# **UNA0222** (UN222)

## Transistor array to drive the small motor

#### Features

- Small and lightweight
- Low power consumption (low V<sub>CE(sat)</sub> transistor used)
- Low-voltage drive
- Transistors with built-in resistor with 6 elements (SO-14)

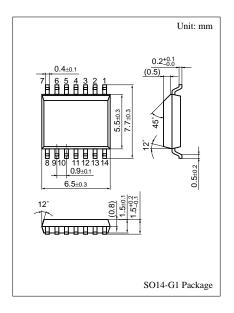
## Applications

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

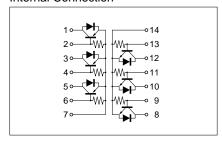
## Absolute Maximum Ratings (Ta=25±2°C)

Parameter	Symbol	Ratings	Unit	
Collector to base voltage	V <sub>CBO</sub>	±10	V	
Collector to emitter voltage	V <sub>CEO</sub>	±10	V	
Collector current	$I_{C}$	±3	A	
Total power dissipation	P <sub>T</sub> *	0.5	W	
Junction temperature	T <sub>j</sub>	150	°C	
Storage temperature	$T_{stg}$	-55 to +150	°C	

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



#### Internal Connection



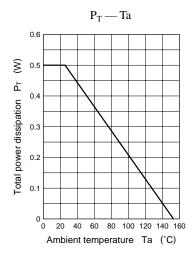
<sup>\*</sup>  $T_C = 25$ °C only when the elements are active

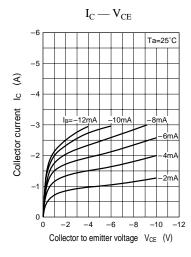
## ■ Electrical Characteristics (Ta=25±2°C)

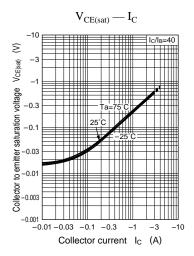
Parameter	Symbol	Conditions	min	typ	max	Unit	
Collector cutoff current	$I_{CBO}$	(NPN) $V_{CB} = 6V$			1		
		(PNP) $V_{CB} = -6V$			-1	μA	
Collector to base voltage	$V_{CBO}$	(NPN) $I_C = 10\mu A$	10			v	
		(PNP) $I_C = -10\mu A$	-10			·	
Collector to emitter voltage	V <sub>CEO</sub>	(NPN) $I_C = 1mA$	10			V	
		(PNP) $I_C = -1mA$	-10				
Forward current transfer ratio	h <sub>FE</sub>	(NPN) $V_{CE} = 1V, I_{C} = 0.5A*$	200		700		
		(PNP) $V_{CE} = -1V$ , $I_C = -0.5A*$	200		700		
Collector to emitter saturation voltage	V <sub>CE(sat)</sub>	(NPN) $I_C = 2A$ , $I_B = 50mA*$			0.25	V	
		(PNP) $I_C = -2A$ , $I_B = -50mA*$			- 0.45		
Transition frequency	$f_{\mathrm{T}}$	(NPN) $V_{CB} = 6V$ , $I_E = -50mA$ , $f = 200MHz$		150		MHz	
		(PNP) $V_{CB} = -6V$ , $I_E = 50mA$ , $f = 200MHz$		150			
Collector output capacitance	C <sub>ob</sub>	(NPN) $V_{CB} = 6V, I_{E} = 0, f = 1MHz$		50		E	
		(PNP) $V_{CB} = -6V$ , $I_E = 0$ , $f = 1MHz$		70		pF	
Forward voltage (DC)	V <sub>F</sub>	(NPN) $I_F = 1A$			1.5	V	
		(PNP) $I_F = -1A$			1.5		
Bias resistance	R <sub>EB</sub>		-30%	10	+30%	kΩ	

<sup>\*</sup>Pulse measurement

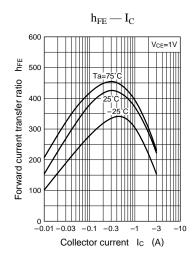
### Characteristics charts of PNP transistor block

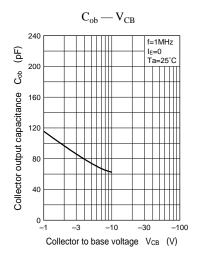




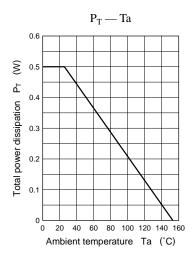


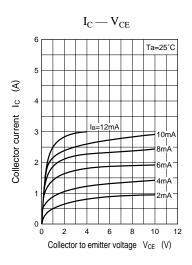
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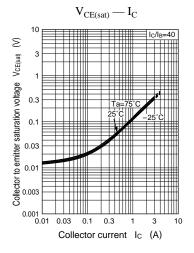


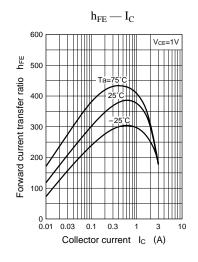


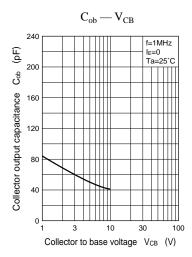
## Characteristics charts of NPN transistor block











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