

PUB4325 (PU4325)

Silicon NPN/PNP planar type darlington

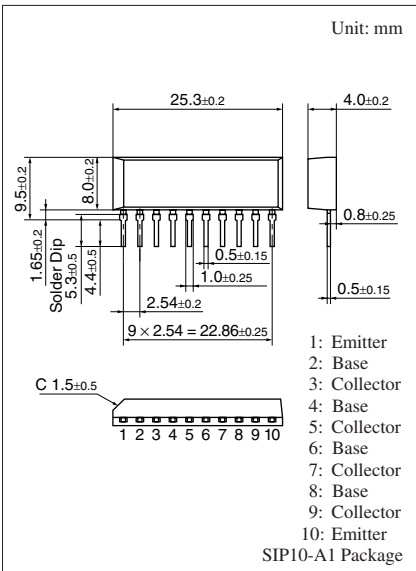
For power amplification

■ Features

- NPN 2 elements + PNP 2 elements
- NPN
 - High forward current transfer ratio h_{FE}
 - Darlington connection with a built-in zener diode
- PNP
 - High forward current transfer ratio h_{FE} which has satisfactory linearity
 - Low collector-emitter saturation voltage $V_{CE(sat)}$

■ Absolute Maximum Ratings $T_C = 25^{\circ}C$

Parameter		Symbol	Rating	Unit
NPN	Collector-base voltage (Emitter open)	V_{CBO}	60±10	V
	Collector-emitter voltage (Base open)	V_{CEO}	60±10	V
	Emitter-base voltage (Collector open)	V_{EBO}	5	V
	Collector current	I_C	2	A
	Peak collector current	I_{CP}	4	A
PNP	Collector-base voltage (Emitter open)	V_{CBO}	−60	V
	Collector-emitter voltage (Base open)	V_{CEO}	−60	V
	Emitter-base voltage (Collector open)	V_{EBO}	−6	V
	Collector current	I_C	−3	A
	Peak collector current	I_{CP}	−5	A
Overall	Collector power dissipation	P_C	15	W
			3.5	
	Junction temperature	T_j	150	°C
	Storage temperature	T_{stg}	−55 ~ +150	°C



Note) The part number in the parenthesis shows conventional part number.

■ Electrical Characteristics $T_C = 25^{\circ}\text{C} \pm 3^{\circ}\text{C}$

• NPN

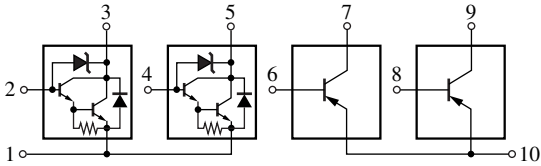
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 5\text{ mA}, I_B = 0$	50		70	V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 50\text{ V}, I_E = 0$			100	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$			2	mA
Forward current transfer ratio	h_{FE1}	$V_{CE} = 4\text{ V}, I_C = 1\text{ A}$	1 000			—
	h_{FE2}	$V_{CE} = 4\text{ V}, I_C = 2\text{ A}$	1 000		10 000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2\text{ A}, I_B = 8\text{ mA}$			2.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2\text{ A}, I_B = 8\text{ mA}$			2.5	V
Transition frequency	f_T	$V_{CE} = 10\text{ V}, I_C = 0.5\text{ A}, f = 10\text{ MHz}$		30		MHz
Energy handling capability	$E_{s/b}$	$I_C = 0.71\text{ A}, L = 100\text{ mH}, R_{BE} = 100\text{ }\Omega$	25			mJ

• PNP

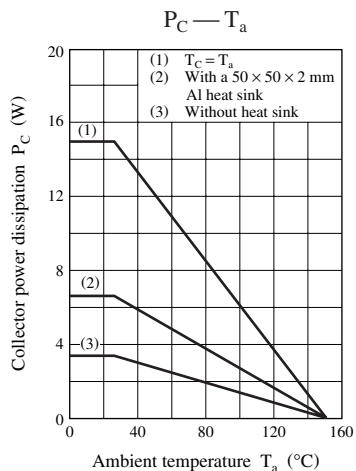
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = -30\text{ mA}, I_B = 0$	-60			V
Base-emitter voltage	V_{BE}	$V_{CE} = -4\text{ V}, I_C = -3\text{ A}$			-1.8	V
Collector-emitter current (E-B short)	I_{CES}	$V_{CE} = -60\text{ V}, V_{BE} = 0$			-200	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = -30\text{ V}, I_B = 0$			-300	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = -6\text{ V}, I_C = 0$			-1	mA
Forward current transfer ratio	h_{FE1}	$V_{CE} = -4\text{ V}, I_C = -1\text{ A}$	70		250	—
	h_{FE2}	$V_{CE} = -4\text{ V}, I_C = -3\text{ A}$	10			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -3\text{ A}, I_B = -0.375\text{ A}$			-1.2	V
Transition frequency	f_T	$V_{CE} = -10\text{ V}, I_C = -0.5\text{ A}, f = 10\text{ MHz}$		30		MHz

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

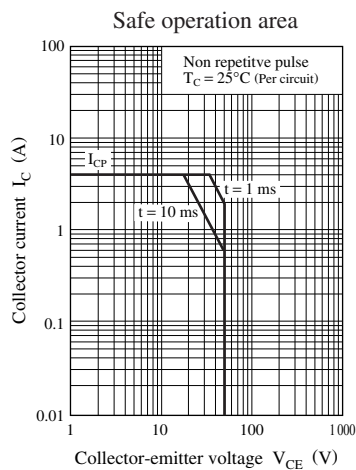
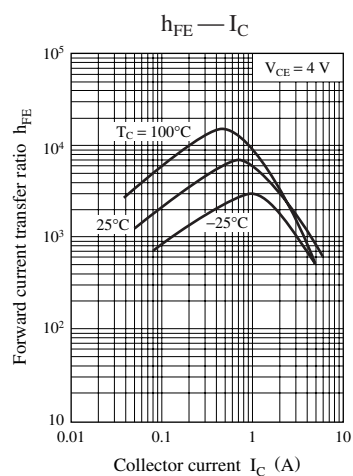
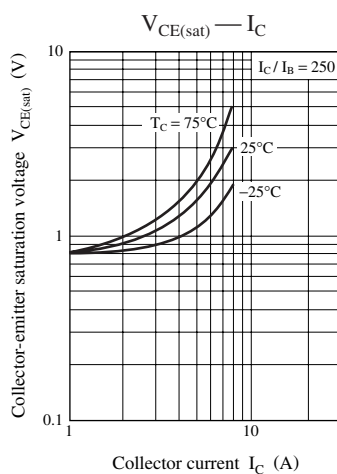
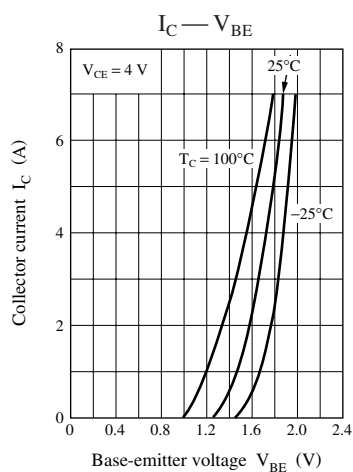
■ Internal Connection



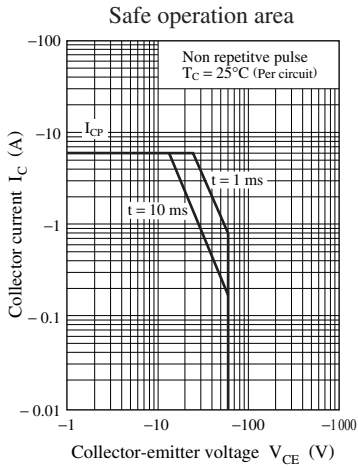
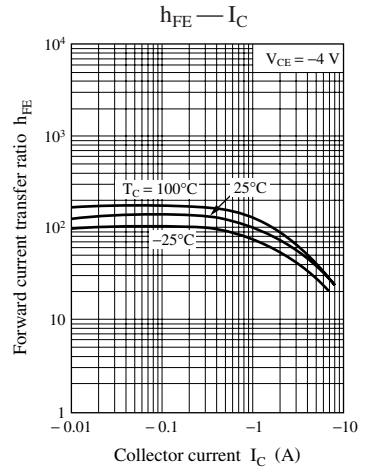
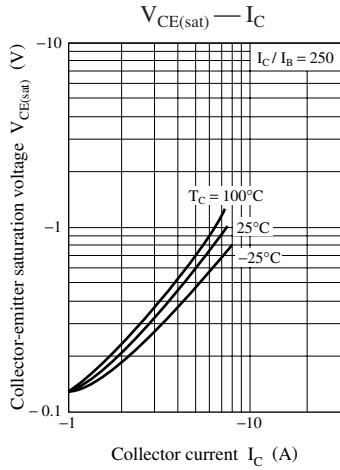
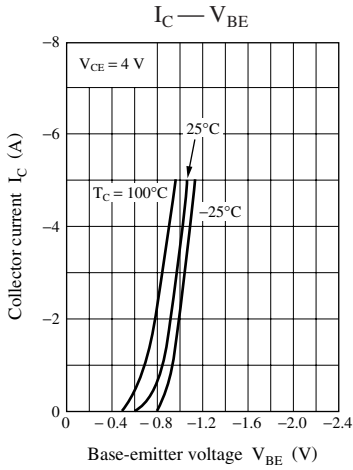
Common characteristics chart



Characteristics charts of NPN



Characteristics charts of PNP



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