

PU3122, PU4122, PU4422

Silicon NPN Triple-Diffused Planar Darlington Type

Power Amplifier, Switching

■ Features

- Built-in 30V Zener diode between C and B
- Very small fluctuation in breakdown voltage
- Large energy handling capability: $E_{s/b}=200\text{mJ}$ (min.)
- High speed switching either at high or low temperature environments
- PU3122: 3 NPN elements
- PU4122: 4 NPN elements
- PU4422: 2 NPN elements

■ Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)

Item	Symbol	Value	Unit
Collector-base voltage	V_{CB0}	30 ± 5	V
Collector-emitter voltage	V_{CE0}	30 ± 5	V
Emitter-base voltage	V_{EB0}	5	V
Peak collector current	I_{CP}	8	A
Collector current	I_C	4	A
Power dissipation	P_D	15	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	$-55\sim +150$	$^\circ\text{C}$

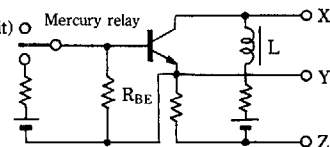
■ Electrical Characteristics ($T_c=25^\circ\text{C}$)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CB0}	$V_{CB}=25\text{V}, I_E=0$			100	μA
Emitter cutoff current	I_{EB0}	$V_{EB}=5\text{V}, I_C=0$			2	mA
Collector-emitter voltage	V_{CE0}	$I_C=5\text{mA}, I_B=0$	25		35	V
DC current gain	h_{FE1}	$V_{CE}=3\text{V}, I_C=0.5\text{A}$	1000			
	h_{FE2}^{*1}	$V_{CE}=3\text{V}, I_C=3\text{A}$	1000		10000	
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=3\text{A}, I_B=12\text{mA}$			2	V
	$V_{CE(sat)2}$	$I_C=5\text{A}, I_B=20\text{mA}$			4	
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=3\text{A}, I_B=12\text{mA}$			2.5	V
Transition frequency	f_T	$V_{CE}=10\text{V}, I_C=0.5\text{A}, f=1\text{MHz}$		20		MHz
Turn-on time	t_{on}	$I_C=3\text{A}, I_{B1}=12\text{mA}, I_{B2}=-12\text{mA}$		0.3		μs
Storage time	t_{stg}			3		μs
Fall time	t_f			1		μs
Energy handling capability	$E_{s/b}^{*2}$	$I_C=2\text{A}, L=100\text{mH}, R_{BE}=100\Omega$	200			mJ

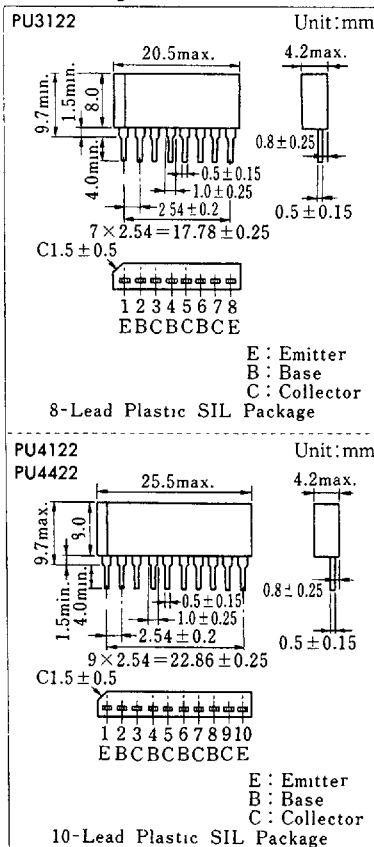
$^{*1}h_{FE2}$ Classifications

Class	Free	Q	P
h_{FE2}	1000~10000	1000~5000	2000~10000

$^{*2}E_{s/b}$ Test circuit (1 circuit)



■ Package Dimensions



6932852 0017010 004

■ Inner Circuit

