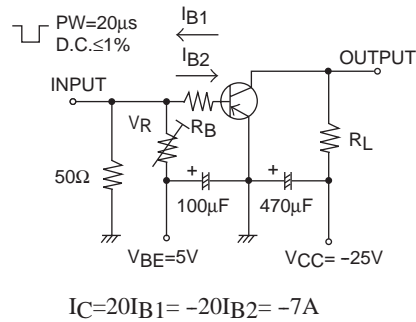
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -7.5A, I_B = -375mA$		-250	-500	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -7.5A, I_B = -375mA$			-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -100\mu A, I_E = 0A$	-50			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.		80		ns
Storage Time	t_{stg}	See specified Test Circuit.		300		ns
Fall Time	t_f	See specified Test Circuit.		45		ns

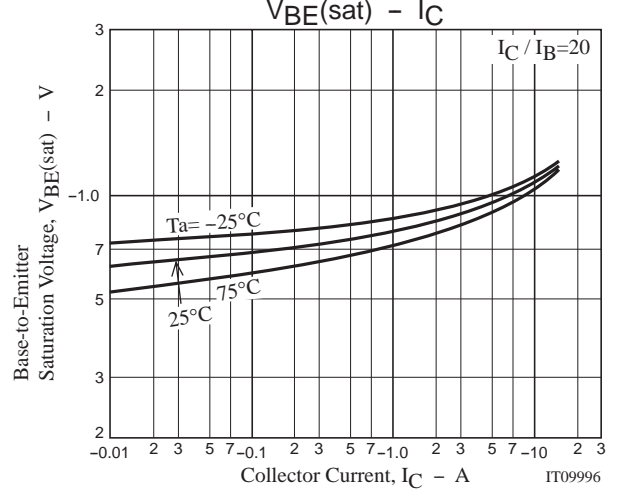
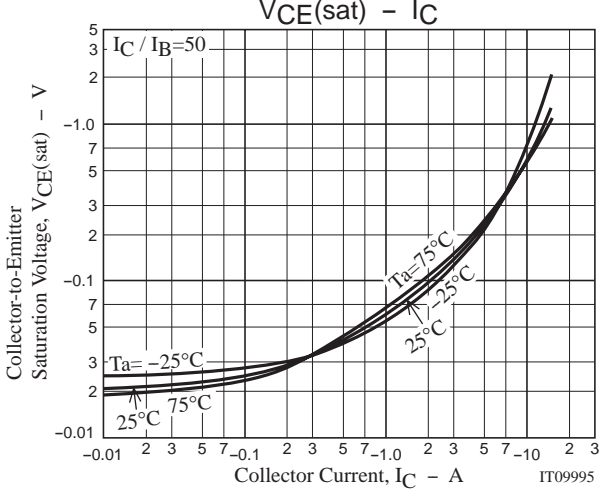
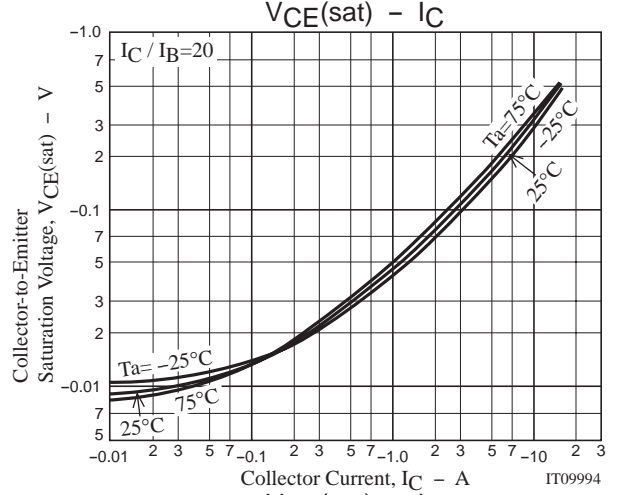
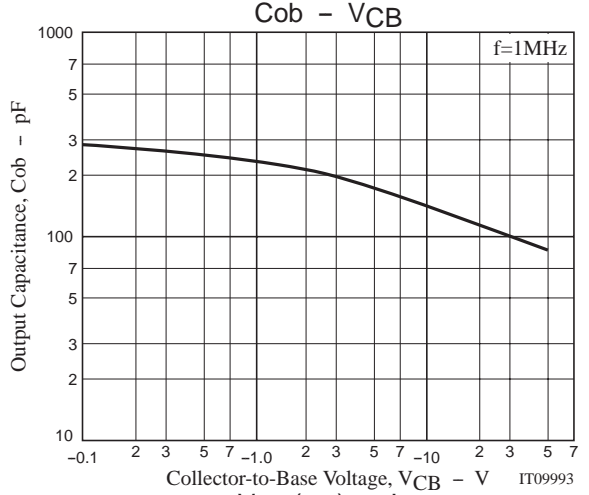
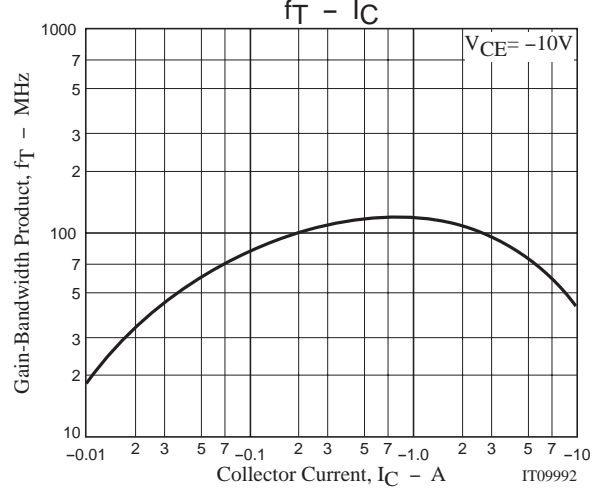
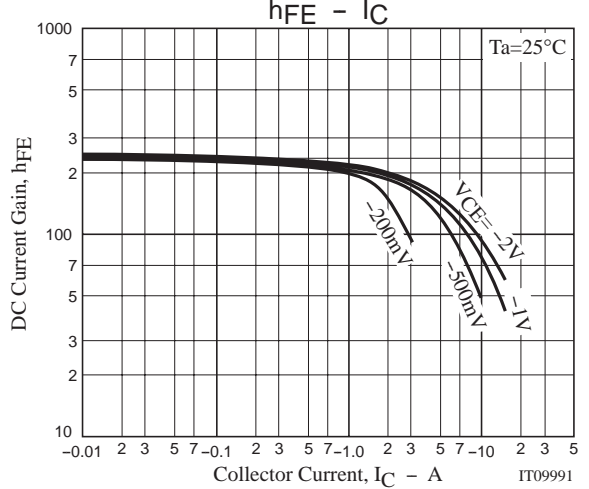
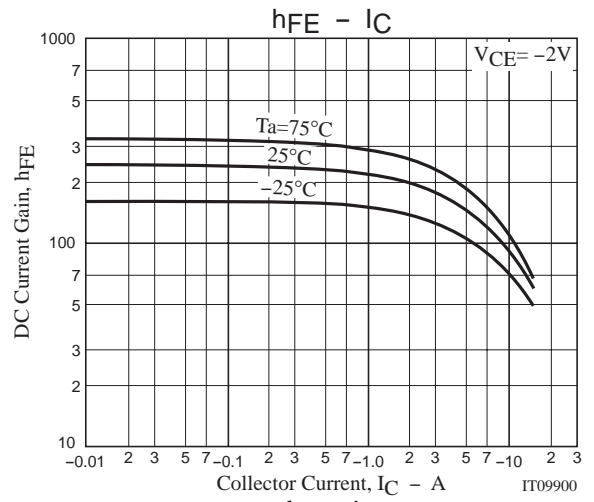
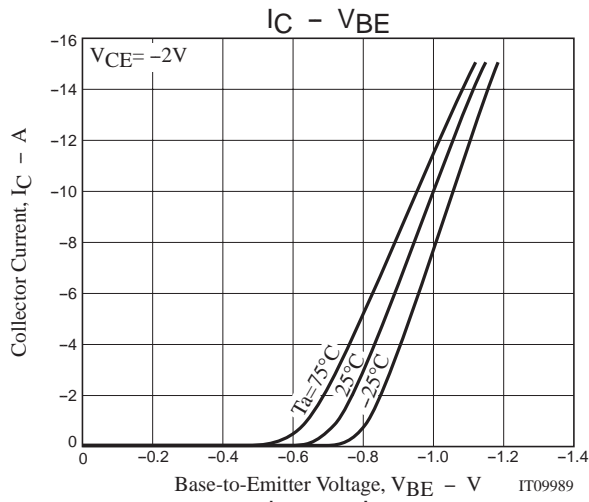
Package Dimensions

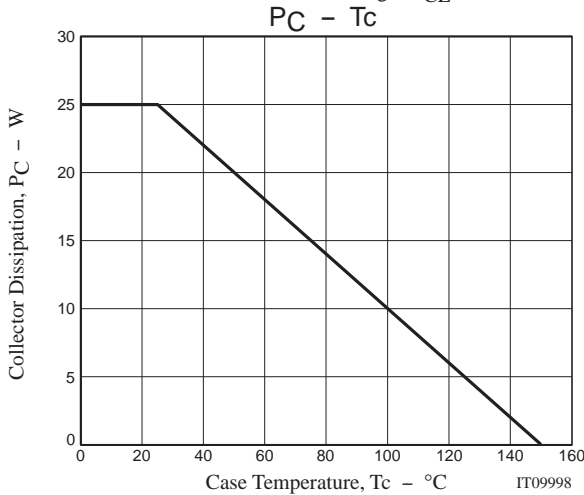
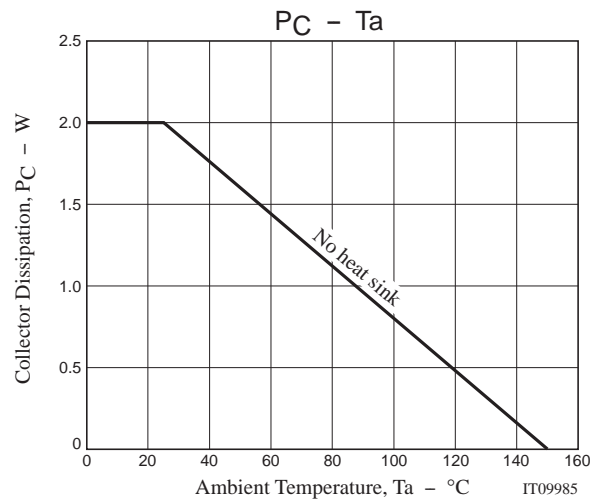
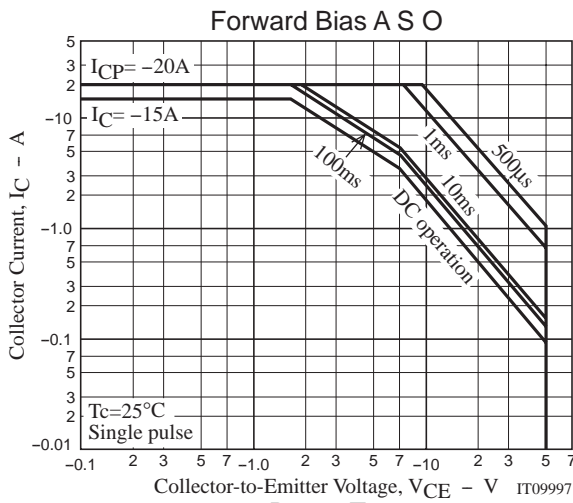
unit : mm
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Switching Time Test Circuit







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