

UNA0232

Silicon NPN epitaxial planar transistor

For motor drives
For small motor drive circuits in general

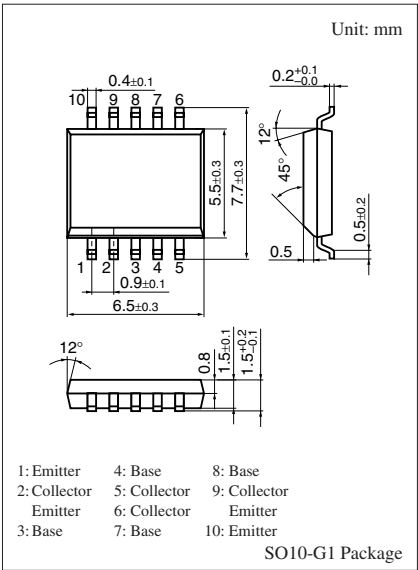
■ Features

- Small and lightweight
- Low power consumption
- Low-voltage drive
- With 4 elements incorporated

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

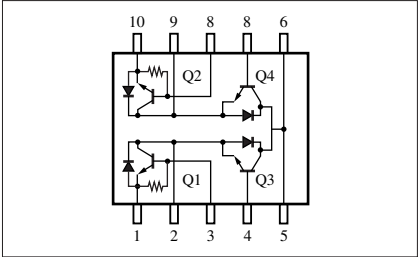
Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	12	V
Collector-emitter voltage (Base open)	V_{CEO}	10	V
Emitter-base voltage (Collector open)	V_{EBO}	7	V
Collector current	I_C	1	A
Peak collector current	I_{CP}	2	A
Total power dissipation *	P_T	0.5	W
Junction temperature	T_j	150	$^{\circ}\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^{\circ}\text{C}$

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



Marking Symbol: UN232

Internal Connection



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

• Q1, Q2

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = 10\ \mu\text{A}$, $I_E = 0$	12			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 0.1\ \text{mA}$, $I_B = 0$	10			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 10\ \text{V}$, $I_E = 0$			1	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 5\ \text{V}$, $I_C = 0$	0.8		1.6	mA
Forward current transfer ratio ^{*1}	h_{FE}	$V_{CE} = 1\ \text{V}$, $I_C = 0.5\ \text{A}$	200		700	—
Collector-emitter saturation voltage ^{*1}	$V_{CE(sat)}$	$I_C = 0.5\ \text{A}$, $I_B = 25\ \text{mA}$		0.10	0.15	V
Base-emitter resistance ^{*2}	R_{BE}		3.3	4.7	6.1	$\text{k}\Omega$
Forward voltage ^{*1, 3}	V_F	$I_F = 1\ \text{A}$			1.5	V

• Q3, Q4

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = 10\ \mu\text{A}$, $I_E = 0$	12			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 0.1\ \text{mA}$, $I_B = 0$	10			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}	$V_{CB} = 10\ \text{V}$, $I_E = 0$			1	μA
Forward current transfer ratio ^{*1}	h_{FE}	$V_{CE} = 1\ \text{V}$, $I_C = 0.5\ \text{A}$	200		700	—
Collector-emitter saturation voltage ^{*1}	$V_{CE(sat)}$	$I_C = 0.5\ \text{A}$, $I_B = 25\ \text{mA}$		0.10	0.15	V
Forward voltage ^{*1, 3}	V_F	$I_F = 1\ \text{A}$			1.5	V

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

2. *1: Pulse measurement

*2: Application to the built-in resistance

*3: Application to the built-in diode

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