

# DMA20403

Silicon PNP epitaxial planar type (Tr1)  
 Silicon PNP epitaxial planar type (Tr2)

For general amplification

■ Features

- High forward current transfer ratio  $h_{FE}$  with excellent linearity
- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- Contributes to miniaturization of sets, reduction of component count.
- Eco-friendly Halogen-free package

■ Basic Part Number

DSA2001 + DSA2002 (Individual)

■ Packaging

Embossed type (Thermo-compression sealing): 3000 pcs / reel (standard)

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

	Parameter	Symbol	Rating	Unit
Tr1	Collector-base voltage (Emitter open)	$V_{CBO}$	-60	V
	Collector-emitter voltage (Base open)	$V_{CEO}$	-50	V
	Emitter-base voltage (Collector open)	$V_{EBO}$	-7	V
	Collector current	$I_C$	-100	mA
	Peak collector current	$I_{CP}$	-200	A
Tr2	Collector-base voltage (Emitter open)	$V_{CBO}$	-60	V
	Collector-emitter voltage (Base open)	$V_{CEO}$	-50	V
	Emitter-base voltage (Collector open)	$V_{EBO}$	-5	V
	Collector current	$I_C$	-500	mA
	Peak collector current	$I_{CP}$	-1	A
Overall	Total power dissipation	$P_T$	300	mW
	Junction temperature	$T_j$	150	$^\circ\text{C}$
	Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

■ Package

• Code

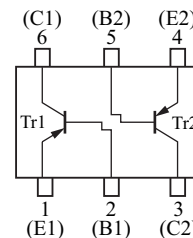
Mini6-G4-B

• Pin Name

- |                    |                    |
|--------------------|--------------------|
| 1: Emitter (Tr1)   | 4: Emitter (Tr2)   |
| 2: Base (Tr1)      | 5: Base (Tr2)      |
| 3: Collector (Tr2) | 6: Collector (Tr1) |

■ Marking Symbol: B9

■ Internal Connection



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

• Tr1

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = -10 \mu\text{A}, I_E = 0$	-60			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = -2 \text{mA}, I_B = 0$	-50			V
Emitter-base voltage (Collector open)	$V_{EBO}$	$I_E = -10 \mu\text{A}, I_C = 0$	-7			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = -20 \text{V}, I_E = 0$			-0.1	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = -10 \text{V}, I_B = 0$			-100	$\mu\text{A}$
Forward current transfer ratio	$h_{FE}$	$V_{CE} = -10 \text{V}, I_C = -2 \text{mA}$	210		460	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -100 \text{mA}, I_B = -10 \text{mA}$		-0.2	-0.5	V
Transition frequency	$f_T$	$V_{CB} = -10 \text{V}, I_E = -2 \text{mA}$		150		MHz
Collector output capacitance (Common base, input open circuited)	$C_{ob}$	$V_{CB} = -10 \text{V}, I_E = 0, f = 1 \text{MHz}$		2		pF

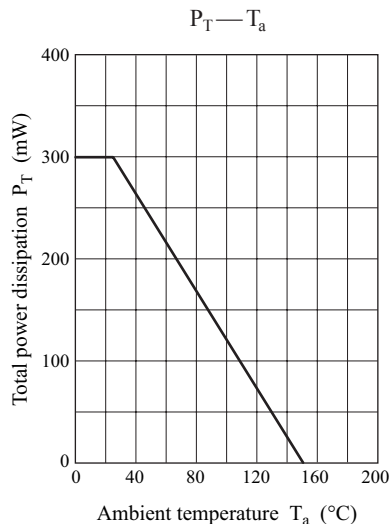
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

• Tr2

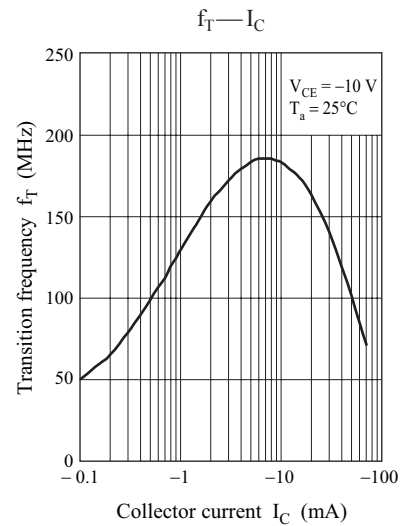
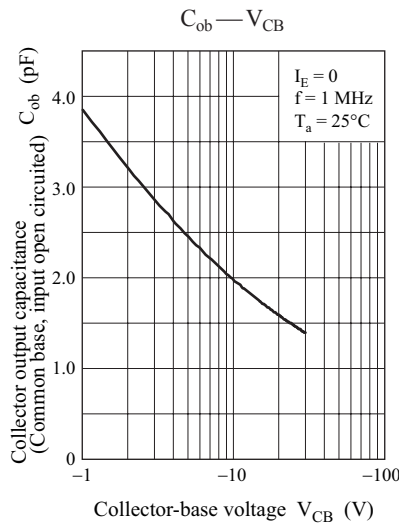
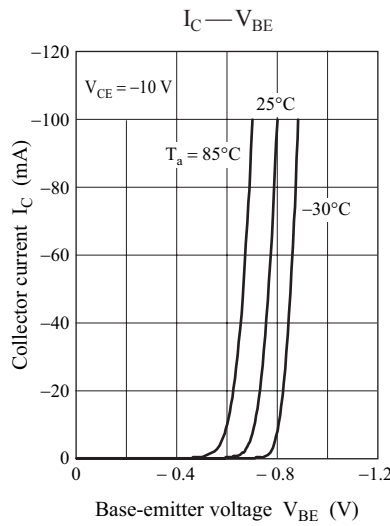
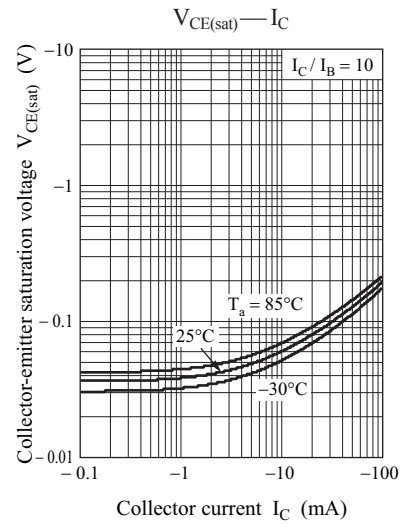
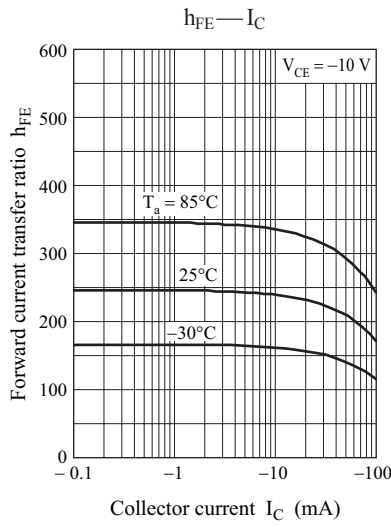
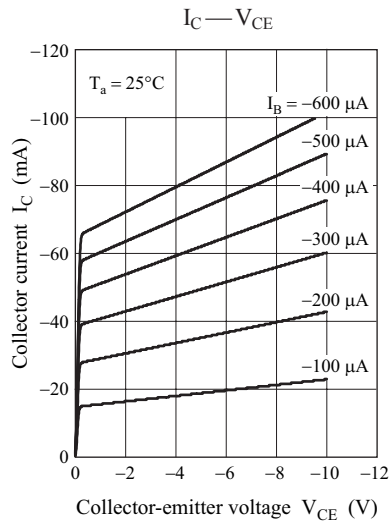
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = -10 \mu\text{A}, I_E = 0$	-60			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = -2 \text{mA}, I_B = 0$	-50			V
Emitter-base voltage (Collector open)	$V_{EBO}$	$I_E = -10 \mu\text{A}, I_C = 0$	-5			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = -20 \text{V}, I_E = 0$			-0.1	$\mu\text{A}$
Forward current transfer ratio	$h_{FE1}$	$V_{CE} = -10 \text{V}, I_C = -150 \text{mA}$	120		340	—
	$h_{FE2}$	$V_{CE} = -10 \text{V}, I_C = -500 \text{mA}$	40			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -300 \text{mA}, I_B = -30 \text{mA}$		-0.2	-0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -300 \text{mA}, I_B = -30 \text{mA}$		-0.9	-1.5	V
Transition frequency	$f_T$	$V_{CE} = -10 \text{V}, I_C = -50 \text{mA}$		130		MHz
Collector output capacitance (Common base, input open circuited)	$C_{ob}$	$V_{CB} = -10 \text{V}, I_E = 0, f = 1 \text{MHz}$		7.3	15	pF

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

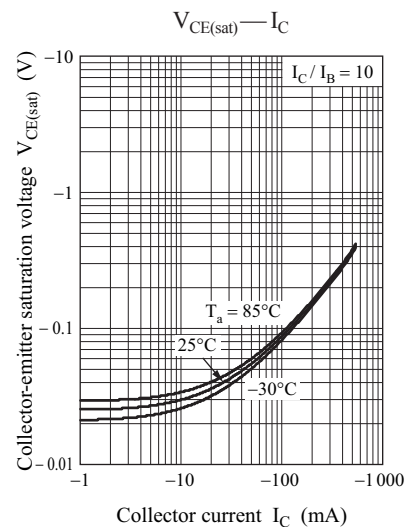
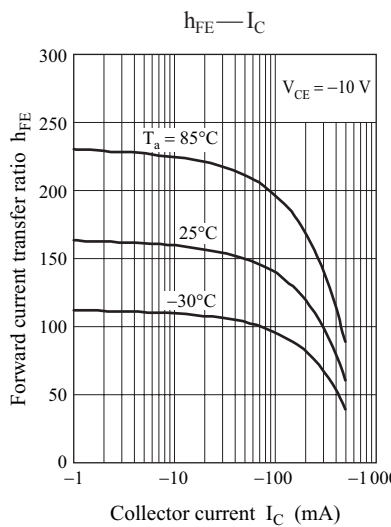
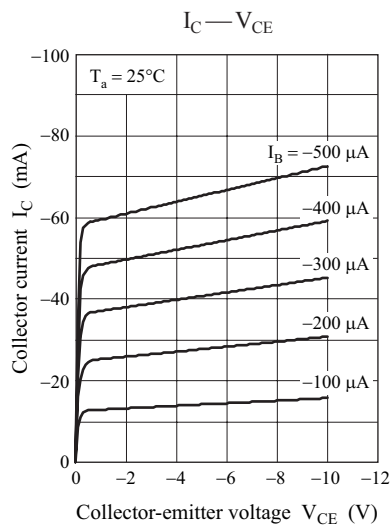
Common characteristics chart

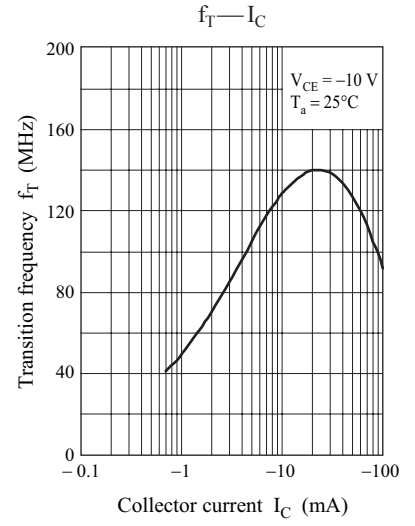
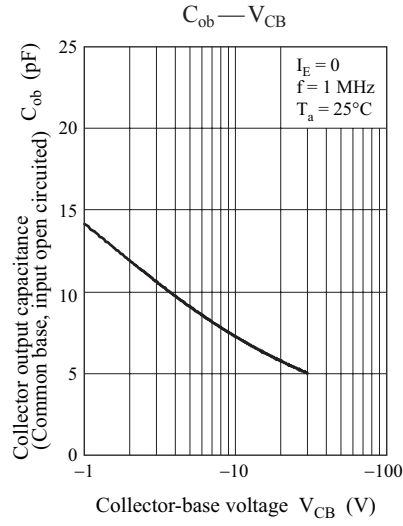
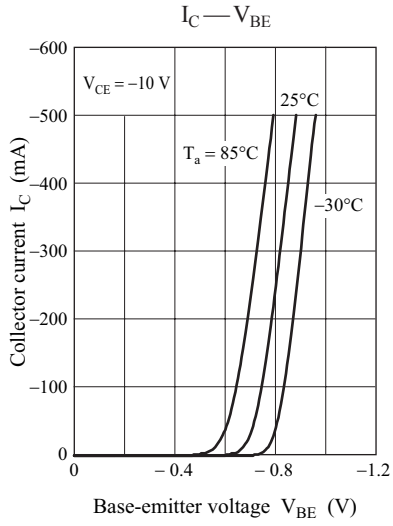


Characteristics charts of Tr1



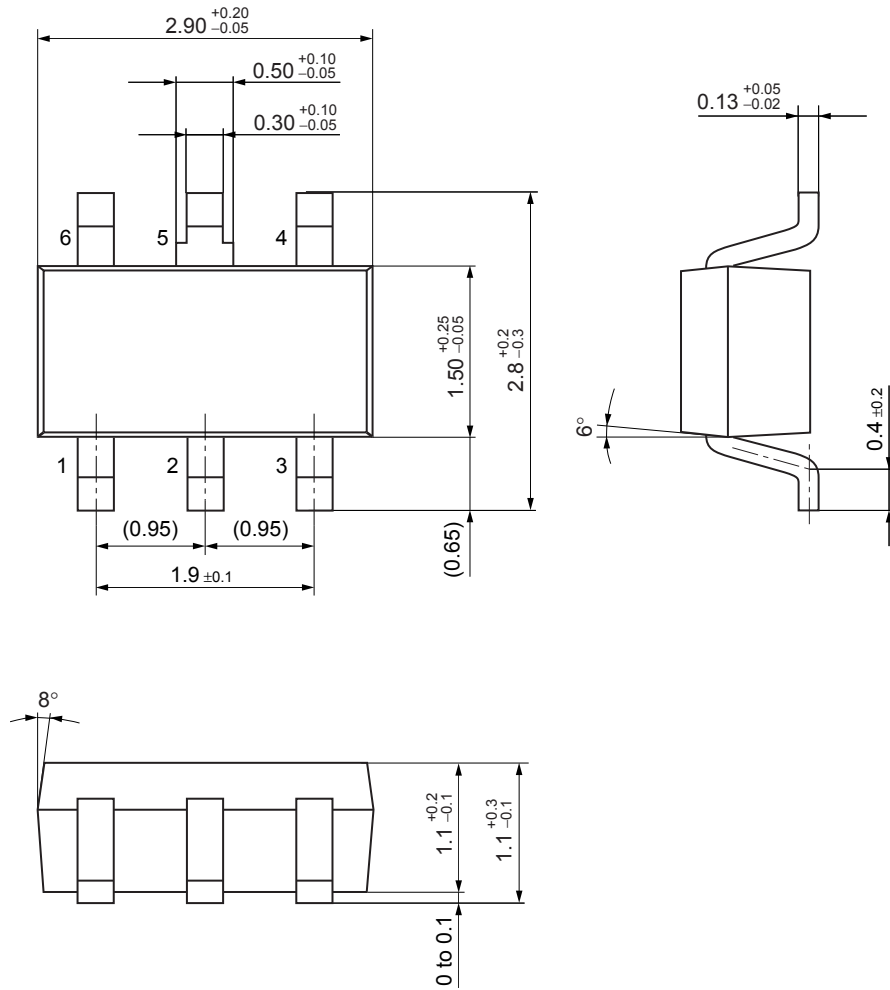
Characteristics charts of Tr2





Mini6-G4-B

Unit: mm



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