UNA0232

Silicon NPN epitaxial planar transistor

For motor drives

For small motor drive circuits in general

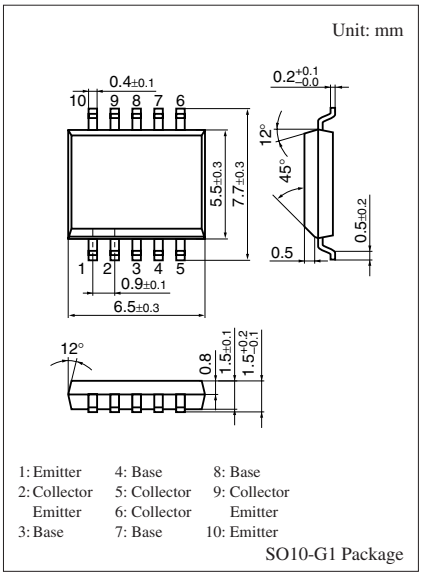
■ Features

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

■ Absolute Maximum Ratings $T_a = 25°C$

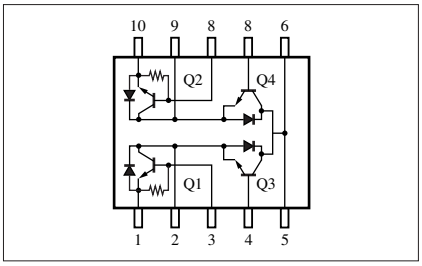
Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	12	V
Collector-emitter voltage (Base open)	V_{CEO}	10	V
Emitter-base voltage (Collector open)	V_{EBO}	7	V
Collector current	I_C	1	A
Peak collector current	I_{CP}	2	A
Total power dissipation *	P_T	0.5	W
Junction temperature	T_j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

Note) *: When the dissipation on one device is $T_C = 25°C$



Marking Symbol: UN232

Internal Connection



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

• Q1, Q2

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

• Q3, Q4

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	I_C = 10 µA, I_E = 0	12			V
Collector-emitter voltage (Base open)	V_{CEO}	I_C = 0.1 mA, I_B = 0	10			V
Emitter-base voltage (Collector open)	V_{EBO}	I_E = 10 µA, I_C = 0	7			V
Collector-base cutoff current (Emitter open)	I_{CBO}	V_{CB} = 10 V, I_E = 0			1	µA
Forward current transfer ratio *1	h_{FE}	V_{CE} = 1 V, I_C = 0.5 A	200		700	—
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	I_C = 0.5 A, I_B = 25 mA		0.10	0.15	V
Forward voltage *1, 3	V_F	I_F = 1 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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