

DMG20401

Silicon NPN 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 $V_{CE(sat)}$
- Halogen-free / RoHS compliant
(EU RoHS / UL-94 V-0 / MSL: Level 1 compliant)

■ Marking Symbol: A9

■ Basic Part Number

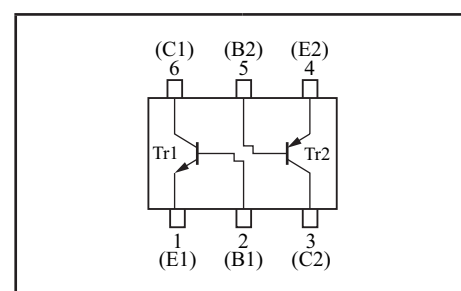
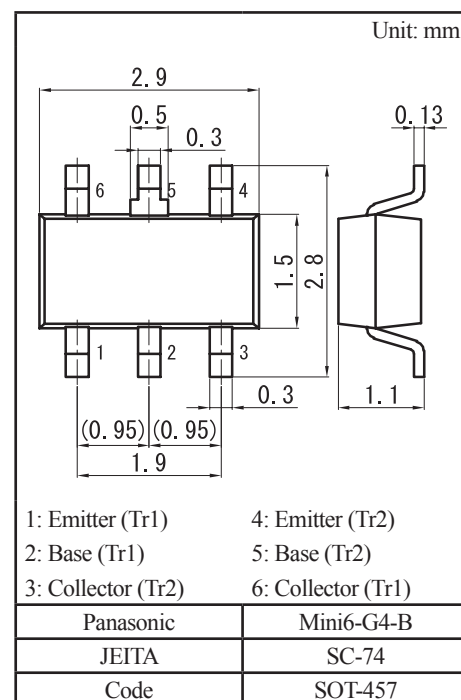
DSC2001 + DSA2001 (Individual)

■ Packaging

DMG204010R Embossed type (Thermo-compression sealing): 3 000 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	mA
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}	-7	V
	Collector current	I_C	-100	mA
	Peak collector current	I_{CP}	-200	mA
Overall	Total power dissipation	P_T	300	mW
	Junction temperature	T_j	150	$^\circ\text{C}$
	Operating ambient temperature	T_{opr}	-40 to +85	$^\circ\text{C}$
	Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$



■ 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}	$I_{\text{C}} = 10\ \mu\text{A}, I_{\text{E}} = 0$	60			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_{\text{C}} = 2\ \text{mA}, I_{\text{B}} = 0$	50			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_{\text{E}} = 10\ \mu\text{A}, I_{\text{C}} = 0$	7			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{\text{CB}} = 20\ \text{V}, I_{\text{E}} = 0$			0.1	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{\text{CE}} = 10\ \text{V}, I_{\text{B}} = 0$			100	μA
Forward current transfer ratio	h_{FE}	$V_{\text{CB}} = 10\ \text{V}, I_{\text{C}} = 2\ \text{mA}$	210		460	—
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = 100\ \text{mA}, I_{\text{B}} = 10\ \text{mA}$		0.13	0.3	V
Transition frequency	f_{T}	$V_{\text{CB}} = 10\ \text{V}, I_{\text{E}} = 2\ \text{mA}$		150		MHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	$V_{\text{CB}} = 10\ \text{V}, I_{\text{E}} = 0, f = 1\ \text{MHz}$		1.5		pF

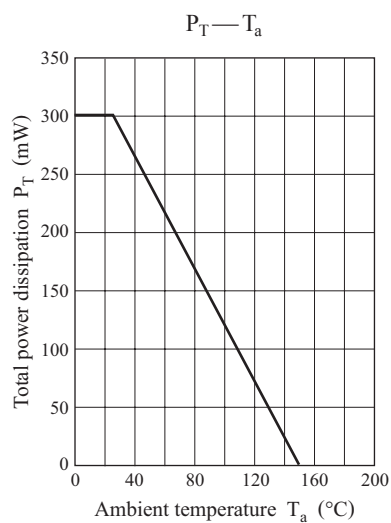
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

• Tr2

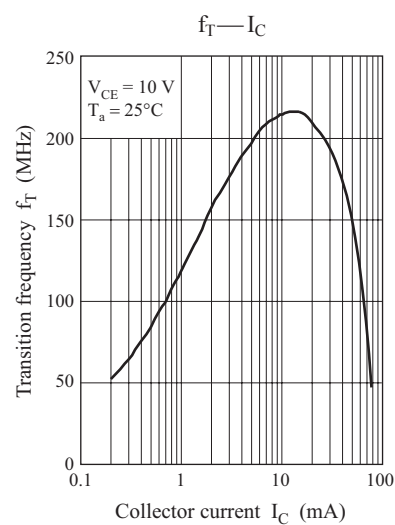
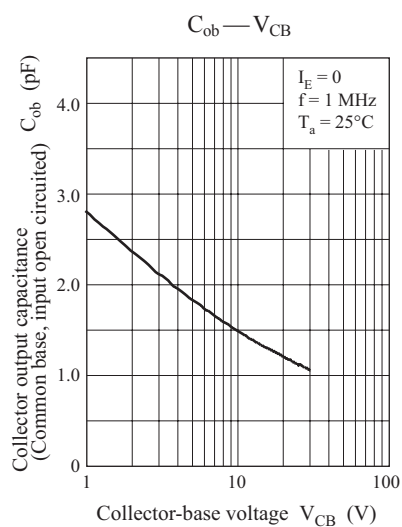
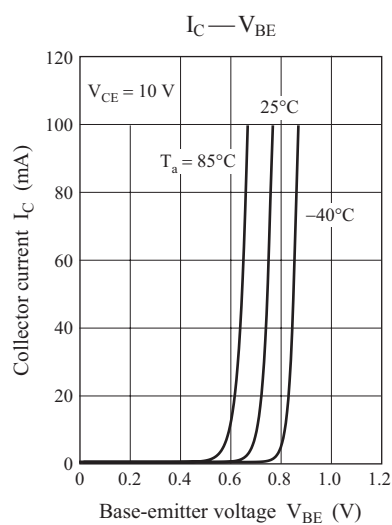
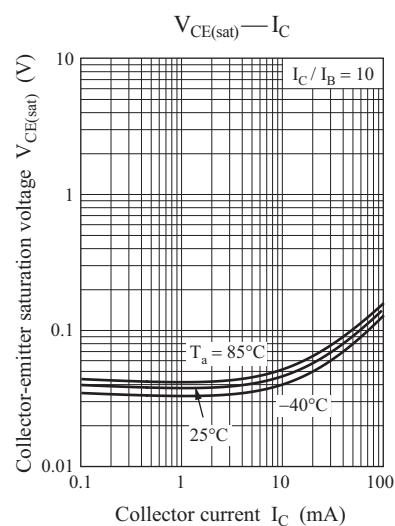
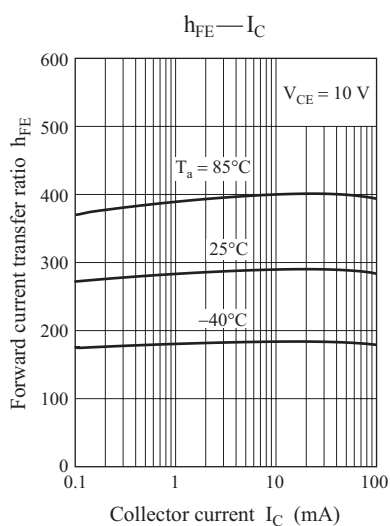
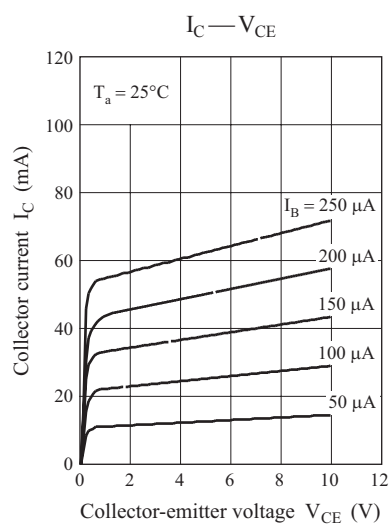
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_{\text{C}} = -10\ \mu\text{A}, I_{\text{E}} = 0$	-60			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_{\text{C}} = -2\ \text{mA}, I_{\text{B}} = 0$	-50			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_{\text{E}}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

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

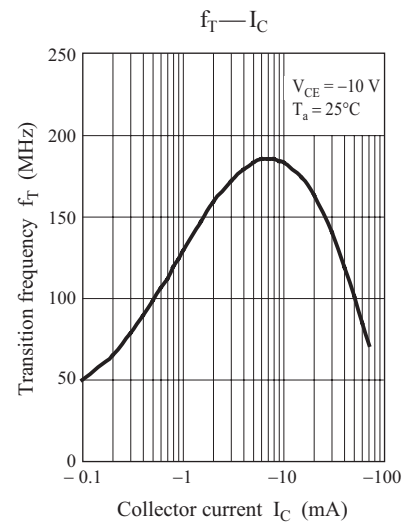
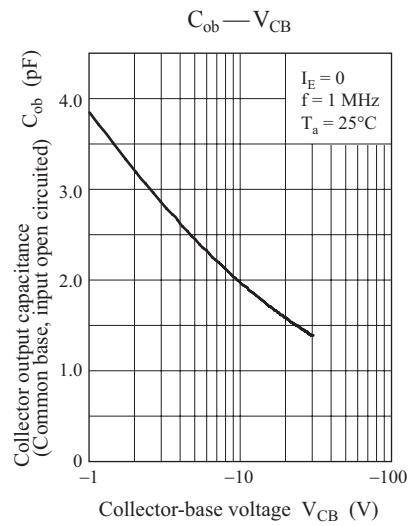
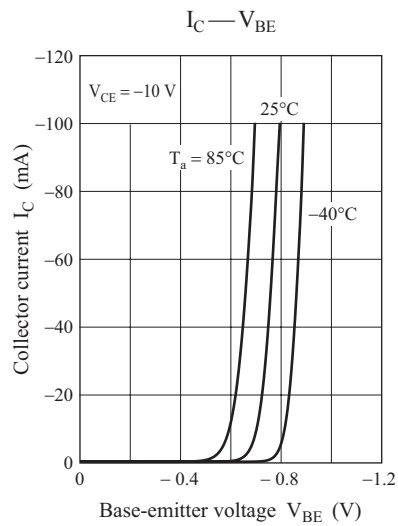
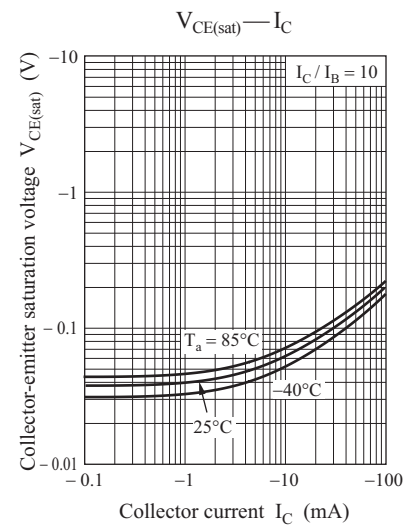
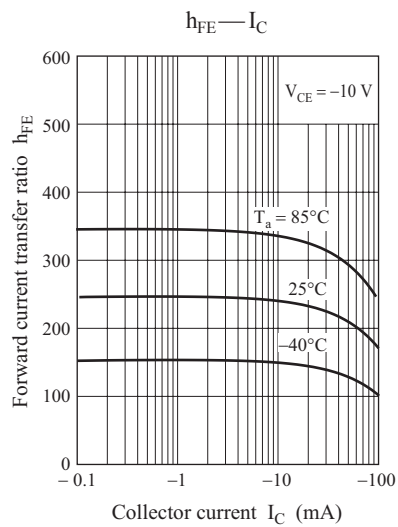
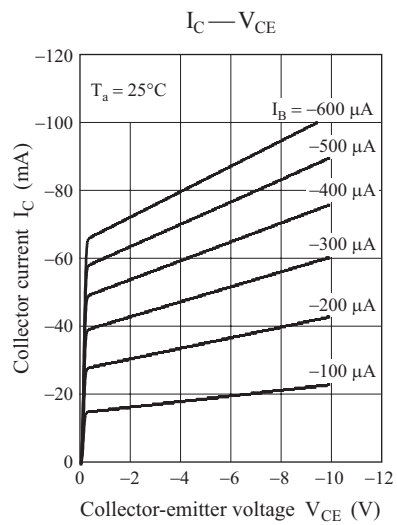
Common characteristics chart



Characteristics charts of Tr1



Characteristics charts of Tr2



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