DMG563HA

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

For digital circuits

■ 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

DRC2143Z + DRA2143T (Collector-base connection)

■ Packaging

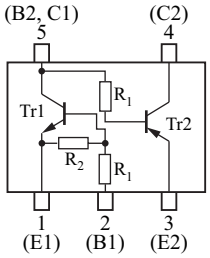
Embossed type (Thermo-compression sealing): 3000 pcs / reel (standard)

■ Package

- Code
  SMini5-F3-B
- Pin Name
  1: Emitter (Tr1)
  2: Base (Tr1)
  3: Emitter (Tr2)
  4: Collecter (Tr2)
  5: Base (Tr2)
  Collecter (Tr1)

■ Marking Symbol: U8

■ Internal Connection



■ Absolute Maximum Ratings $T_a = 25°C$

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	°C
	Storage temperature	T_{stg}	–55 to +150	°C

Resistance value	Tr1	R_1	4.7	kΩ
		R_2	47	
	Tr2	R_1	4.7	kΩ
		R_2	—	

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

- Tr1

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	I_C = 10 µA, I_E = 0	50			V
Collector-emitter voltage (Base open)	V_{CEO}	I_C = 2 mA, I_B = 0	50			V
Collector-base cutoff current (Emitter open)	I_{CBO}	V_{CB} = 50 V, I_E = 0			0.1	µA
Collector-emitter cutoff current (Base open)	I_{CEO}	V_{CE} = 50 V, I_B = 0			0.5	µA
Emitter-base cutoff current (Collector open)	I_{EBO}	V_{EB} = 6 V, I_C = 0			0.2	mA
Forward current transfer ratio	h_{FE}	V_{CE} = 10 V, I_C = 5 mA	80		400	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 10 mA, I_B = 0.5 mA			0.25	V
Input voltage (ON)	$V_{I(on)}$	V_{CE} = 0.2 V, I_C = 5 mA	1.3			V
Input voltage (OFF)	$V_{I(off)}$	V_{CE} = 5 V, I_C = 100 µA			0.4	V
Input resistance	R_1		–30%	4.7	+30%	kΩ
Resistance ratio	R_1 / R_2		0.08	0.10	0.12	—

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

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

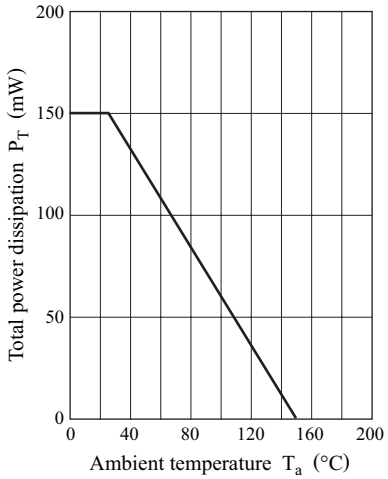
• Tr2

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = -10$ µA, $I_E = 0$	–50			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = -2$ mA, $I_B = 0$	–50			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = -50$ V, $I_E = 0$			– 0.1	µA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = -50$ V, $I_B = 0$			– 0.5	µA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = -6$ V, $I_C = 0$			– 0.01	mA
Forward current transfer ratio	h_{FE}	$V_{CE} = -10$ V, $I_C = -5$ mA	160		460	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10$ mA, $I_B = -0.5$ mA			– 0.25	V
Input voltage (ON)	$V_{I(on)}$	$V_{CE} = -0.2$ V, $I_C = -5$ mA	–1.0			V
Input voltage (OFF)	$V_{I(off)}$	$V_{CE} = -5$ V, $I_C = -100$ µA			– 0.4	V
Input resistance	R_1		–30%	4.7	+30%	kΩ

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

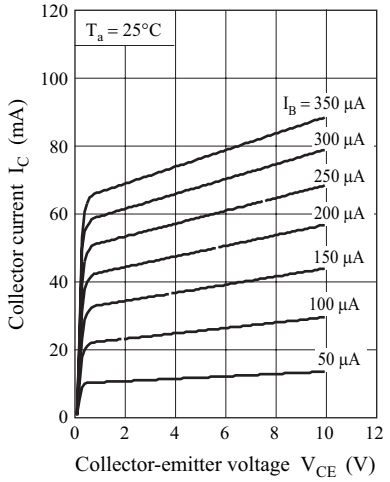
Common characteristics chart

P_T — T_a

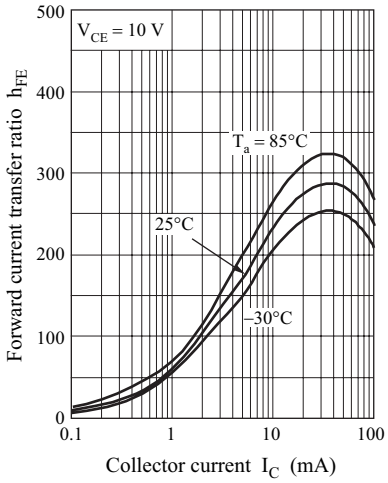


Characteristics charts of Tr1

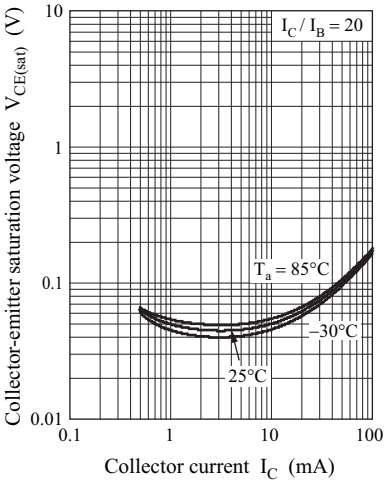
I_C — V_{CE}



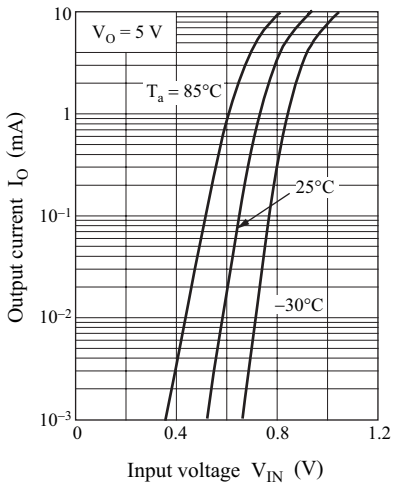
h_{FE} — I_C



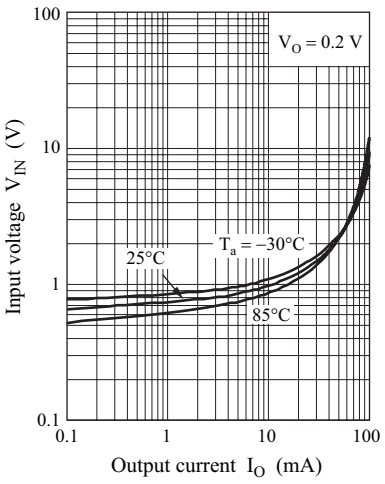
$V_{CE(sat)}$ — I_C



I_O — V_{IN}

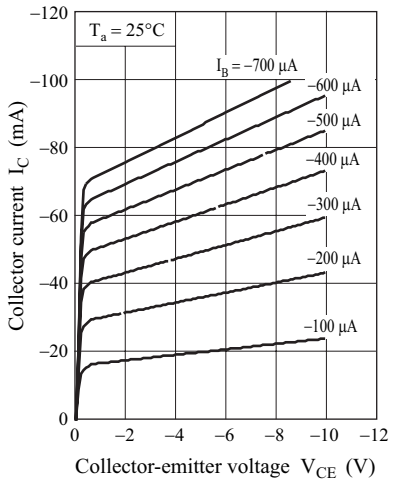


V_{IN} — I_O

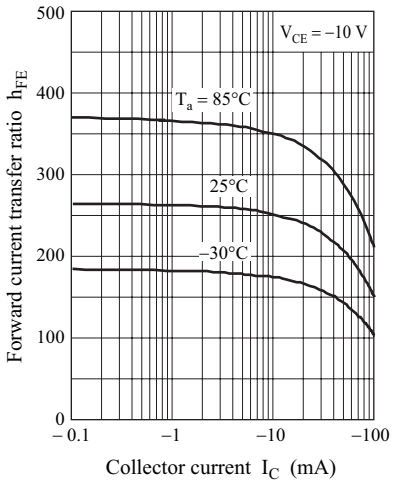


Characteristics charts of Tr2

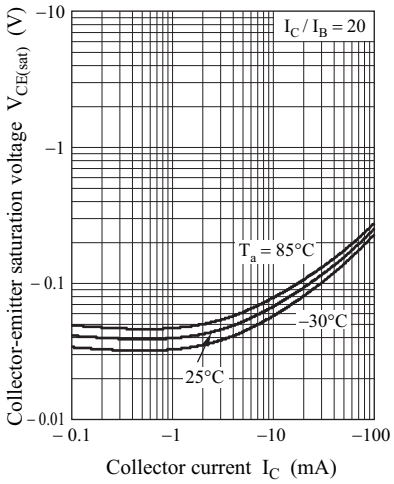
I_C — V_{CE}



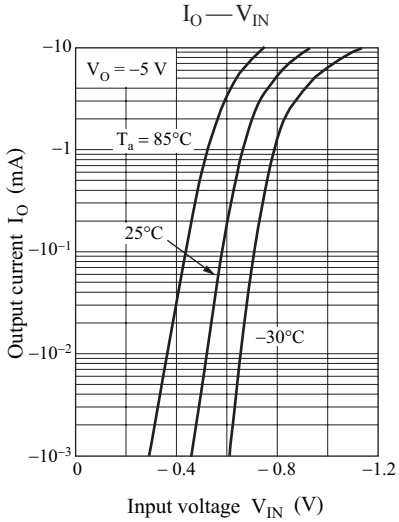
h_{FE} — I_C



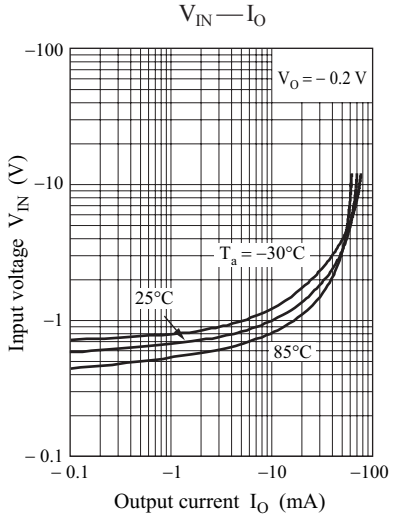
$V_{CE(sat)}$ — I_C



I_O — V_{IN}

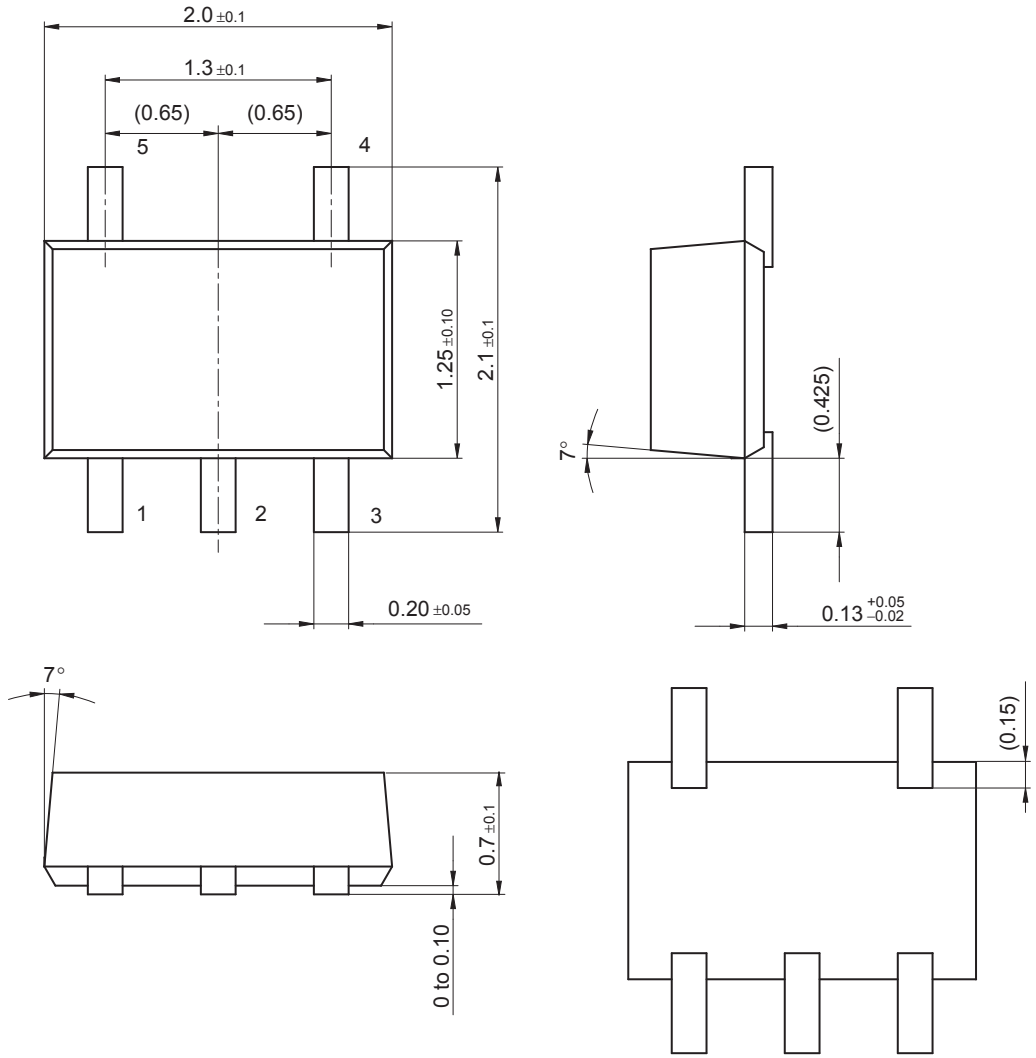


V_{IN} — I_O



SMini5-F3-B

Unit: mm



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