

# UNA0234

Silicon PNP epitaxial planar transistor (4 elements)  
 Silicon NPN epitaxial planar transistor (4 elements)

For motor drives  
 For Small motor drive circuits in general

**■ Features**

- Small and lightweight
- Low power consumption
- Low-voltage drive
- With 8 elements incorporated

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

	Parameter	Symbol	Rating	Unit
PNP	Collector-base voltage (Emitter open)	$V_{\text{CBO}}$	-10	V
	Collector-emitter voltage (Base open)	$V_{\text{CEO}}$	-10	V
	Collector current	$I_{\text{C}}$	-1.5	A
	Peak collector current	$I_{\text{CP}}$	-2	A
NPN	Collector-base voltage (Emitter open)	$V_{\text{CBO}}$	10	V
	Collector-emitter voltage (Base open)	$V_{\text{CEO}}$	10	V
	Collector current	$I_{\text{C}}$	1.5	A
	Peak collector current	$I_{\text{CP}}$	2	A
Overall	Total power dissipation *	$P_{\text{T}}$	0.5	W
	Junction temperature	$T_{\text{j}}$	150	$^\circ\text{C}$
	Storage temperature	$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$

Note) \*: When the dissipation on one device is  $T_{\text{C}} = 25^\circ\text{C}$

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

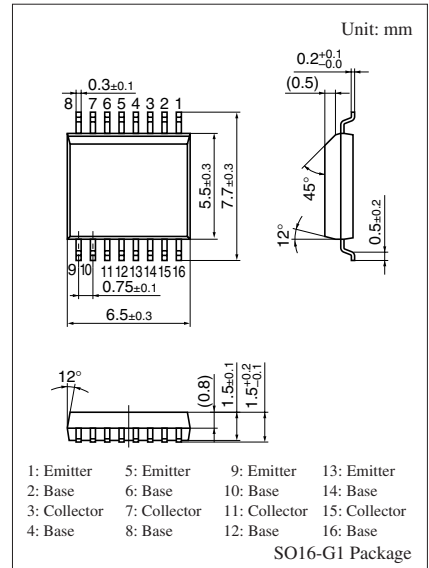
- PNP

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{\text{CBO}}$	$I_{\text{C}} = -10 \mu\text{A}, I_{\text{E}} = 0$	-10			V
Collector-emitter voltage (Base open)	$V_{\text{CEO}}$	$I_{\text{C}} = -1 \text{ mA}, I_{\text{B}} = 0$	-10			V
Collector-base cutoff current (Emitter open)	$I_{\text{CBO}}$	$V_{\text{CB}} = -10 \text{ V}, I_{\text{E}} = 0$			-1	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{\text{CEO}}$	$V_{\text{CE}} = -10 \text{ V}, I_{\text{B}} = 0$			-2	$\mu\text{A}$
Forward current transfer ratio	$h_{\text{FE}}$	$V_{\text{CE}} = -1 \text{ V}, I_{\text{C}} = -400 \text{ mA}$	200		700	—
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = -1 \text{ A}, I_{\text{B}} = -25 \text{ mA}$			-0.35	V
Base-emitter resistance *1	$R_{\text{BE}}$		-30%	12.5	+30%	$\text{k}\Omega$
Forward voltage *2	$V_{\text{F}}$	$I_{\text{F}} = -0.5 \text{ A}$			-1.3	V

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

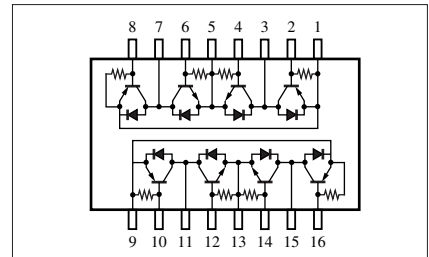
2. \*1: Application to the internal resistance

\*2: Application to the internal diode



Marking Symbol: UN234

Internal Connection



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

• NPN

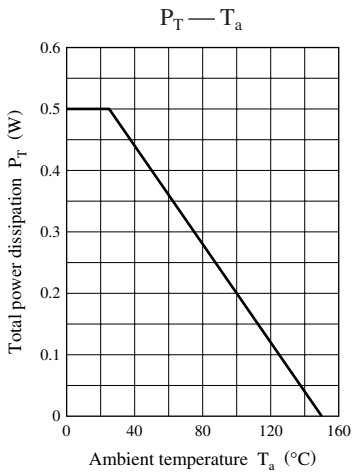
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = 10 \mu\text{A}, I_E = 0$	10			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 1 \text{ mA}, I_B = 0$	10			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = 10 \text{ V}, I_E = 0$			1	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = 10 \text{ V}, I_B = 0$			2	$\mu\text{A}$
Forward current transfer ratio	$h_{FE}$	$V_{CE} = 1 \text{ V}, I_C = 400 \text{ mA}$	200		700	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1 \text{ A}, I_B = 25 \text{ mA}$			0.25	V
Base-emitter resistance *1	$R_{BE}$		-30%	12.5	+30%	$\text{k}\Omega$
Forward voltage *2	$V_F$	$I_F = 0.5 \text{ A}$			1.3	V

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

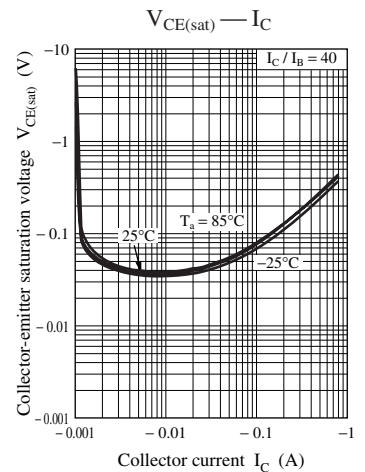
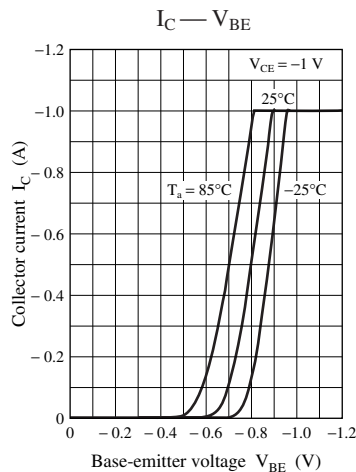
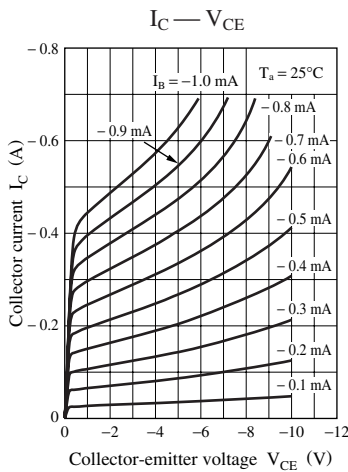
2. \*1: Application to the internal resistance

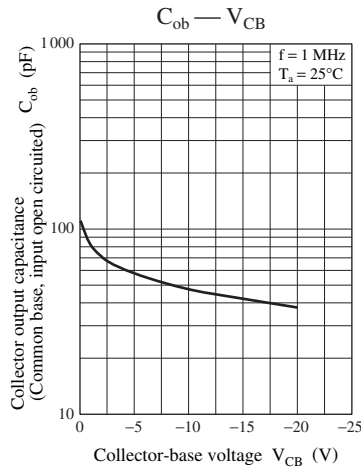
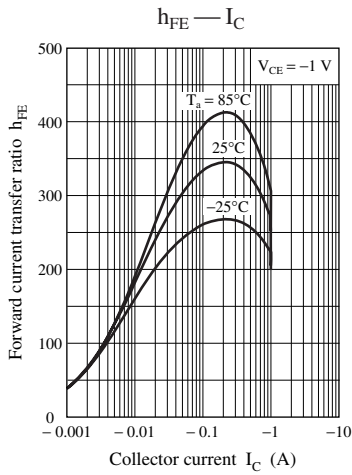
\*2: Application to the internal diode

Common characteristics chart

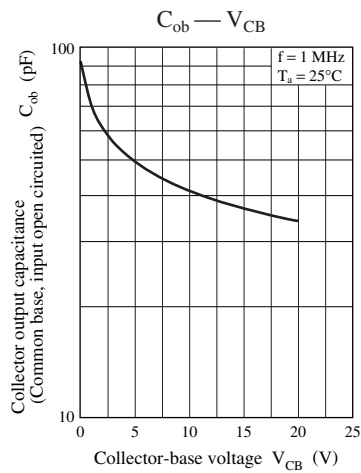
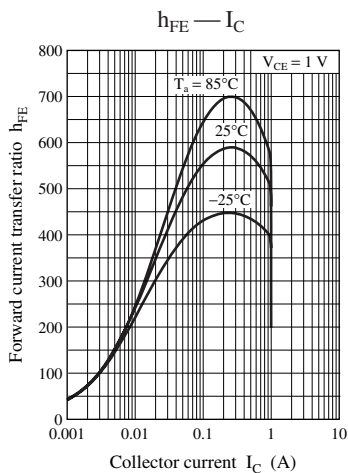
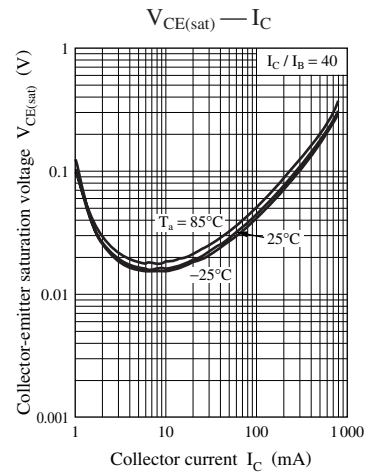
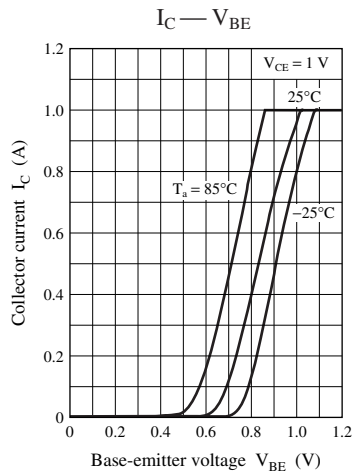
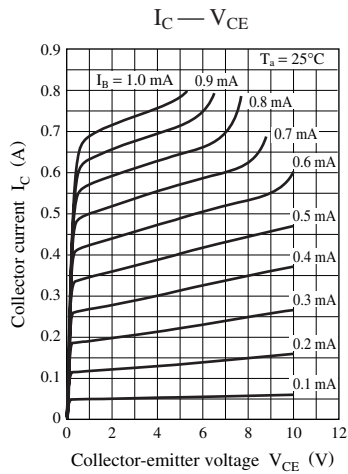


Characteristics charts of PNP transistor block





Characteristics charts of NPN transistor block



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