

UP04601

Silicon NPN epitaxial planar transistor (Tr1)

Silicon PNP epitaxial planar transistor (Tr2)

For general amplification

■ Features

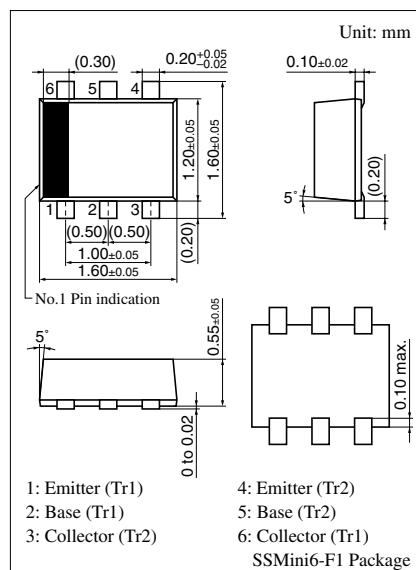
- Two elements incorporated into one package (Each transistor is separated)
- Reduction of the mounting area and assembly cost by one half

■ Basic Part Number of Element

- 2SD0601A (2SD601A) + 2SB0709A (2SB709A)

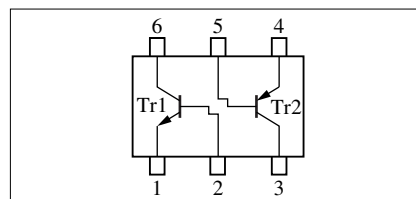
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

	Parameter	Symbol	Rating	Unit
Tr1	Collector to base voltage	V_{CBO}	60	V
	Collector to emitter voltage	V_{CEO}	50	V
	Emitter to base voltage	V_{EBO}	7	V
	Collector current	I_{C}	100	mA
	Peak collector current	I_{CP}	200	mA
Tr2	Collector to base voltage	V_{CBO}	-60	V
	Collector to emitter voltage	V_{CEO}	-50	V
	Emitter to base voltage	V_{EBO}	-7	V
	Collector current	I_{C}	-100	mA
	Peak collector current	I_{CP}	-200	mA
Total	Total power dissipation	P_{T}	125	mW
	Junction temperature	T_{j}	125	$^\circ\text{C}$
	Storage temperature	T_{stg}	-55 to +125	$^\circ\text{C}$



Marking Symbol: 5C

Internal Connection



Note) The part number in the parenthesis shows conventional part number.

■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

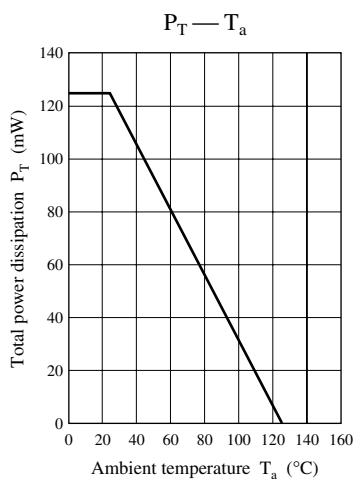
• Tr1

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector to base voltage	V_{CBO}	$I_{\text{C}} = 10\ \mu\text{A}$, $I_{\text{E}} = 0$	60			V
Collector to emitter voltage	V_{CEO}	$I_{\text{C}} = 2\ \text{mA}$, $I_{\text{B}} = 0$	50			V
Emitter to base voltage	V_{EBO}	$I_{\text{E}} = 10\ \mu\text{A}$, $I_{\text{C}} = 0$	7			V
Collector cutoff current	I_{CBO}	$V_{\text{CB}} = 20\ \text{V}$, $I_{\text{E}} = 0$			0.1	μA
	I_{CEO}	$V_{\text{CE}} = 10\ \text{V}$, $I_{\text{B}} = 0$			100	
Forward current transfer ratio	h_{FE}	$V_{\text{CE}} = 10\ \text{V}$, $I_{\text{C}} = 2\ \text{mA}$	180		390	—
Collector to emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = 100\ \text{mA}$, $I_{\text{B}} = 10\ \text{mA}$		0.1	0.3	V
Collector output capacitance	C_{ob}	$V_{\text{CB}} = 10\ \text{V}$, $I_{\text{E}} = 0$, $f = 1\ \text{MHz}$		3.5		pF
Gain bandwidth product	f_{T}	$V_{\text{CB}} = 10\ \text{V}$, $I_{\text{E}} = -2\ \text{mA}$, $f = 200\ \text{MHz}$		150		MHz

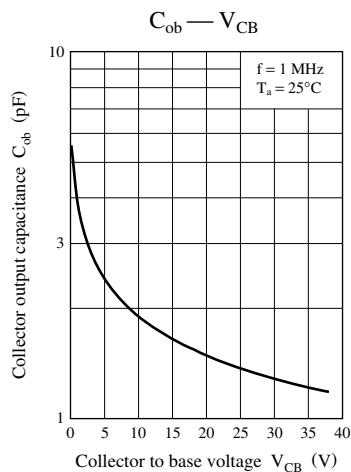
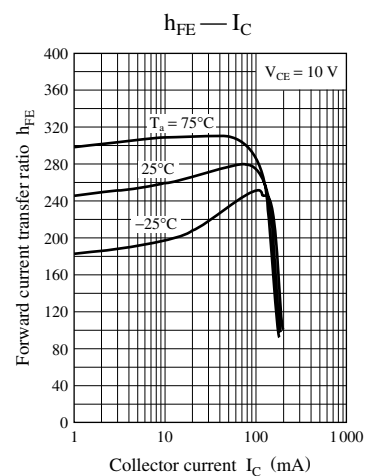
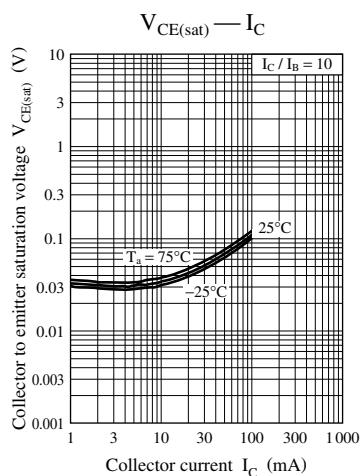
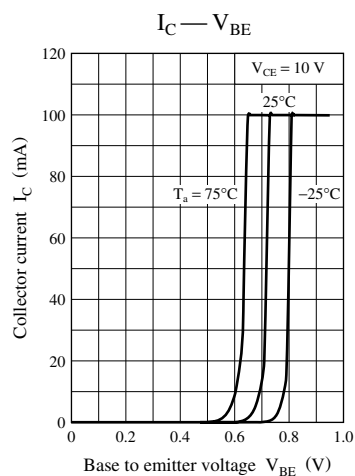
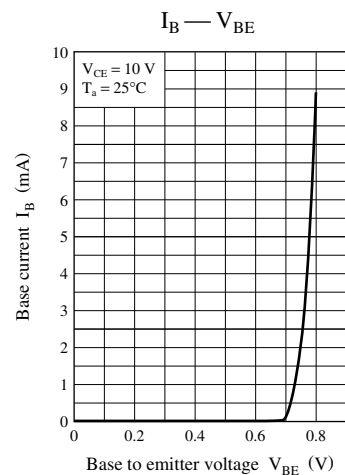
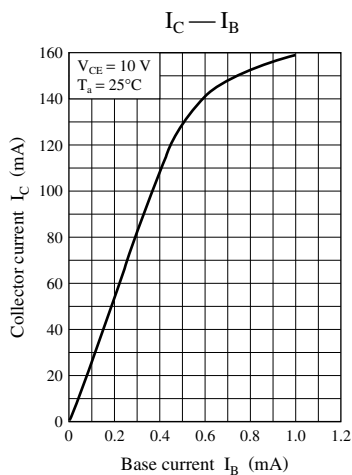
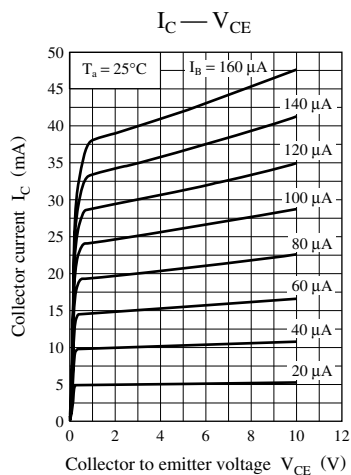
• Tr2

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector to base voltage	V_{CBO}	$I_{\text{C}} = -10\ \mu\text{A}$, $I_{\text{E}} = 0$	-60			V
Collector to emitter voltage	V_{CEO}	$I_{\text{C}} = -2\ \text{mA}$, $I_{\text{B}} = 0$	-50			V
Emitter to base voltage	V_{EBO}	$I_{\text{E}} = -10\ \mu\text{A}$, $I_{\text{C}} = 0$	-7			V
Collector cutoff current	I_{CBO}	$V_{\text{CB}} = -20\ \text{V}$, $I_{\text{E}} = 0$			-0.1	μA
	I_{CEO}	$V_{\text{CE}} = -10\ \text{V}$, $I_{\text{B}} = 0$			-100	
Forward current transfer ratio	h_{FE}	$V_{\text{CE}} = -10\ \text{V}$, $I_{\text{C}} = -5\ \text{mA}$	180		390	—
Collector to emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = -100\ \text{mA}$, $I_{\text{B}} = -10\ \text{mA}$		-0.3	-0.5	V
Collector output capacitance	C_{ob}	$V_{\text{CB}} = -10\ \text{V}$, $I_{\text{E}} = 0$, $f = 1\ \text{MHz}$		2.7		pF
Gain bandwidth product	f_{T}	$V_{\text{CB}} = -10\ \text{V}$, $I_{\text{E}} = 1\ \text{mA}$, $f = 200\ \text{MHz}$		80		MHz

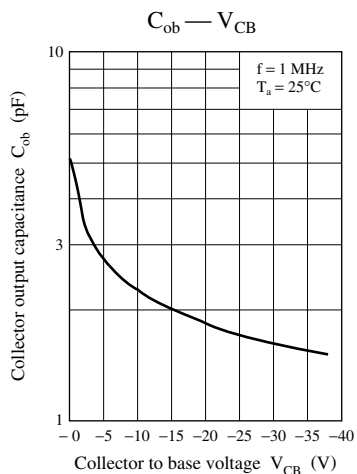
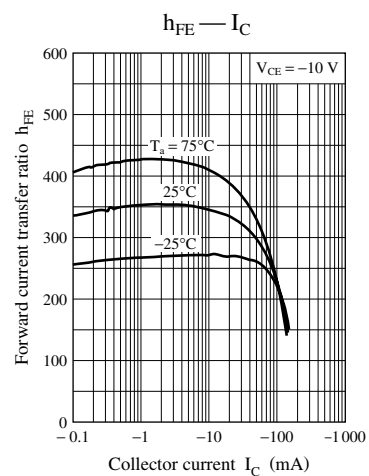
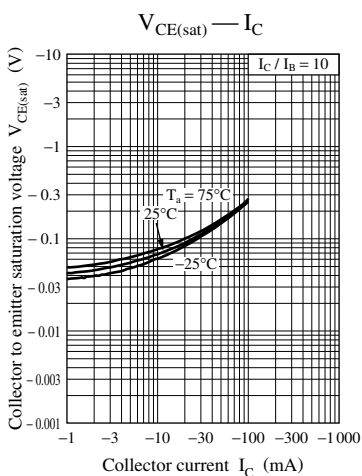
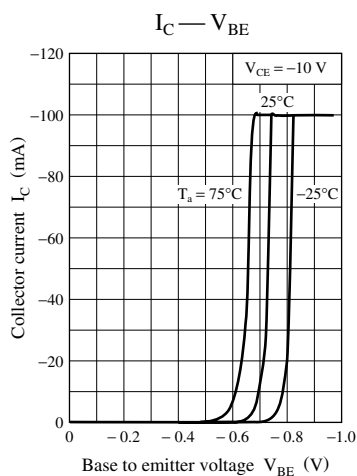
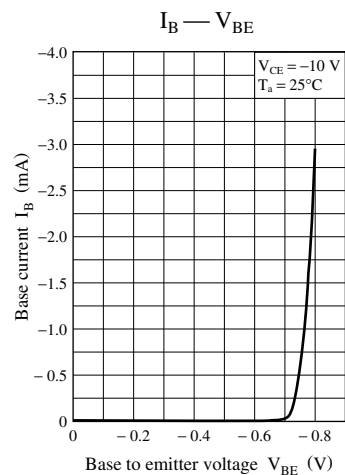
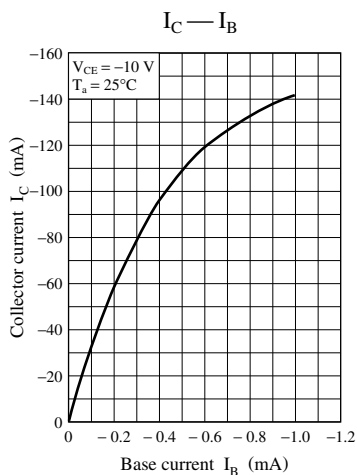
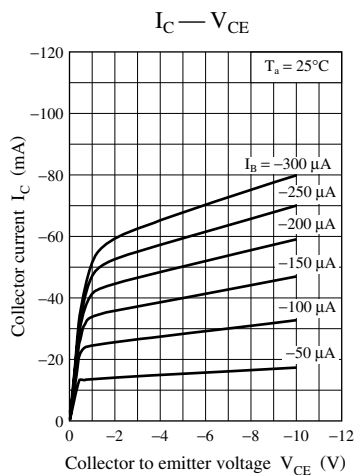
Common characteristics chart



Characteristics chart of Tr1



Characteristics chart of Tr2



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