



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## 50A02CH — PNP Epitaxial Planar Silicon Transistor

# Low-Frequency General-Purpose Amplifier Applications

### Applications

- Low-frequency Amplifier, high-speed switching, small motor drive, muting circuit

### Features

- High collector current capability
- Low collector-to-emitter saturation voltage (resistance) :  $R_{CE(sat)} \text{ typ}=210\text{m}\Omega$  [ $I_C=0.5\text{A}$ ,  $I_B=50\text{mA}$ ]
- Low ON-resistance ( $R_{on}$ )

### Specifications

#### Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		-50	V
Collector-to-Emitter Voltage	$V_{CEO}$		-50	V
Emitter-to-Base Voltage	$V_{EBO}$		-5	V
Collector Current	$I_C$		-500	mA
Collector Current (Pulse)	$I_{CP}$		-1.0	A
Collector Dissipation	$P_C$	Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm)	700	mW
Junction Temperature	$T_j$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

#### Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-40\text{V}$ , $I_E=0\text{A}$			-100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-4\text{V}$ , $I_C=0\text{A}$			-100	nA
DC Current Gain	$h_{FE}$	$V_{CE}=-2\text{V}$ , $I_C=-10\text{mA}$	200		500	

Marking : AX

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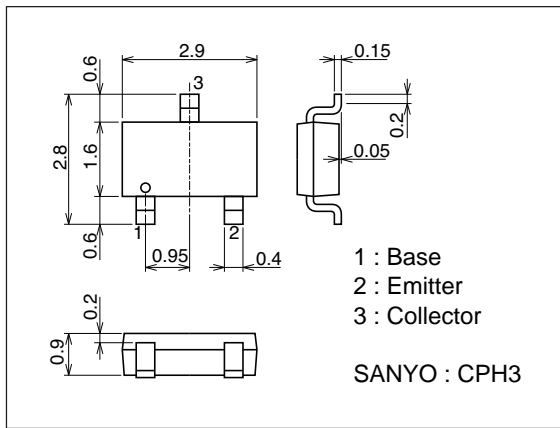
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	$f_T$	$V_{CE}=-10V, I_C=-50mA$		690		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=-10V, f=1MHz$		3.8		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-100mA, I_B=-10mA$		-60	-120	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-100mA, I_B=-10mA$		-0.9	-1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu A, I_E=0A$	-50			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1mA, R_{BE}=\infty$	-50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu A, I_C=0A$	-5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		30		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		170		ns
Fall Time	$t_f$	See specified Test Circuit.		30		ns

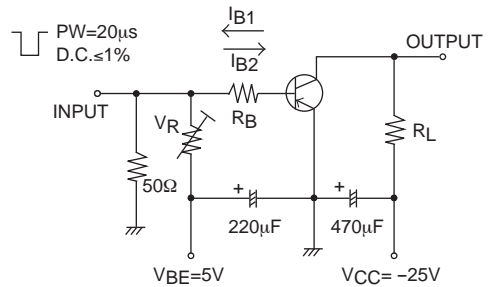
## Package Dimensions

unit : mm (typ)

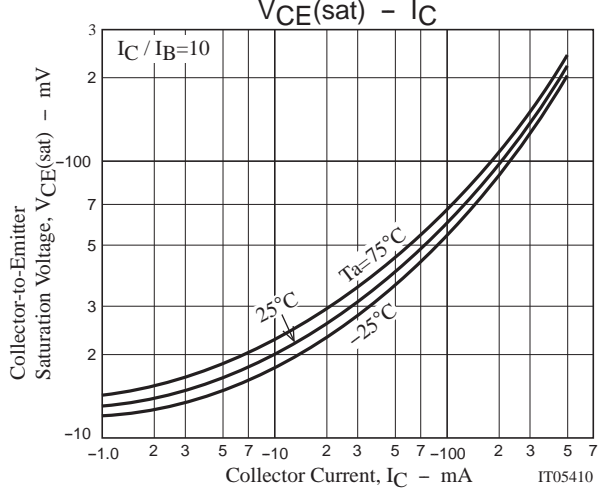
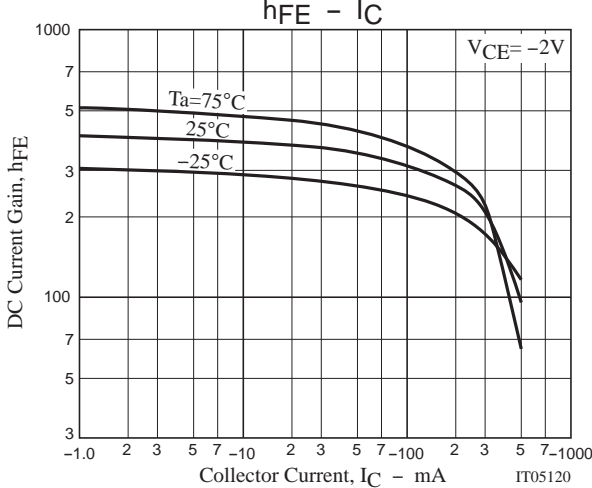
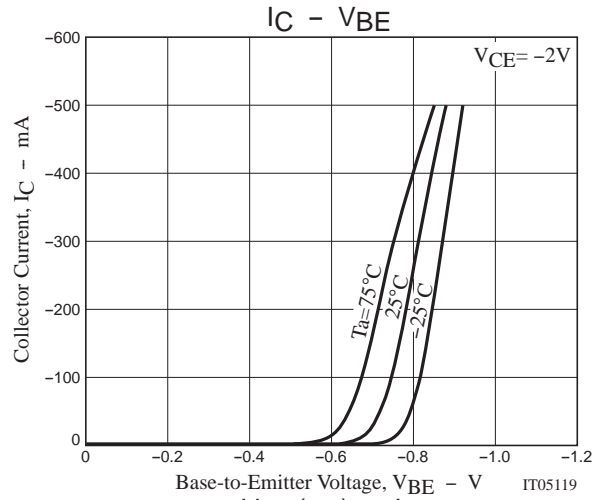
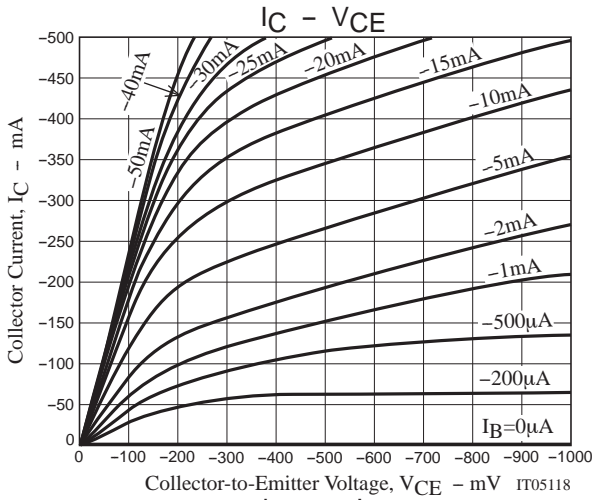
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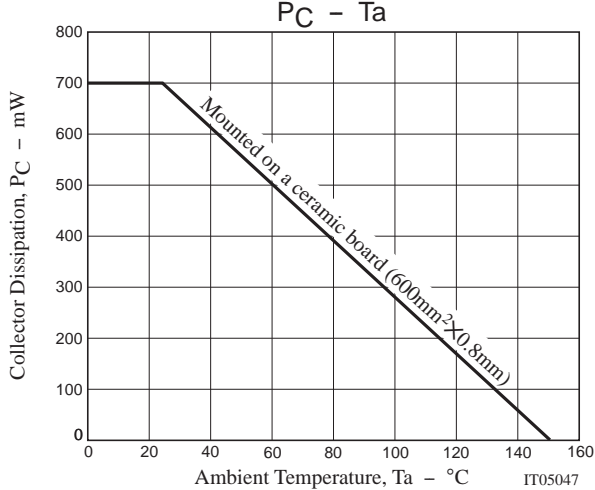
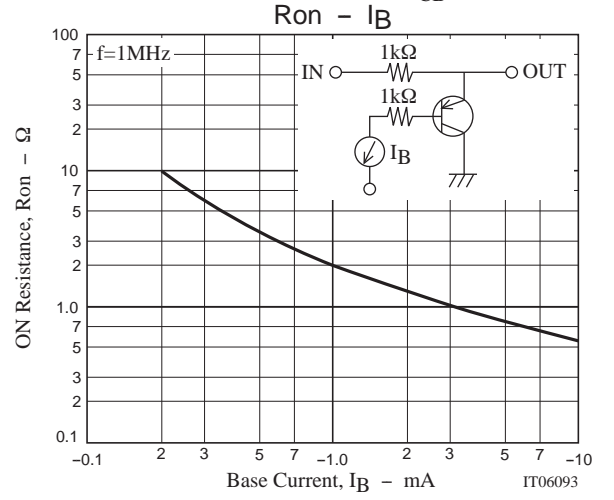
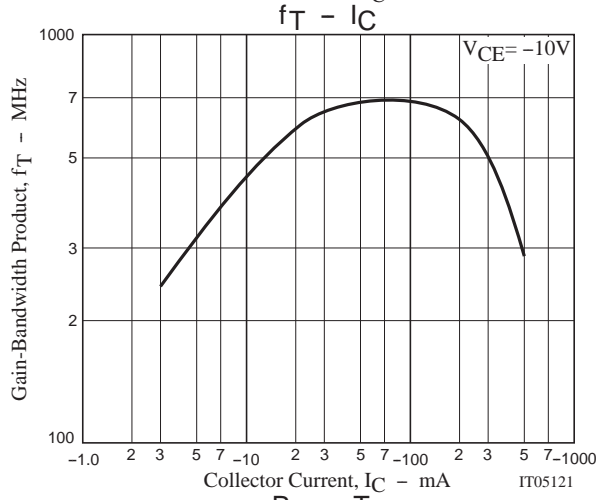
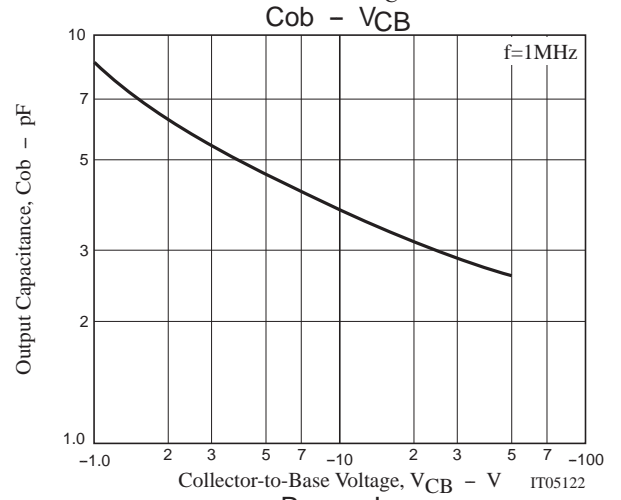
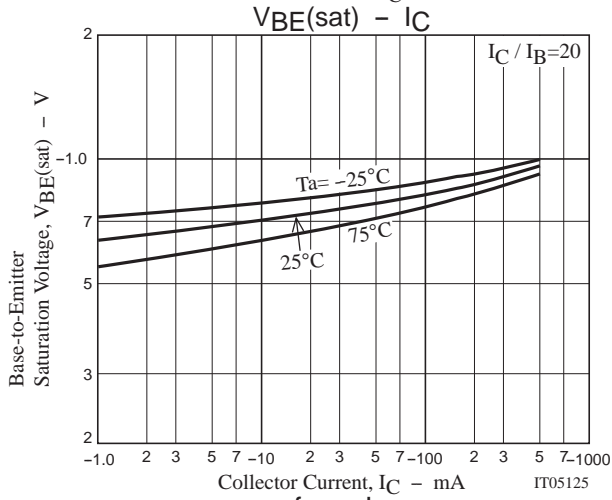
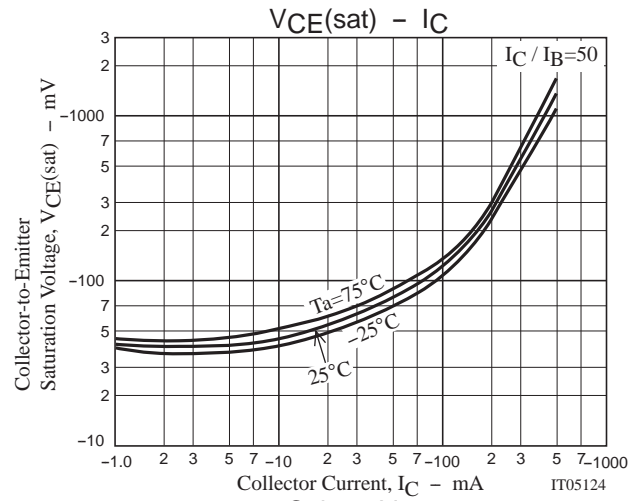
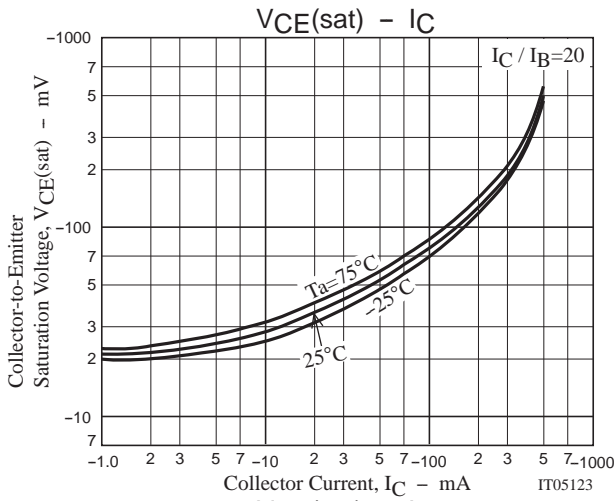
## Switching Time Test Circuit



$$I_C = 20I_{B1} = -20I_{B2} = -200mA$$



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