

PU3120, PU4120, PU4420

Silicon NPN Triple-Diffused Planar Darlington Type

Power Amplifier, Switching

Complementary Pair with PU3220, PU4220, PU4520

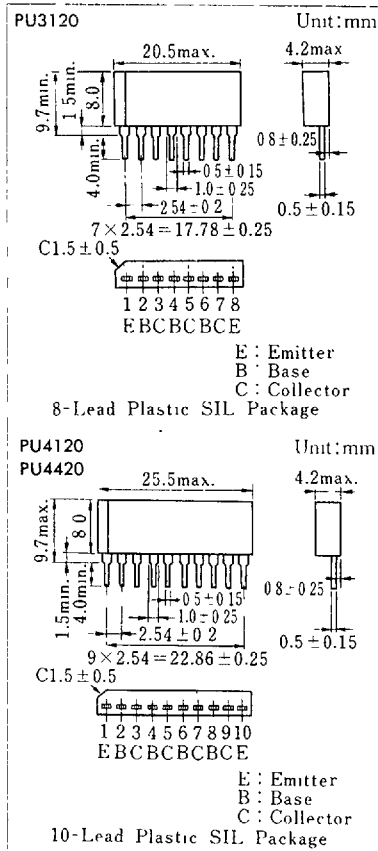
■ Features

- High DC current gain (h_{FE})
- High speed switching
- PU3120: 3 NPN elements
- PU4120: 4 NPN elements
- PU4120: 2 NPN elements $\times$ 2 (4 elements in total)

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

Item	Symbol	Value	Unit
Collector-base voltage	V_{CB0}	60	V
Collector-emitter voltage	V_{CE0}	60	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}	$-55 \sim +150$	$^\circ\text{C}$

■ Package Dimensions



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

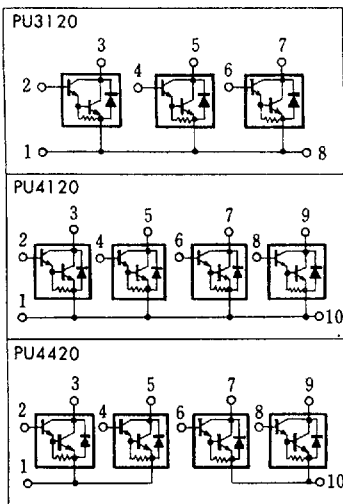
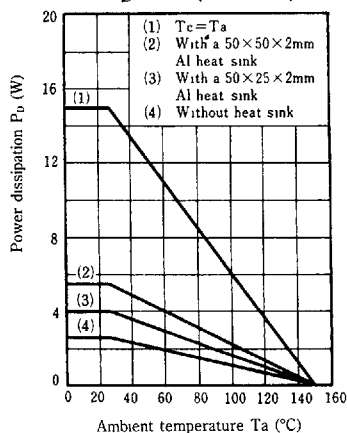
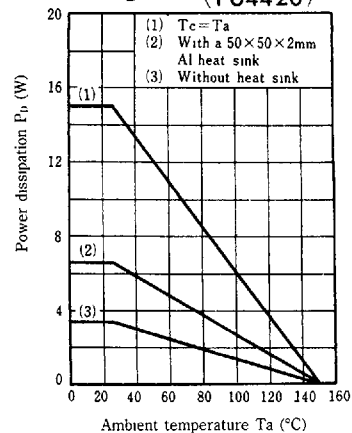
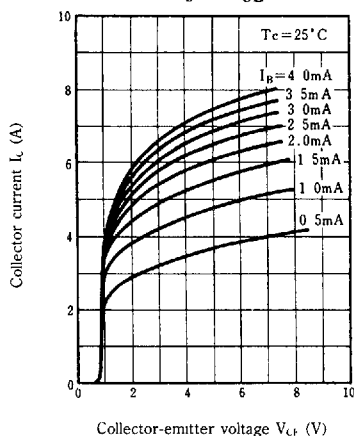
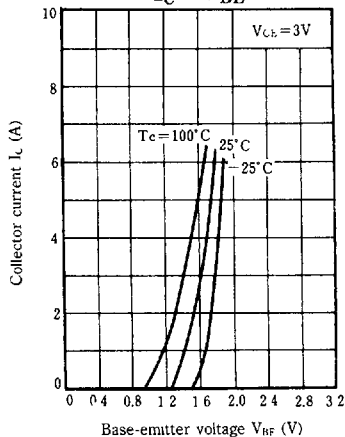
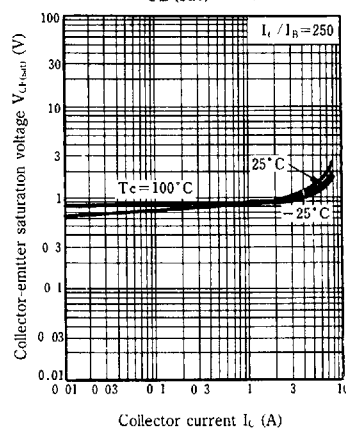
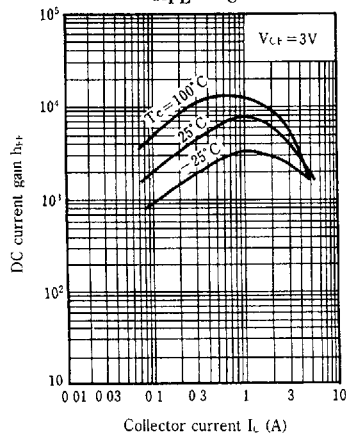
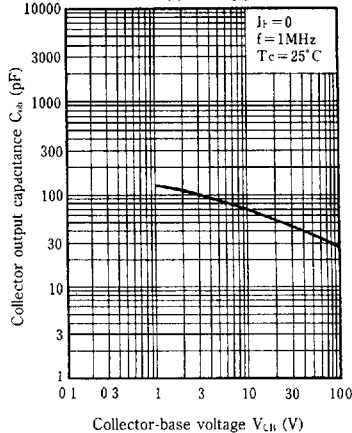
Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CB0}	$V_{CB}=60\text{V}, I_E=0$			200	μA
	I_{CE0}	$V_{CE}=30\text{V}, I_B=0$			500	μA
Emitter cutoff current	I_{EB0}	$V_{EB}=5\text{V}, I_C=0$			2	mA
Collector-emitter voltage	V_{CE0}	$I_C=30\text{mA}, I_B=0$	60			V
DC current gain	h_{FE1}	$V_{CE}=3\text{V}, I_C=0.5\text{A}$	1000			
	h_{FE2}^*	$V_{CE}=3\text{V}, I_C=3\text{A}$	1000		10000	
Base-emitter voltage	V_{BE}	$V_{CE}=3\text{V}, I_C=3\text{A}$			2.5	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=3\text{A}, I_B=12\text{mA}$			2	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}	$I_C=3\text{A}, I_{B1}=12\text{mA}, I_{B2}=-12\text{mA}$		0.5		μs
Storage time	t_{stg}			4		μs
Fall time	t_f			1		μs

* h_{FE2} Classifications

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

6932852 0017006 683

■ Inner Circuit

 $P_D - T_a$ (PU3120) $P_D - T_a$ (PU4120, PU4420) $I_C - V_{CE}$  $I_C - V_{BE}$  $V_{CE(sat)} - I_C$  $h_{FE} - I_C$  $C_{ob} - V_{CB}$ 

Area of safe operation (ASO)

