

DMG56403

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

For digital circuits

■ Features

- 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

DRC2144E + DRA2144E (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}	50	V
	Collector-emitter voltage (Base open)	V_{CEO}	50	V
	Collector current	I_C	100	mA
Tr2	Collector-base voltage (Emitter open)	V_{CBO}	-50	V
	Collector-emitter voltage (Base open)	V_{CEO}	-50	V
	Collector current	I_C	-100	mA
Overall	Total power dissipation	P_T	150	mW
	Junction temperature	T_j	150	$^{\circ}\text{C}$
	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}	$I_C = 10 \mu\text{A}, I_E = 0$	50			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 2 \text{mA}, I_B = 0$	50			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 50 \text{V}, I_E = 0$			0.1	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 50 \text{V}, I_B = 0$			0.5	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 6 \text{V}, I_C = 0$			0.1	mA
Forward current transfer ratio	h_{FE}	$V_{CE} = 10 \text{V}, I_C = 5 \text{mA}$	80			—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10 \text{mA}, I_B = 0.5 \text{mA}$			0.25	V
Input voltage (ON)	$V_{I(on)}$	$V_{CE} = 0.2 \text{V}, I_C = 5 \text{mA}$	3.6			V
Input voltage (OFF)	$V_{I(off)}$	$V_{CE} = 5 \text{V}, I_C = 100 \mu\text{A}$			0.8	V
Input resistance	R_1		-30%	47	+30%	$\text{k}\Omega$
Resistance ratio	R_1 / R_2		0.8	1.0	1.2	—

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

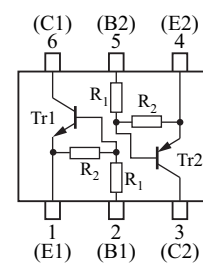
■ Package

- Code
SMini6-F3-B
- Pin Name

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

■ Marking Symbol: H2

■ Internal Connection



Resistance value	Tr1	R_1	47	$\text{k}\Omega$
		R_2	47	
	Tr2	R_1	47	$\text{k}\Omega$
		R_2	47	

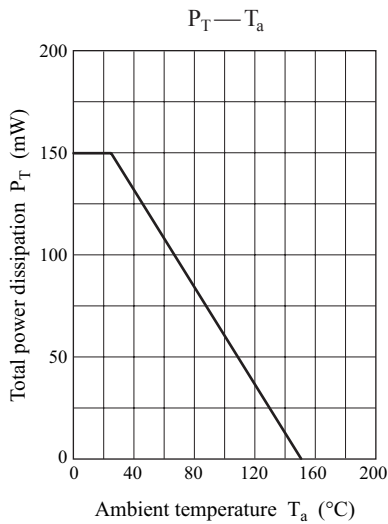
■ Electrical Characteristics (Continued) $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

• Tr2

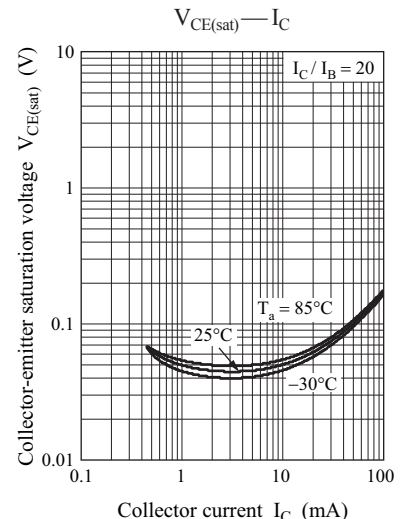
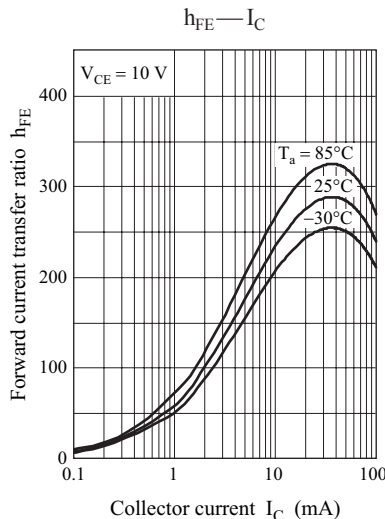
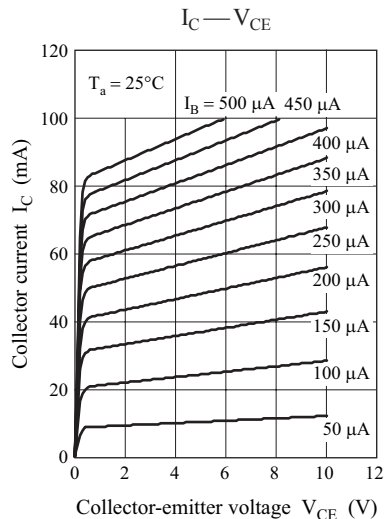
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = -10 \mu\text{A}, I_E = 0$	-50			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = -2 \text{ mA}, I_B = 0$	-50			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = -50 \text{ V}, I_E = 0$			-0.1	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = -50 \text{ V}, I_B = 0$			-0.5	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = -6 \text{ V}, I_C = 0$			-0.1	mA
Forward current transfer ratio	h_{FE}	$V_{CE} = -10 \text{ V}, I_C = -5 \text{ mA}$	80			—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10 \text{ mA}, I_B = -0.5 \text{ mA}$			-0.25	V
Input voltage (ON)	$V_{I(on)}$	$V_{CE} = -0.2 \text{ V}, I_C = -5 \text{ mA}$	-3.6			V
Input voltage (OFF)	$V_{I(off)}$	$V_{CE} = -5 \text{ V}, I_C = -100 \mu\text{A}$			-0.8	V
Input resistance	R_I		-30%	47	+30%	$\text{k}\Omega$
Resistance ratio	R_1 / R_2		0.8	1.0	1.2	—

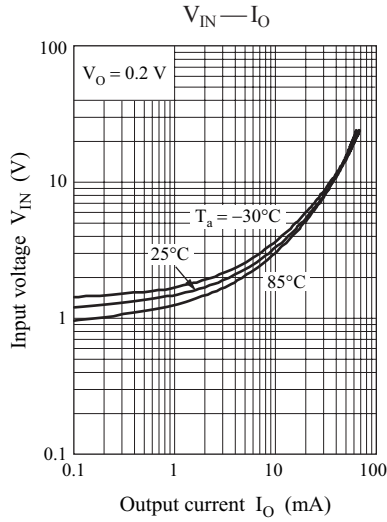
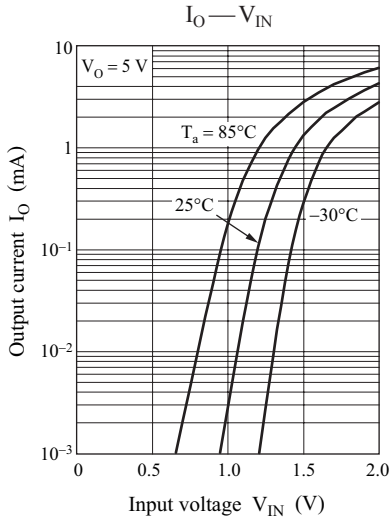
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

Common characteristics chart

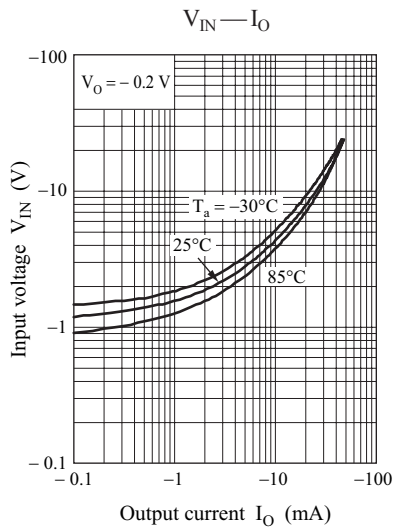
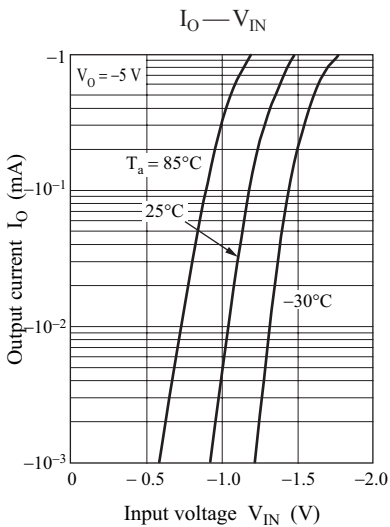
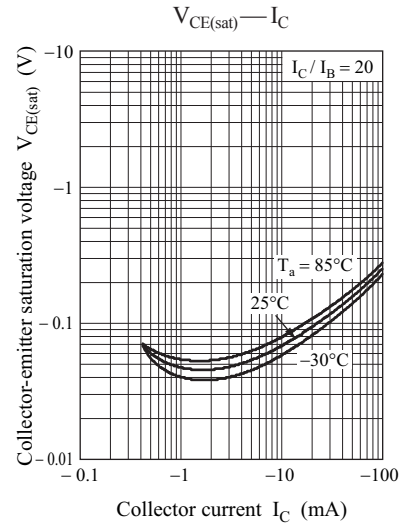
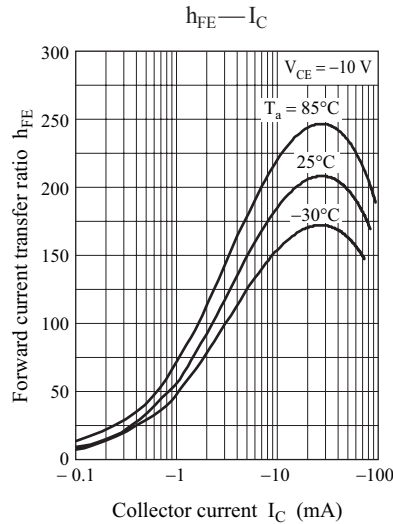
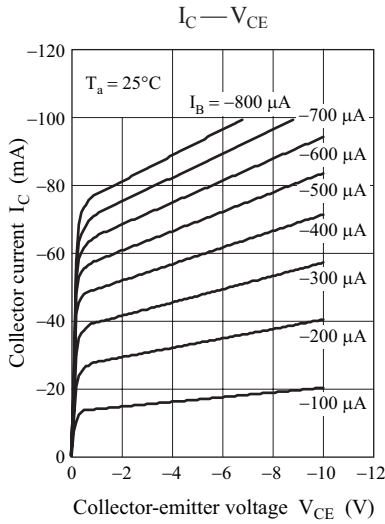


Characteristics charts of Tr1



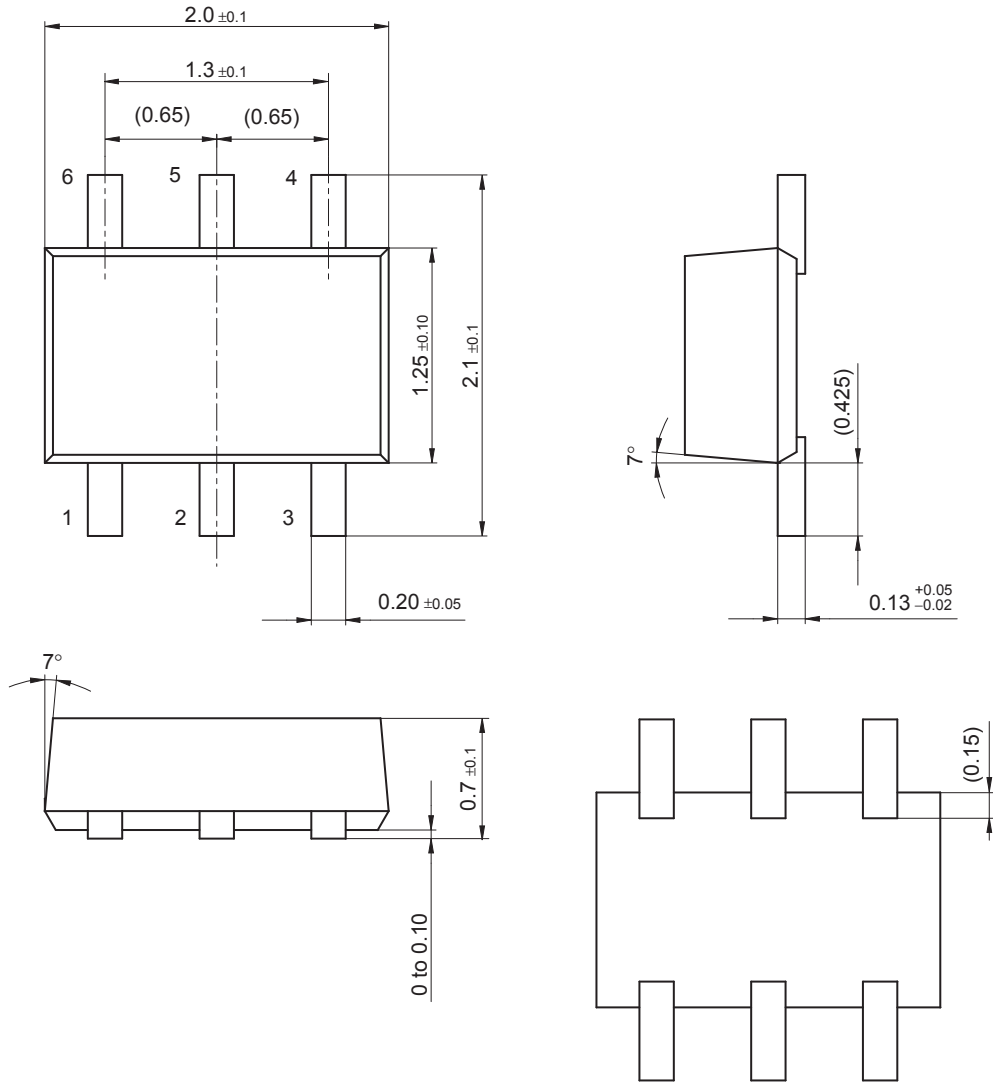


Characteristics charts of Tr2



SMini6-F3-B

Unit: mm



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