

# DMC904F0

Silicon NPN epitaxial planar type

For high frequency amplification

■ Features

- High forward current transfer ratio  $h_{FE}$  with excellent linearity
- High transition frequency  $f_T$
- Halogen-free / RoHS compliant  
(EU RoHS / UL-94 V-0 / MSL: Level 1 compliant)

■ Marking Symbol: D3

■ Basic Part Number

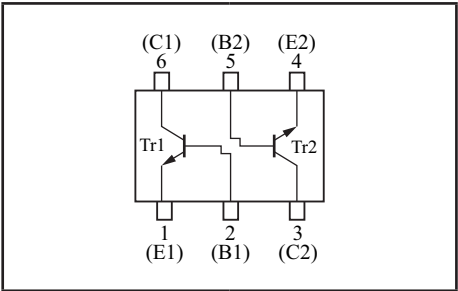
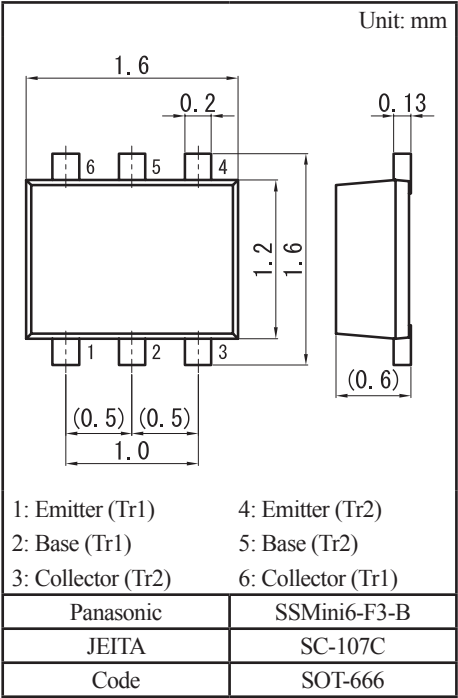
DSC2G02 + DSC2001 (Individual)

■ Packaging

DMC904F00R Embossed type (Thermo-compression sealing): 8 000 pcs / reel (standard)

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

Parameter		Symbol	Rating	Unit
Tr1	Collector-base voltage (Emitter open)	$V_{CBO}$	30	V
	Collector-emitter voltage (Base open)	$V_{CEO}$	20	V
	Emitter-base voltage (Collector open)	$V_{EBO}$	3	V
	Collector current	$I_C$	15	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	$P_T$	125	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)	$V_{CBO}$	$I_C = 10\ \mu\text{A}, I_E = 0$	30			V
Emitter-base voltage (Collector open)	$V_{EBO}$	$I_E = 10\ \mu\text{A}, I_C = 0$	3			V
Base-emitter voltage	$V_{BE}$	$V_{CE} = 6\ \text{V}, I_C = 1\ \text{mA}$		0.72		V
Forward current transfer ratio	$h_{FE}$	$V_{CE} = 6\ \text{V}, I_C = 1\ \text{mA}$	65		260	—
Transition frequency	$f_T$	$V_{CE} = 6\ \text{V}, I_C = 1\ \text{mA}$	450	650		MHz
Reverse transfer capacitance (Common emitter)	$C_{re}$	$V_{CE} = 6\ \text{V}, I_C = 1\ \text{mA}, f = 10.7\ \text{MHz}$		0.6		pF
Power gain	PG	$V_{CE} = 6\ \text{V}, I_C = 1\ \text{mA}, f = 100\ \text{MHz}$		24		dB
Noise figure	NF	$V_{CE} = 6\ \text{V}, I_C = 1\ \text{mA}, f = 100\ \text{MHz}$		3.3		dB

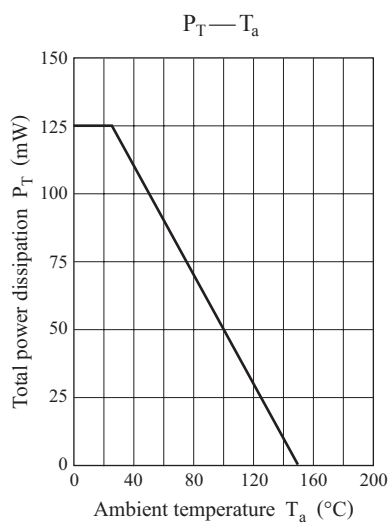
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

• Tr2

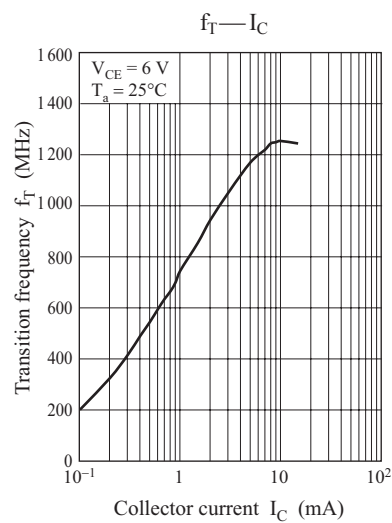
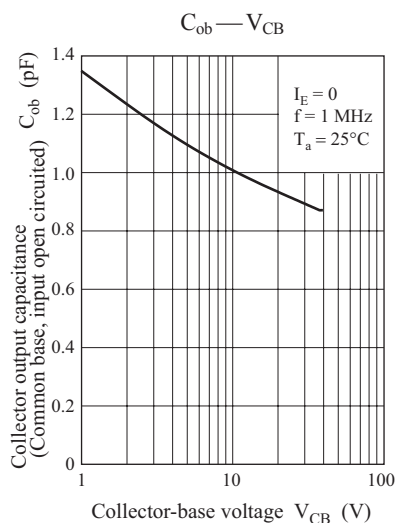
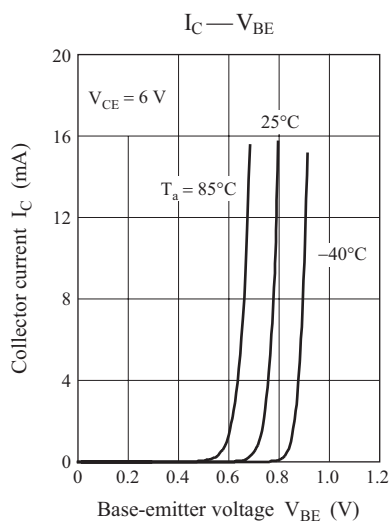
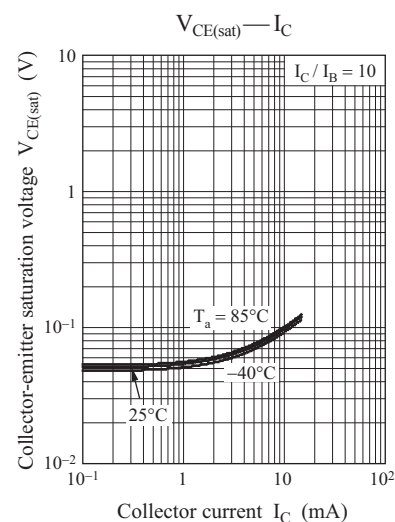
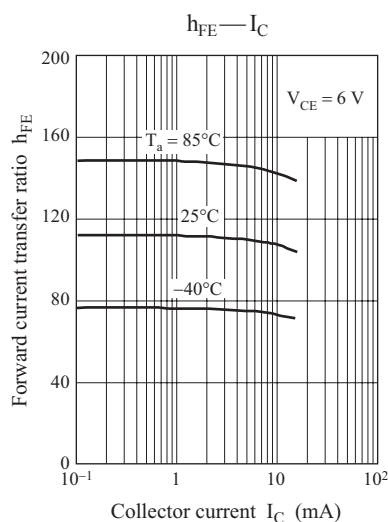
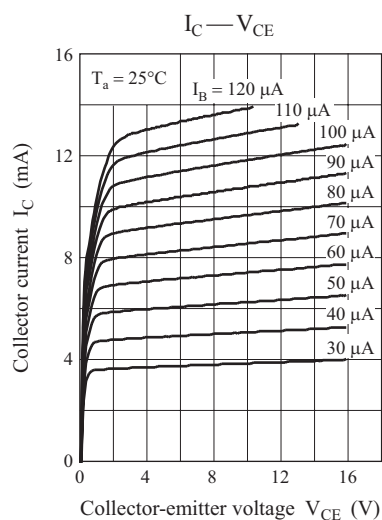
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = 10\ \mu\text{A}, I_E = 0$	60			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 2\ \text{mA}, I_B = 0$	50			V
Emitter-base voltage (Collector open)	$V_{EBO}$	$I_E = 10\ \mu\text{A}, I_C = 0$	7			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	$V_{CE(sat)}$	$I_C = 100\ \text{mA}, I_B = 10\ \text{mA}$		0.13	0.3	V
Transition frequency	$f_T$	$V_{CE} = 10\ \text{V}, I_C = 2\ \text{mA}$		150		MHz
Collector output capacitance (Common base, input open circuited)	$C_{ob}$	$V_{CB} = 10\ \text{V}, I_E = 0, f = 1\ \text{MHz}$		1.5		pF

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

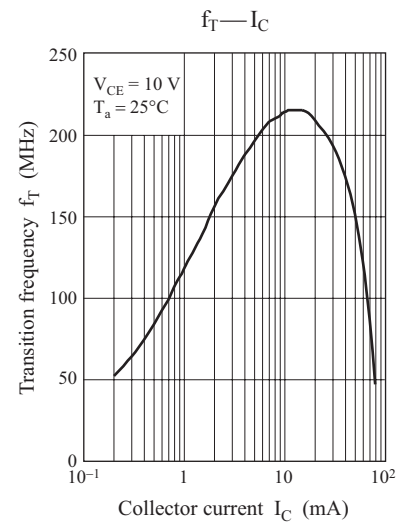
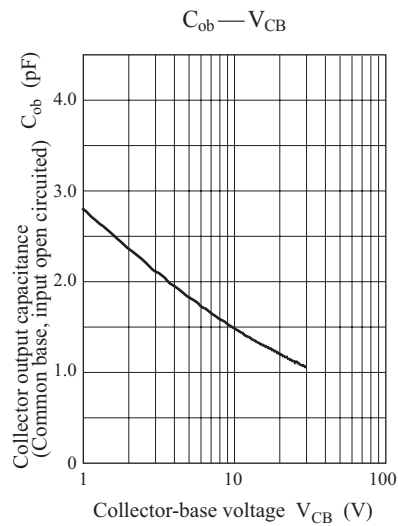
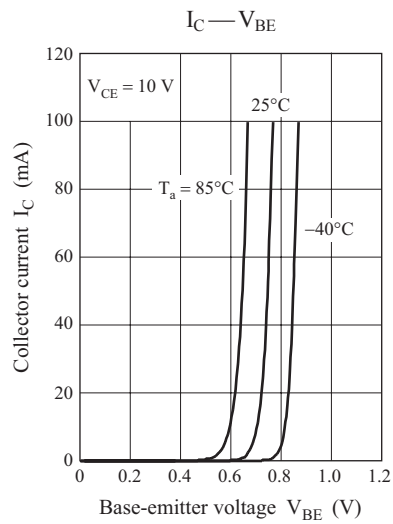
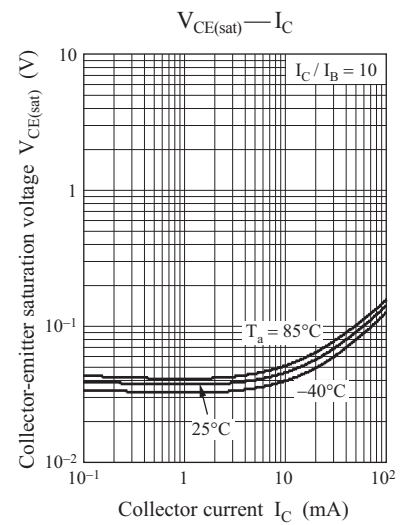
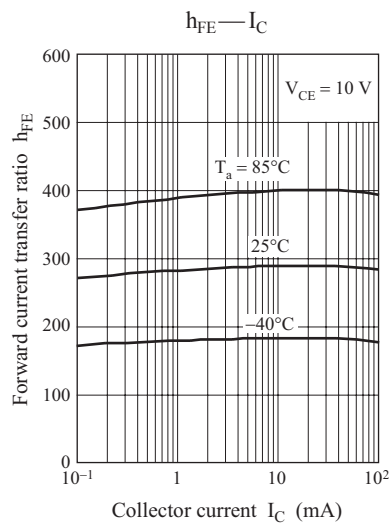
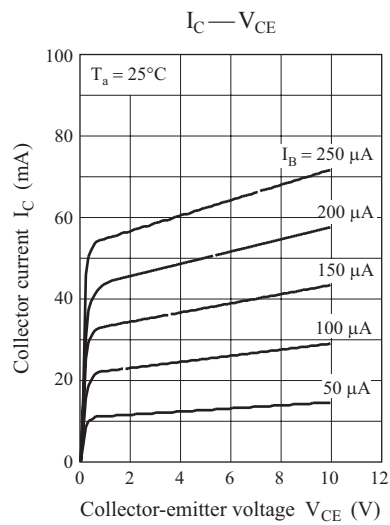
Common characteristics chart



Characteristics charts of Tr1

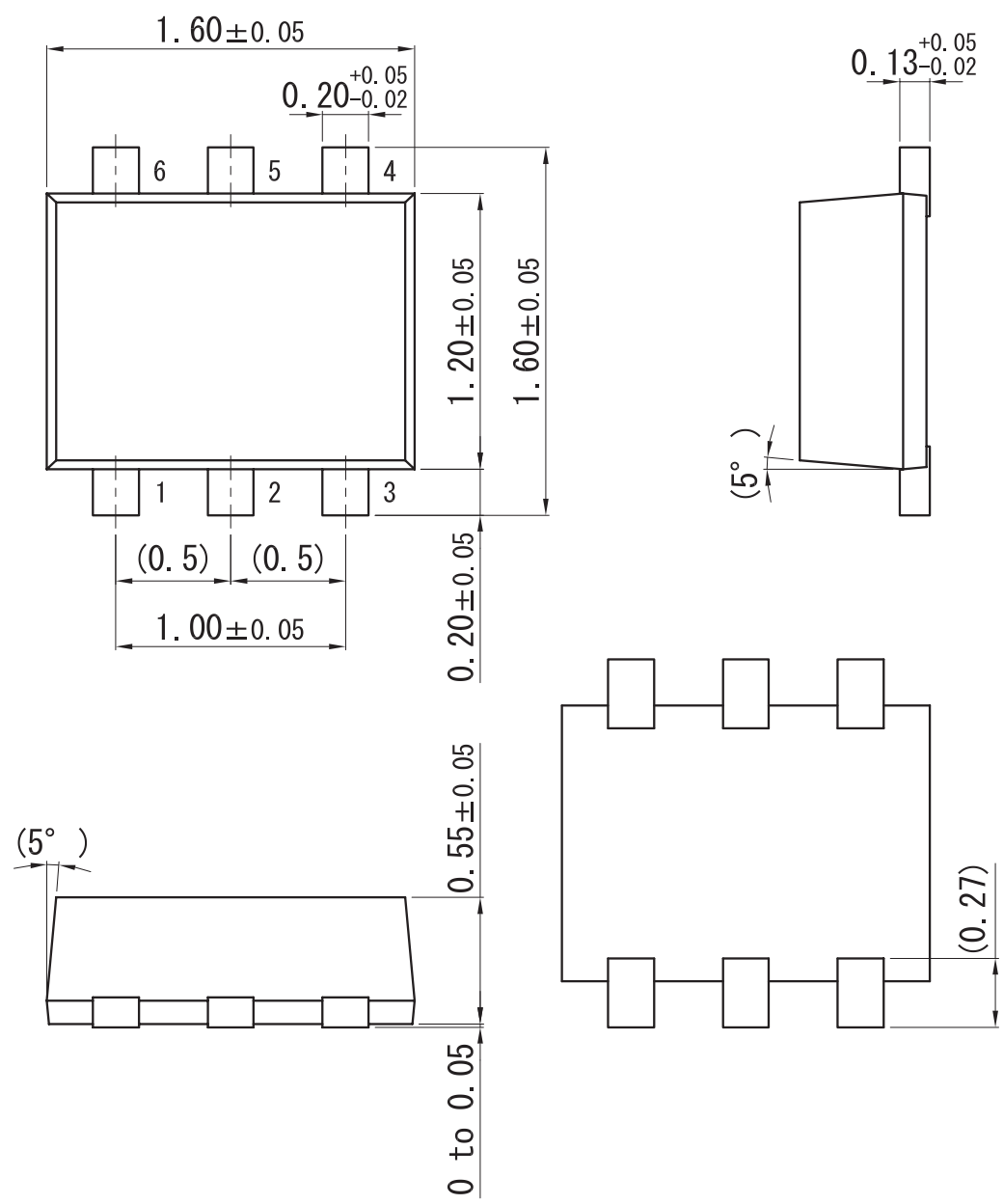


## Characteristics charts of Tr2

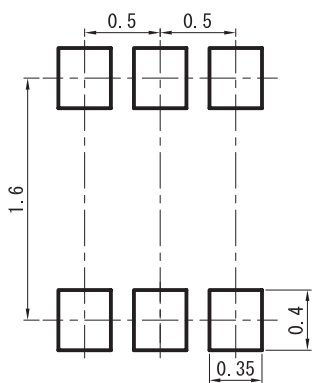


SSMini6-F3-B

Unit: mm



■ Land Pattern (Reference) (Unit: mm)



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