

UNA0230 (UN230)

Transistor array to drive the small motor

Features

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

Applications

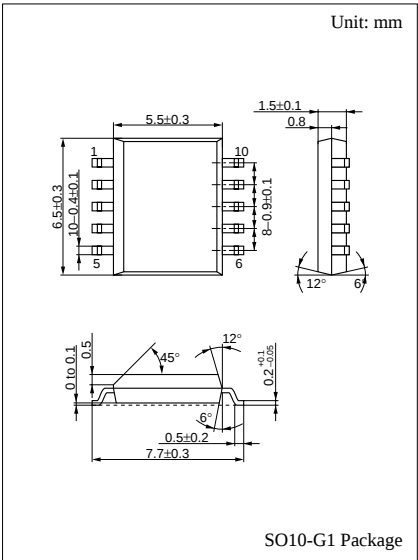
- For motor drives
- Small motor drive circuits in general

Absolute Maximum Ratings (Ta=25±3°C)

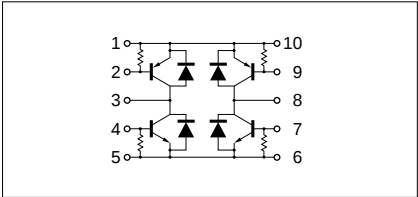
Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	± 10	V
Collector to emitter voltage	V_{CEO}	± 10	V
Collector current	I_C	± 3	A
Peak collector current	I_{CP}	± 4	A
Total power dissipation	P_T^*	0.5	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

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

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



Internal Connection



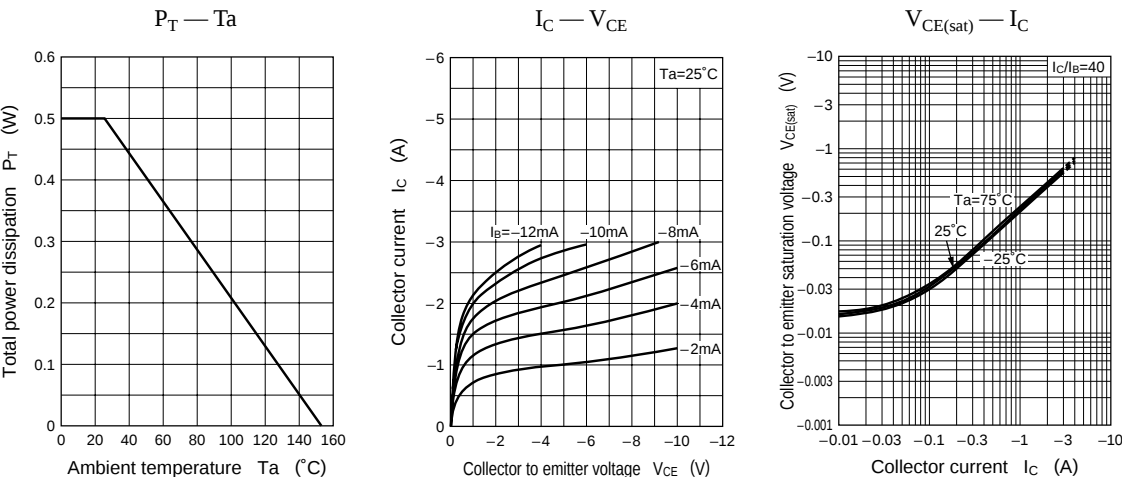
Note.) The Part number in the Parenthesis shows conventional part number.

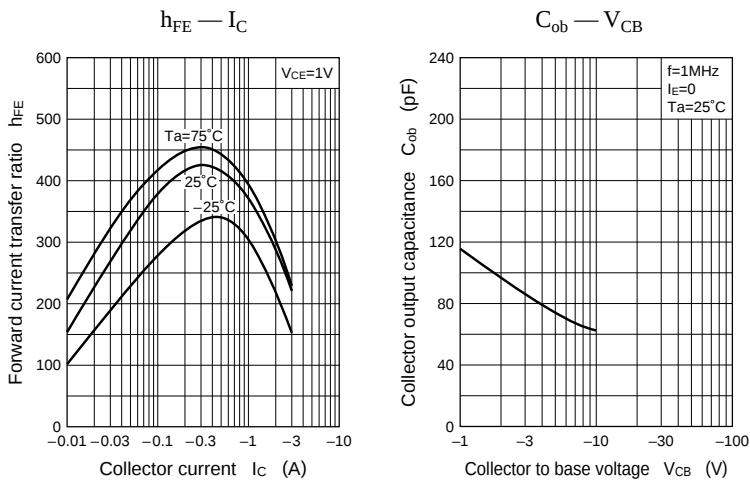
■ Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to base voltage	V_{CBO}	(NPN) $I_C = 10\mu A, I_E = 0$	10			V
		(PNP) $I_C = -10\mu A, I_E = 0$	-10			
Collector to emitter voltage	V_{CEO}	(NPN) $I_C = 1mA, I_B = 0$	10			V
		(PNP) $I_C = -1mA, I_B = 0$	-10			
Collector cutoff current	I_{CBO}	(NPN) $V_{CB} = 6V, I_E = 0$			1	μA
		(PNP) $V_{CB} = -6V, I_E = 0$			-1	
Forward current transfer ratio	h_{FE}	(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	$V_{CE(sat)}$	(NPN) $I_C = 2A, I_B = 50mA^*$			0.25	V
		(PNP) $I_C = -2A, I_B = -50mA^*$			-0.45	
Transition frequency	f_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_{ob}	(NPN) $V_{CB} = 6V, I_E = 0, f = 1MHz$		50		pF
		(PNP) $V_{CB} = -6V, I_E = 0, f = 1MHz$		70		
Forward voltage (DC)	V_F	(NPN) $I_F = 1A$			1.5	V
		(PNP) $I_F = -1A$			1.5	
Bias resistance	R_{EB}		-30%	10	+30%	k Ω

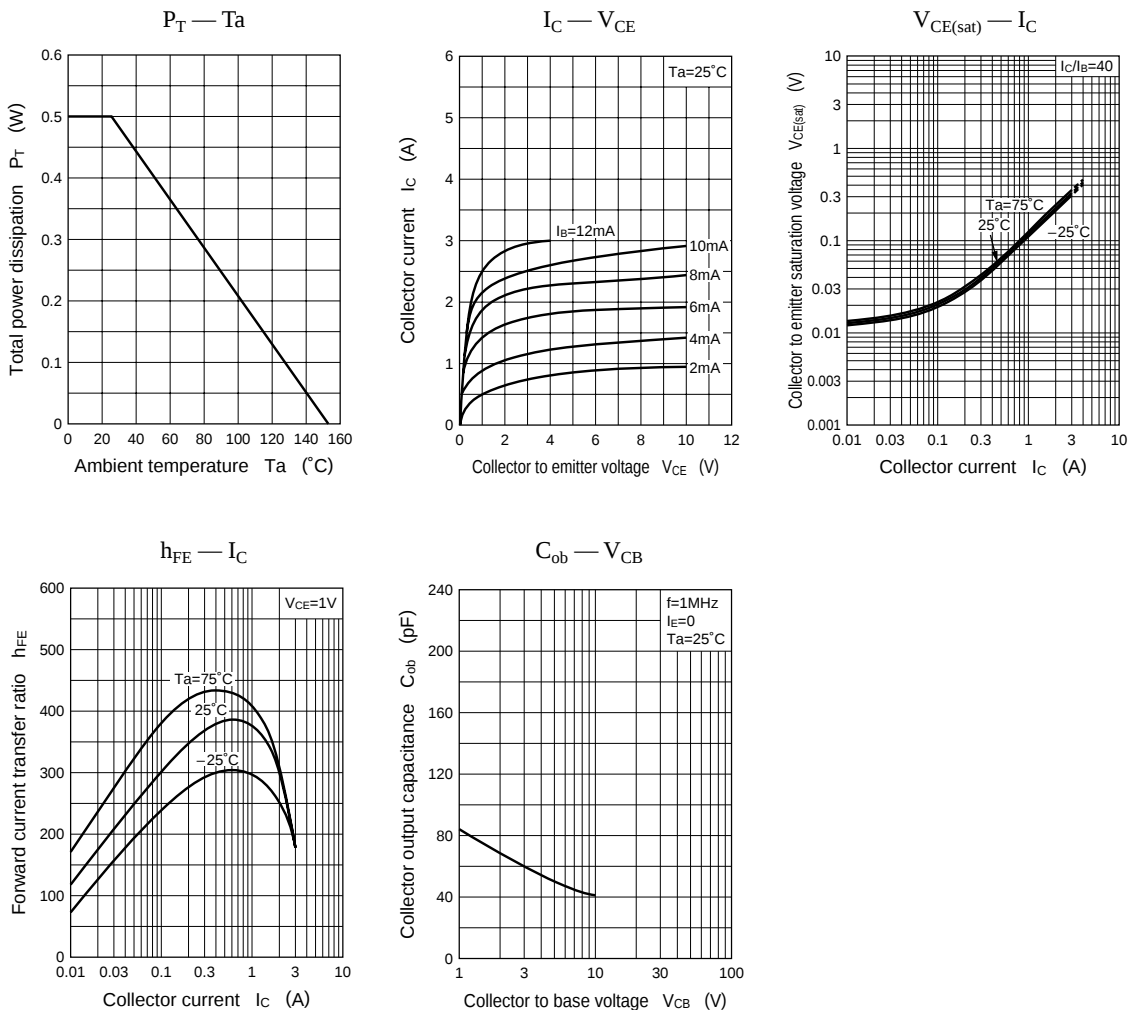
*Pulse measurement

Characteristics charts of PNP transistor block





Characteristics charts of NPN transistor block



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