Ordering number : ENA0199

SANYO Semiconductors
DATA SHEET

2SA2179 — PNP Epitaxial Planar Silicon Transistor
50V / 13A High-Speed Switching Applications

Applications

- High-speed switching applications (switching regulators, drive 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		-13	A
Collector Current (Pulse)	I_{CP}		-15	A
Base Current	I_B		-2	A
Collector Dissipation	P_C		2	W
		Tc=25°C	25	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-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	$h_{FE}1$	V_{CE}=-2V, I_C=-270mA	200		500	
	$h_{FE}2$	V_{CE}=-2V, I_C=-8.1A	50			
Gain-Bandwidth Product	f_T	V_{CE}=-5V, I_C=-700mA		110		MHz
Output Capacitance	Cob	V_{CB}=-10V, f=1MHz		100		pF

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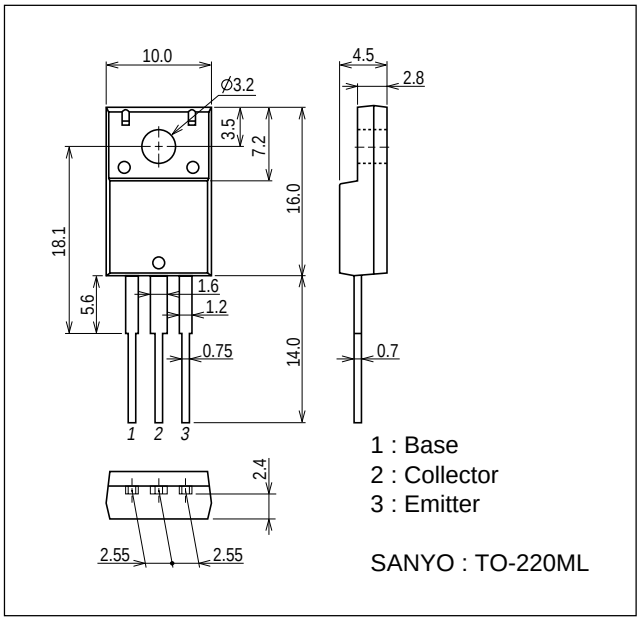
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=–6A, I_B=–300mA		–250	–500	V
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=–6A, I_B=–300mA			–1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=–100μA, I_E=0A	–50			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=–1mA, R_{BE}=∞	–50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=–100μA, I_C=0A	–6			V
Turn-ON Time	t_{on}	See specified Test Circuit.		80		ns
Storage Time	t_{stg}	See specified Test Circuit.		265		ns
Fall Time	t_f	See specified Test Circuit.		43		ns

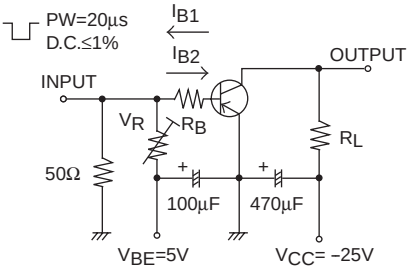
Package Dimensions

unit : mm

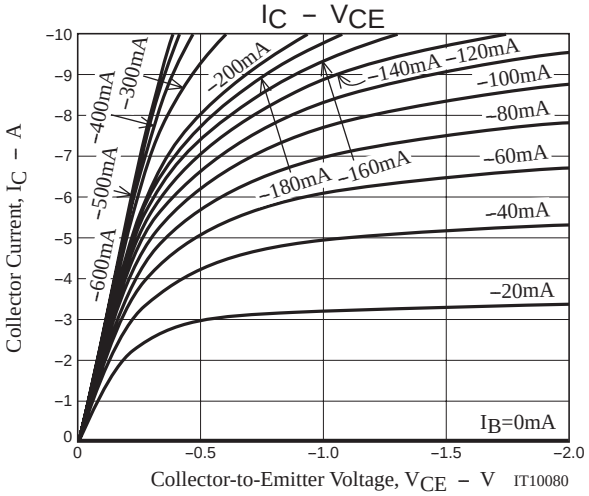
7508-002

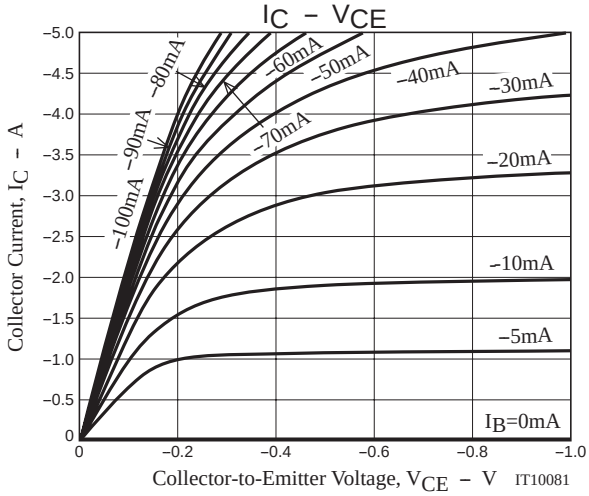


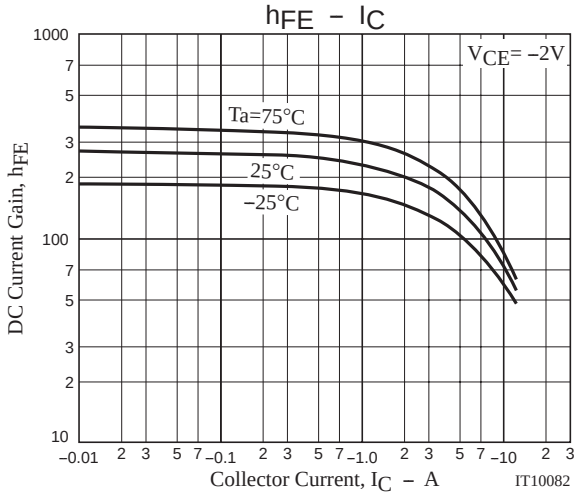
Switching Time Test Circuit

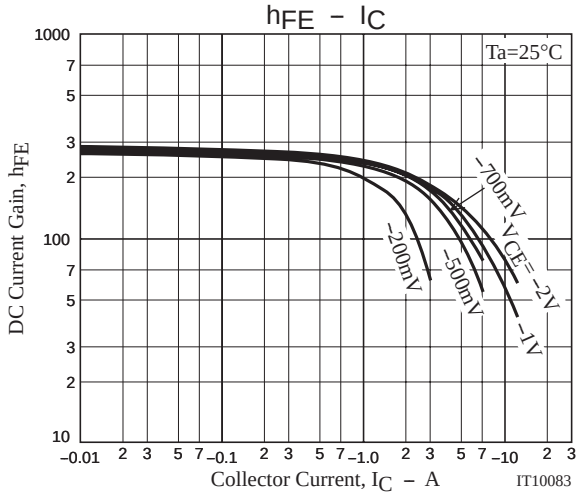


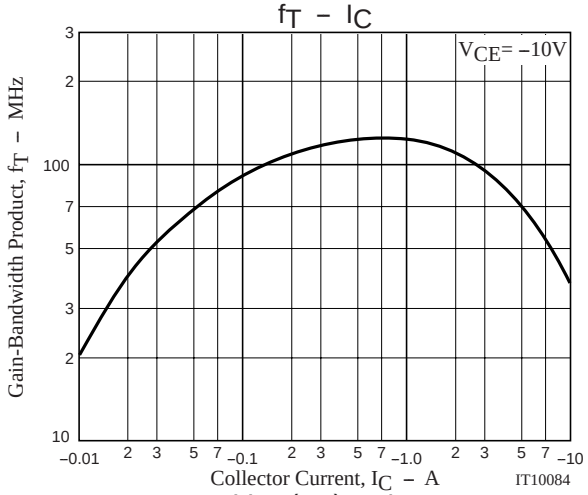
I_C=20I_{B1}= –20I_{B2}= –6.7A

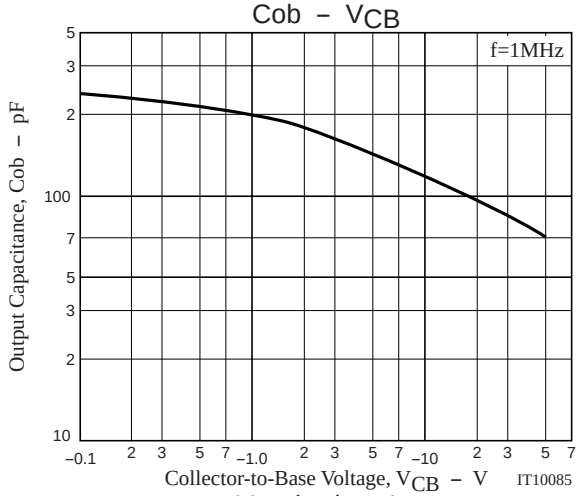


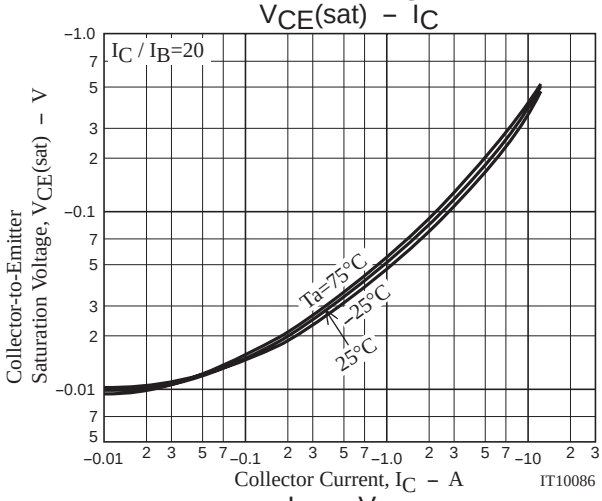


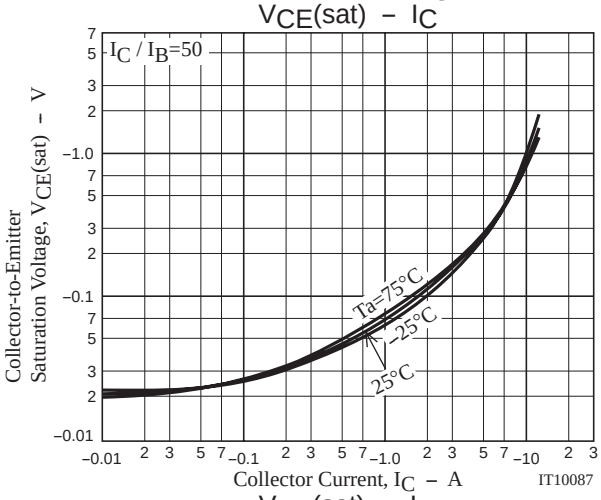

hFE – IC
VCE= –2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT10082

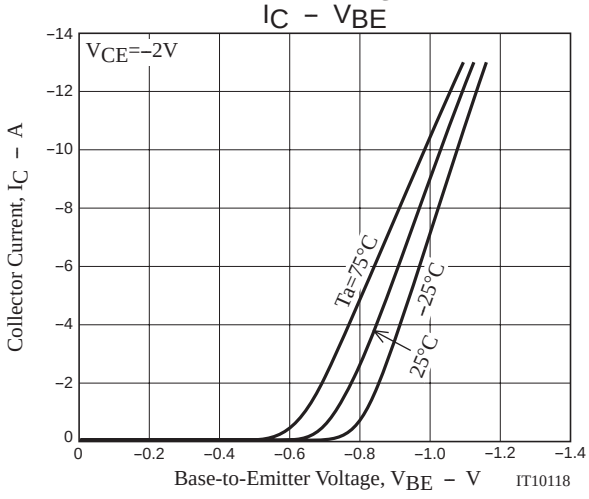

hFE – IC
Ta=25°C
–700mV
VCE= –2V
–200mV
–500mV
–1V
DC Current Gain, hFE
Collector Current, IC – A
IT10083

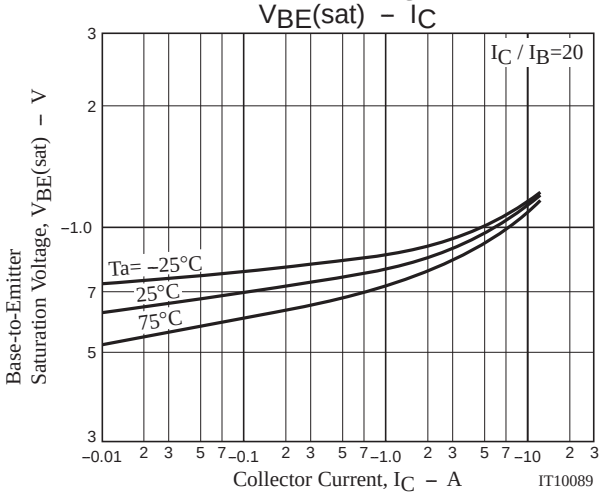

fT – IC
VCE= –10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT10084


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT10085


VCE(sat) – IC
IC / IB=20
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT10086


VCE(sat) – IC
IC / IB=50
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT10087


IC – VBE
VCE=–2V
Ta=75°C
–25°C
25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT10118


VBE(sat) – IC
IC / IB=20
Ta= –25°C
25°C
75°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT10089