

# UNA0206 (UN206)

Transistor array to drive the small motor

## Features

- Small and lightweight
- Low power consumption (low  $V_{CE(sat)}$  transistor used)
- Protective diode incorporated (C-E monolithic)
- Low-voltage drive

## Applications

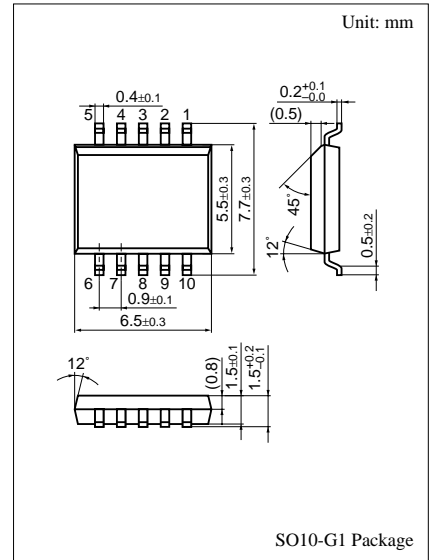
- Video cameras
- Cameras
- Portable CD players
- Small motor drive circuits in general for electronic equipment.

## Absolute Maximum Ratings ( $T_a=25\pm 2^\circ\text{C}$ )

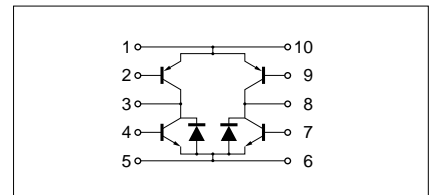
Parameter	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	$\pm 20$	V
Collector to emitter voltage	$V_{CEO}$	$\pm 18$	V
Emitter to base voltage	$V_{EBO}$	$\pm 5$	V
Collector current	$I_C$	$\pm 1$	A
Total power dissipation	$P_T^*$	0.5	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

Note:  $\pm$  marks used above: +: NPN part, -: PNP part

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



## Internal Connection



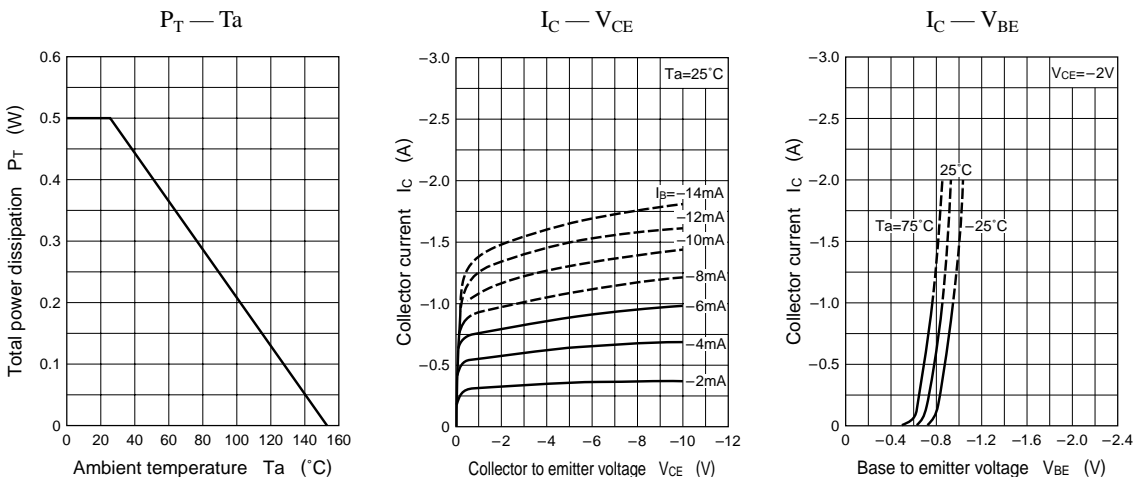
Note.) The Part number in the Parenthesis shows conventional part number.

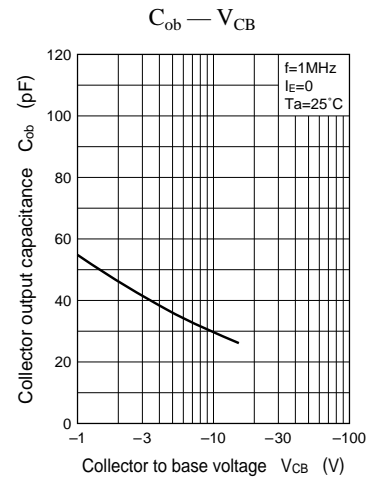
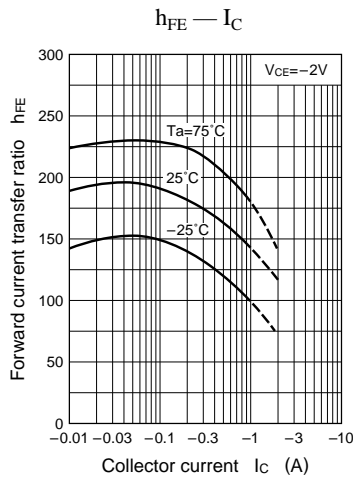
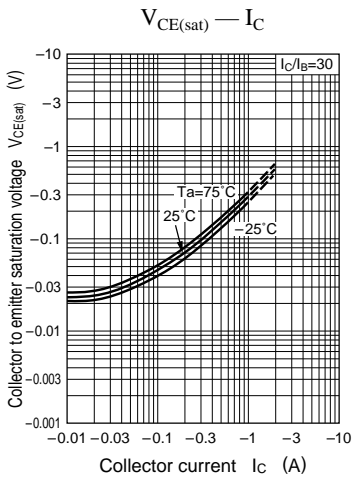
■ Electrical Characteristics (Ta=25±2°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I <sub>CBO</sub>	(NPN) V <sub>CB</sub> = 20V, I <sub>E</sub> = 0			1	μA
		(PNP) V <sub>CB</sub> = -20V, I <sub>E</sub> = 0			-1	
Collector cutoff current	I <sub>CER</sub>	(NPN) V <sub>CE</sub> = 18V, R <sub>BE</sub> = 100kΩ			10	μA
		(PNP) V <sub>CE</sub> = -18V, R <sub>BE</sub> = 100kΩ			-10	
Collector to base voltage	V <sub>CBO</sub>	(NPN) I <sub>C</sub> = 10μA, I <sub>E</sub> = 0	20			V
		(PNP) I <sub>C</sub> = -10μA, I <sub>E</sub> = 0	-20			
Collector to emitter voltage	V <sub>CEO</sub>	(NPN) I <sub>C</sub> = 1mA, I <sub>B</sub> = 0	18			V
		(PNP) I <sub>C</sub> = -1mA, I <sub>B</sub> = 0	-18			
Emitter to base voltage	V <sub>EBO</sub>	(NPN) I <sub>E</sub> = 10μA, I <sub>C</sub> = 0	5			V
		(PNP) I <sub>E</sub> = -10μA, I <sub>C</sub> = 0	-5			
Forward voltage (DC)	V <sub>F</sub>	I <sub>F</sub> = 1A			1.5	V
Forward current transfer ratio	h <sub>FE1</sub>	(NPN) V <sub>CE</sub> = 2V, I <sub>C</sub> = 0.5A*	90		360	
		(PNP) V <sub>CE</sub> = -2V, I <sub>C</sub> = -0.5A*	90		360	
Forward current transfer ratio	h <sub>FE2</sub>	(NPN) V <sub>CE</sub> = 2V, I <sub>C</sub> = 1.5A*	50			
		(PNP) V <sub>CE</sub> = -2V, I <sub>C</sub> = -1.5A*	50			
Collector to emitter saturation voltage	V <sub>CE(sat)1</sub>	(NPN) I <sub>C</sub> = 0.3A, I <sub>B</sub> = 10mA			0.2	V
		(PNP) I <sub>C</sub> = -0.3A, I <sub>B</sub> = -10mA			-0.2	
Collector to emitter saturation voltage	V <sub>CE(sat)2</sub>	(NPN) I <sub>C</sub> = 0.7A, I <sub>B</sub> = 10mA			0.6	V
		(PNP) I <sub>C</sub> = -0.7A, I <sub>B</sub> = -10mA			-0.6	
Transition frequency	f <sub>T</sub>	(NPN) V <sub>CB</sub> = 6V, I <sub>E</sub> = 50mA, f = 200MHz		150		MHz
		(PNP) V <sub>CB</sub> = -6V, I <sub>E</sub> = -50mA, f = 200MHz		200		
Collector output capacitance	C <sub>ob</sub>	(NPN) V <sub>CB</sub> = 6V, I <sub>E</sub> = 0, f = 1MHz		20		pF
		(PNP) V <sub>CB</sub> = -6V, I <sub>E</sub> = 0, f = 1MHz		40		

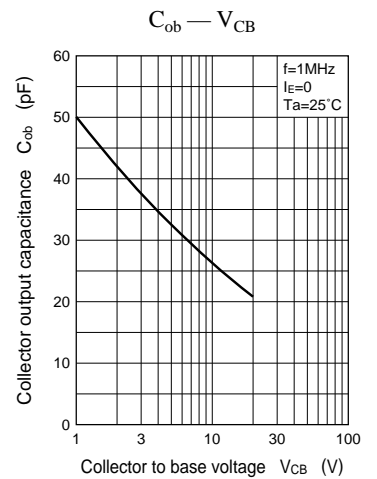
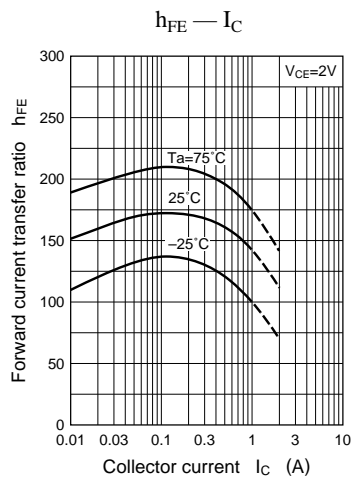
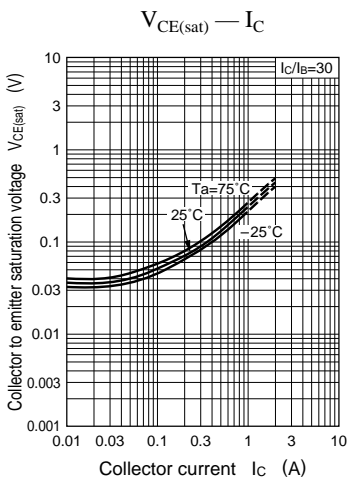
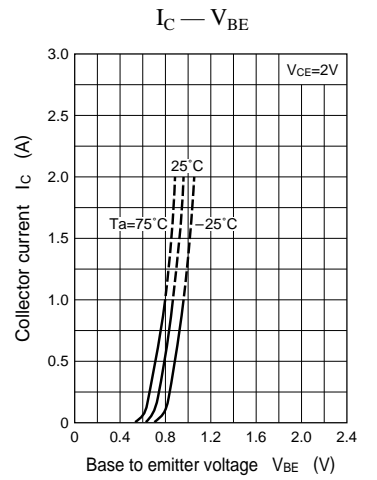
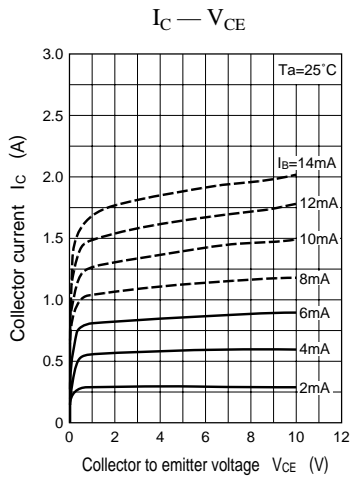
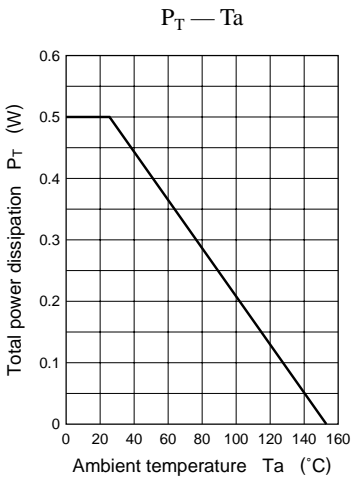
\*Pulse measurement

Characteristics charts of PNP transistor block





Characteristics charts of NPN transistor block



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