

PU3121, PU4121, PU4421**Silicon NPN Triple-Diffused Planar Type**

Power Amplifier, Switching

■ Features

- Built-in 30V Zener diode between C and B
- Very small fluctuation in breakdown voltages
- High speed switching
- PU3121: 3 NPN elements
- PU4121: 4 NPN elements
- PU4421: 2 NPN elements

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

Item	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	30 ± 5	V
Collector-emitter voltage	V_{CEO}	30 ± 5	V
Emitter-base voltage	V_{EBO}	5	V
Peak collector current	I_{CP}	4	A
Collector current	I_C	2	A
Power dissipation	P_D	15	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

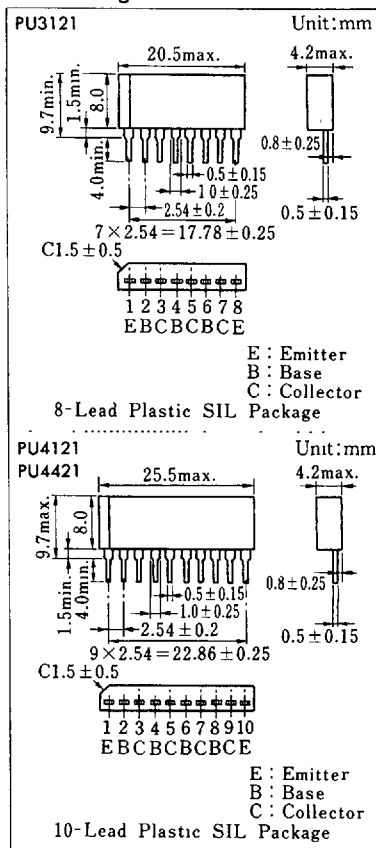
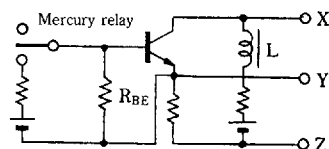
■ Electrical Characteristics ($T_c=25^\circ\text{C}$)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CBO}	$V_{CB}=25\text{V}, I_E=0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$			2	mA
Collector-emitter voltage	V_{CEO}	$I_C=5\text{mA}, I_B=0$	25		35	V
DC current gain	h_{FE1}	$V_{CE}=4\text{V}, I_C=1\text{A}$	1000			
	h_{FE2}^{*1}	$V_{CE}=4\text{V}, I_C=2\text{A}$	1000		10000	
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	$V_{CE}=10\text{V}, I_C=0.5\text{A}, f=1\text{MHz}$		20		MHz
Turn-on time	t_{on}	$I_C=2\text{A}, I_{B1}=8\text{mA}, I_{B2}=-8\text{mA}$		0.4		μs
Storage time	t_{stg}			3		μs
Fall time	t_f			1		μs
Energy handling capability	E_{sb}^{*2}	$I_C=1.45\text{A}, L=100\text{mH}, R_{BE}=100\Omega$	100			mJ

*¹ h_{FE2} Classifications

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

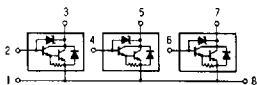
■ Package Dimensions

*² E_{sb} Test circuit (1 circuit)

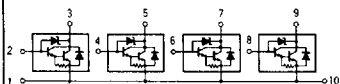
6932852 0017008 456

Inner Circuit

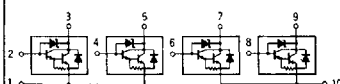
PU3121



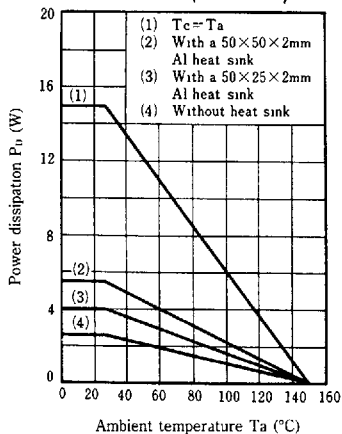
PU4121



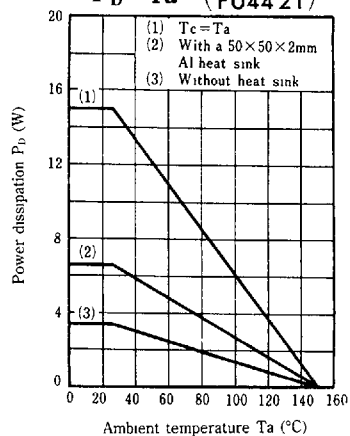
PU4421



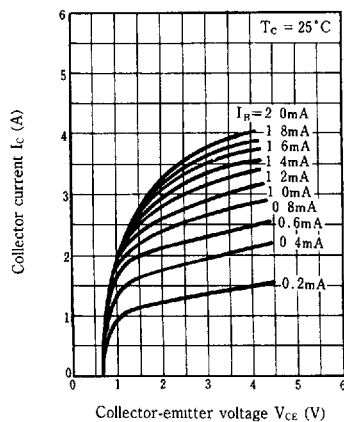
$P_D - T_a$ (PU3121)



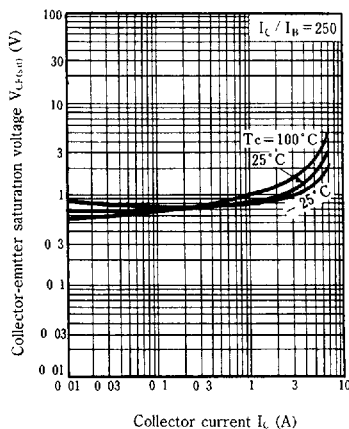
$P_D - T_a$ (PU4121, PU4421)



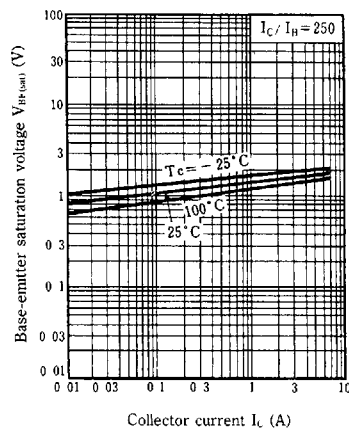
$I_C - V_{CE}$



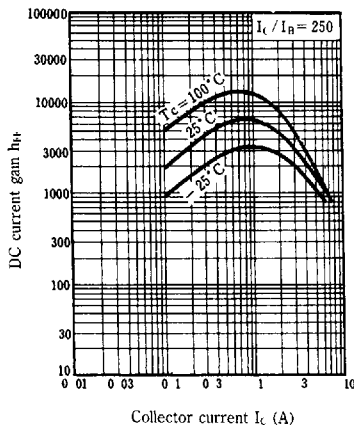
$V_{CE(sat)} - I_C$



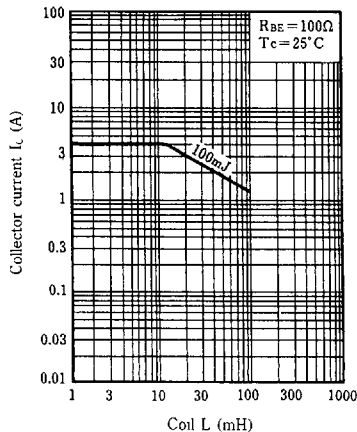
$V_{BE(sat)} - I_C$



$h_{FE} - I_C$



Induced load



Area of safe operation (ASO)

