

# UNA0233

Transistor array to drive the small motor

## ■ Features

- Small and lightweight
- Low power consumption
- Low-voltage drive
- With 6 elements incorporated

## ■ Applications

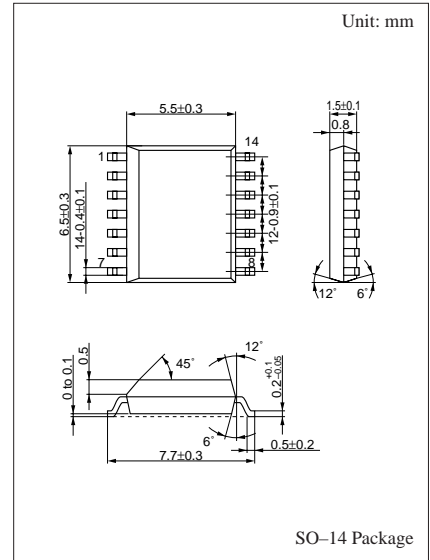
- For motor drives
- Small motor drive circuits in general

## ■ Absolute Maximum Ratings (Ta=25±3°C)

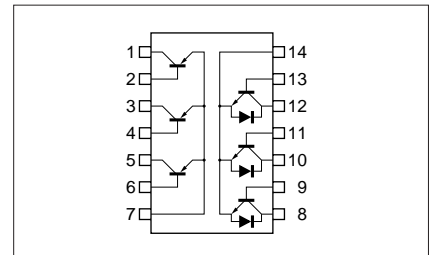
Parameter	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	±10	V
Collector to emitter voltage	$V_{CEO}$	±10	V
Emitter to base voltage	$V_{EBO}$	±7	V
Collector current	$I_C$	±0.5	A
Peak collector current	$I_{CP}$	±1	A
Total power dissipation	$P_T^*$	0.5	W
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{sig}$	-55 to +150	°C

Note: ± marks used above: +: NPN part, -: PNP part

\*  $T_C = 25^\circ\text{C}$  only when the elements are active



## Internal Connection



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

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to base voltage	$V_{\text{CBO}}$	(NPN) $I_{\text{C}} = 10\mu\text{A}, I_{\text{E}} = 0$	10			V
		(PNP) $I_{\text{C}} = -10\mu\text{A}, I_{\text{E}} = 0$	-10			
Collector to emitter voltage	$V_{\text{CEO}}$	(NPN) $I_{\text{C}} = 1\text{mA}, I_{\text{B}} = 0$	10			V
		(PNP) $I_{\text{C}} = -1\text{mA}, I_{\text{B}} = 0$	-10			
Emitter to base voltage	$V_{\text{EBO}}$	(NPN) $I_{\text{E}} = 10\mu\text{A}, I_{\text{C}} = 0$	7			V
Collector cutoff current	$I_{\text{CBO}}$	(NPN) $V_{\text{CB}} = 7\text{V}, I_{\text{E}} = 0$			1	$\mu\text{A}$
Forward current transfer ratio	$h_{\text{FE}}$	(NPN) $V_{\text{CE}} = 2\text{V}, I_{\text{C}} = 200\text{mA}^*$	200		800	
		(PNP) $V_{\text{CE}} = -2\text{V}, I_{\text{C}} = -100\text{mA}^*$	200		450	
Collector to emitter saturation voltage	$V_{\text{CE(sat)}}$	(NPN) $I_{\text{C}} = 1\text{A}, I_{\text{B}} = 25\text{mA}^*$			0.4	V
		(PNP) $I_{\text{C}} = -1\text{A}, I_{\text{B}} = -25\text{mA}^*$			-0.4	
Transition frequency	$f_{\text{T}}$	(NPN) $V_{\text{CB}} = 6\text{V}, I_{\text{E}} = -50\text{mA}, f = 200\text{MHz}$		120		MHz
		(PNP) $V_{\text{CB}} = -6\text{V}, I_{\text{E}} = 50\text{mA}, f = 200\text{MHz}$		190		
Collector output capacitance	$C_{\text{ob}}$	(NPN) $V_{\text{CB}} = 6\text{V}, I_{\text{E}} = 0, f = 1\text{MHz}$		25		pF
		(PNP) $V_{\text{CB}} = -10\text{V}, I_{\text{E}} = 0, f = 1\text{MHz}$		65		
Forward voltage	$V_{\text{F}}$	(NPN) $I_{\text{F}} = 0.5\text{A}$			1.3	V

\*Pulse measurement