XN04602

Silicon NPN epitaxial planar transistor (Tr1)
Silicon PNP epitaxial planar transistor (Tr2)

For general amplification

■ Features

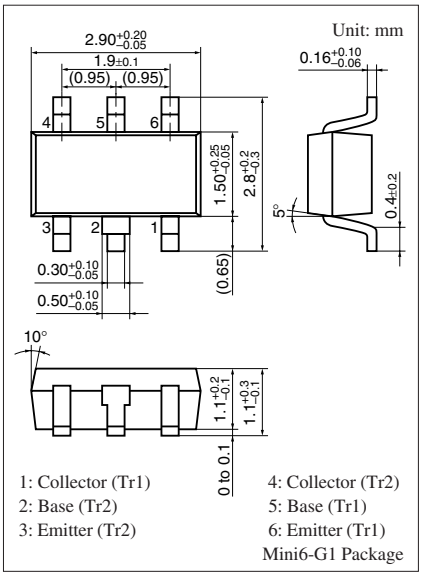
- Two elements incorporated into one package (Each transistor is separated)
- Reduction of the mounting area and assembly cost by one half

■ Basic Part Number of Element

- 2SA0719 (2SA719) + 2SC1317

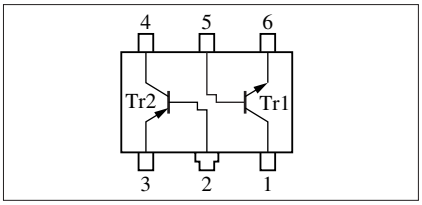
■ Absolute Maximum Ratings $T_a = 25°C$

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}	5	V
	Collector current	I_C	0.5	A
	Peak collector current	I_{CP}	1	A
Tr2	Collector to base voltage	V_{CBO}	−60	V
	Collector to emitter voltage	V_{CEO}	−50	V
	Emitter to base voltage	V_{EBO}	−5	V
	Collector current	I_C	− 0.5	A
	Peak collector current	I_{CP}	−1	A
Overall	Total power dissipation	P_T	300	mW
	Junction temperature	T_j	150	°C
	Storage temperature	T_{stg}	−55 to +150	°C



Marking Symbol: 4A

Internal Connection



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

■ Electrical Characteristics $T_a = 25°C \pm 3°C$

• Tr1

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector to base voltage	V_{CBO}	$I_C = 10\ \mu A$, $I_E = 0$	60			V
Collector to emittter voltage	V_{CEO}	$I_C = 10$ mA, $I_B = 0$	50			
Emitter to base voltage	V_{EBO}	$I_E = 10\ \mu A$, $I_C = 0$	5			V
Collector cutoff current	I_{CBO}	$V_{CB} = 20$ V, $I_E = 0$			0.1	μA
DC current gain *	h_{FE1}	$V_{CE} = 10$ V, $I_C = 150$ mA	85		340	—
	h_{FE2}	$V_{CE} = 10$ V, $I_C = 500$ mA	40			
Collector to emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 300$ mA, $I_B = 30$ mA		0.35	0.6	V
Collector output capacitance	C_{ob}	$V_{CB} = 10$ V, $I_E = 0$, f = 1 MHz		6	15	pF
Gain bandwidth product	f_T	$V_{CB} = 10$ V, $I_E = -50$ mA, f = 200 MHz		200		MHz

Note) ∗: Pulse measurement

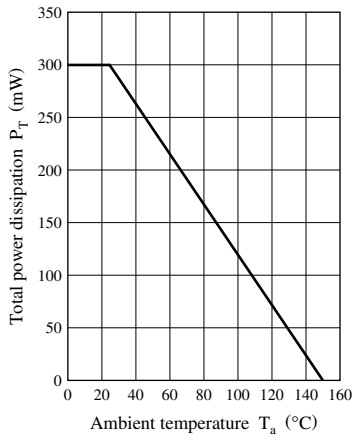
• Tr2

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector to base voltage	V_{CBO}	$I_C = -10\ \mu A$, $I_E = 0$	−60			V
Collector to emittter voltage	V_{CEO}	$I_C = -10$ mA, $I_B = 0$	−50			
Emitter to base voltage	V_{EBO}	$I_E = -10\ \mu A$, $I_C = 0$	−5			V
Collector cutoff current	I_{CBO}	$V_{CB} = -20$ V, $I_E = 0$			− 0.1	μA
DC current gain *	h_{FE1}	$V_{CE} = -10$ V, $I_C = -150$ mA	85		340	—
	h_{FE2}	$V_{CE} = -10$ V, $I_C = -500$ mA	40			
Collector to emitter saturation voltage *	$V_{CE(sat)}$	$I_C = -300$ mA, $I_B = -30$ mA		− 0.35	− 0.6	V
Base to emitter saturation voltage *	$V_{BE(sat)}$	$I_C = -300$ mA, $I_B = -30$ mA		−1.1	−1.5	V
Collector output capacitance	C_{ob}	$V_{CB} = -10$ V, $I_E = 0$, f = 1 MHz		6	15	pF
Gain bandwidth product	f_T	$V_{CB} = -10$ V, $I_E = 50$ mA, f = 200 MHz		200		MHz

Note) ∗: Pulse measurement

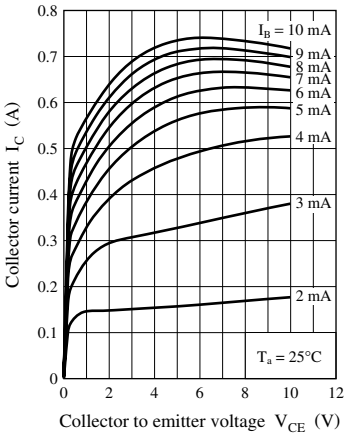
Common characteristics chart

P_T — T_a

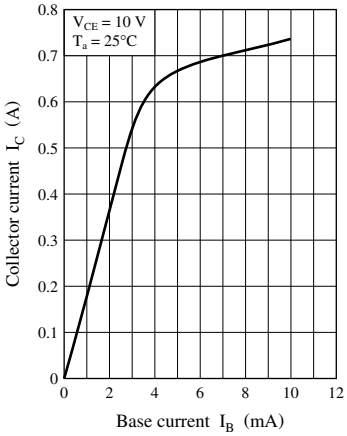


Characteristics charts of Tr1

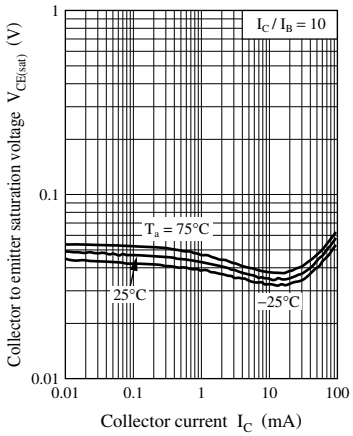
I_C — V_{CE}



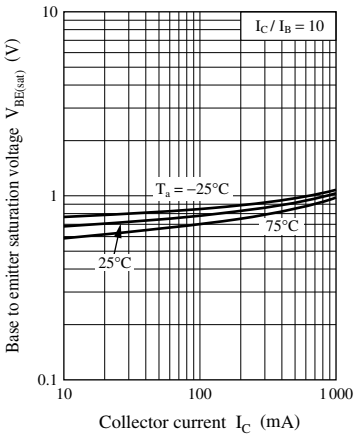
I_C — I_B



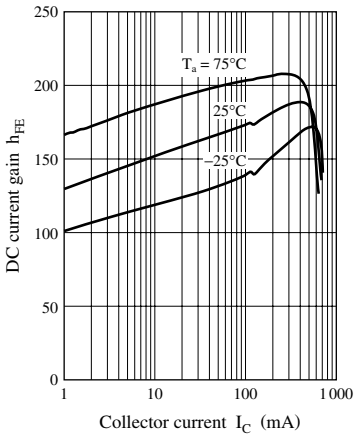
$V_{CE(sat)}$ — I_C



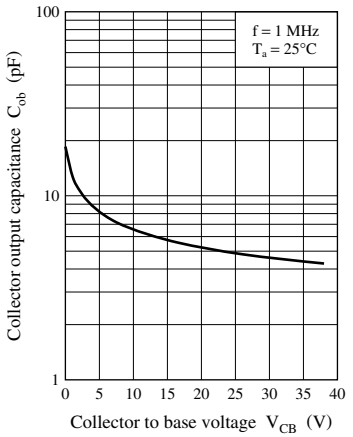
$V_{BE(sat)}$ — I_C



h_{FE} — I_C

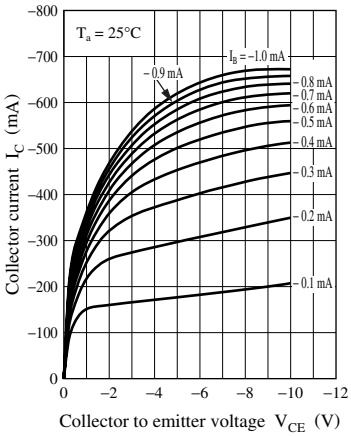


C_{ob} — V_{CB}

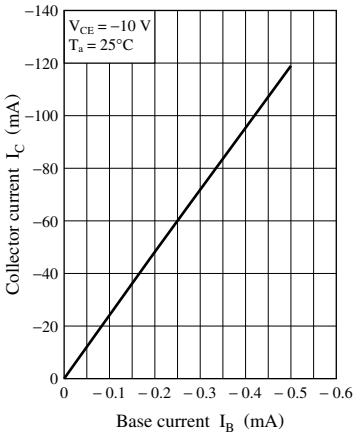


Characteristics charts of Tr2

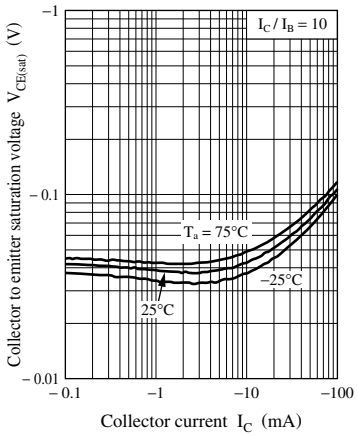
I_C — V_{CE}



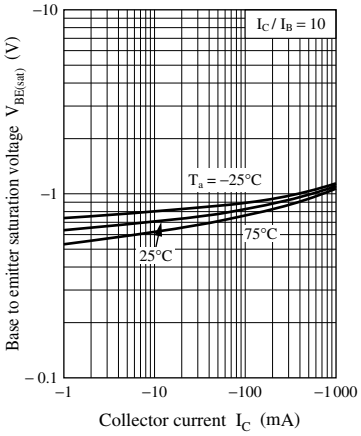
I_C — I_B



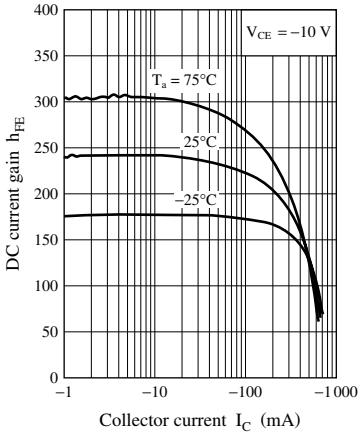
$V_{CE(sat)}$ — I_C



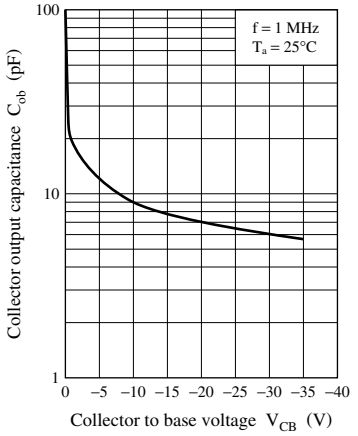
$V_{BE(sat)}$ — I_C



h_{FE} — I_C



C_{ob} — V_{CB}



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