

PU3214, PU4214, PU4514 ■ Package Dimensions

Silicon NPN Epitaxial Planar Type

Power Amplifier, Switching

Complementary Pair with PU3114, PU4114, PU4414

■ Features

- Low collector-emitter saturation voltage ($V_{CE(sat)}$)
- Good linearity of DC current gain (h_{FE})
- High speed switching
- PU3211: 3 NPN elements
- PU4211: 4 NPN elements
- PU4511: 2 NPN elements $\times$ 2 (4 elements in total)

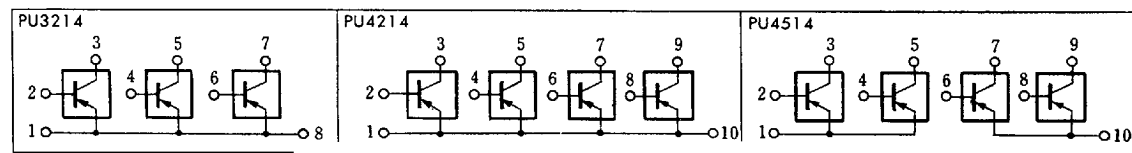
■ Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)

Item	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	-40	V
Collector-emitter voltage	V_{CEO}	-20	V
Emitter-base voltage	V_{EBO}	-5	V
Peak collector current	I_{CP}	-12	A
Collector current	I_C	-7	A
Power dissipation	P_D	15	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 ~ +150	$^\circ\text{C}$

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

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = -40\text{V}, I_E = 0$			-50	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = -5\text{V}, I_C = 0$			-50	μA
Collector-emitter voltage	V_{CEO}	$I_C = -10\text{mA}, I_B = 0$	-20			V
DC current gain	h_{FE1}	$V_{CE} = -2\text{V}, I_C = -0.1\text{A}$	45			
	h_{FE2}	$V_{CE} = -2\text{V}, I_C = -2\text{A}$	60		260	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -5\text{A}, I_B = -0.16\text{A}$			-0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -5\text{A}, I_B = -0.16\text{A}$			-1.5	V
Transition frequency	f_T	$V_{CE} = -10\text{V}, I_C = -0.5\text{A}, f = 10\text{MHz}$		150		MHz
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$		140		pF
Turn-on time	t_{on}	$I_C = -2\text{A}, I_{B1} = -66\text{mA}, I_{B2} = 66\text{mA}$		0.1		μs
Storage time	t_{stg}			0.5		μs
Fall time	t_f			0.1		μs

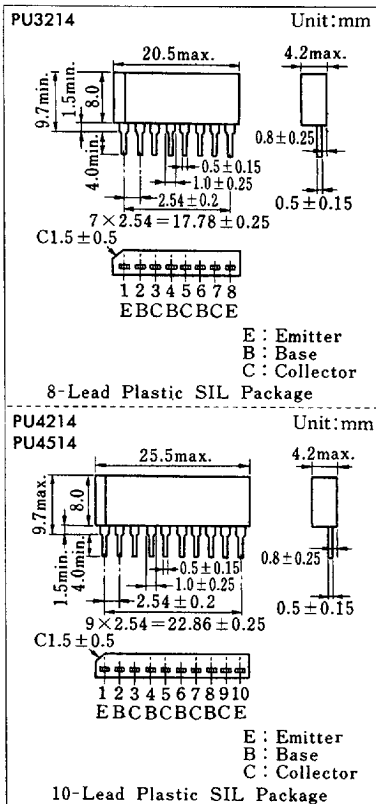
■ Inner Circuit

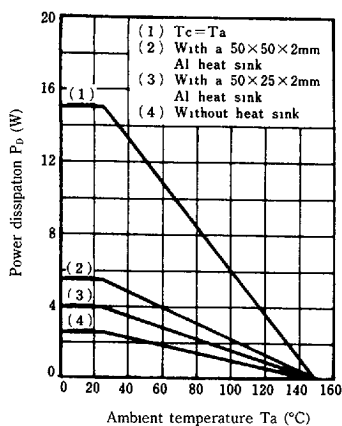
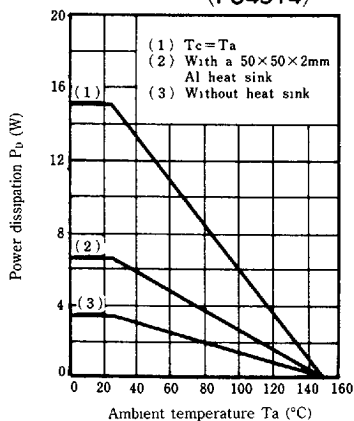
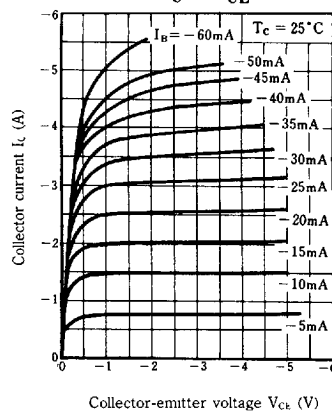
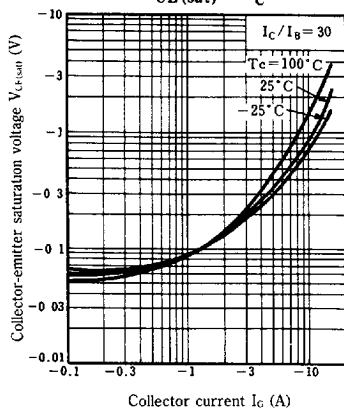
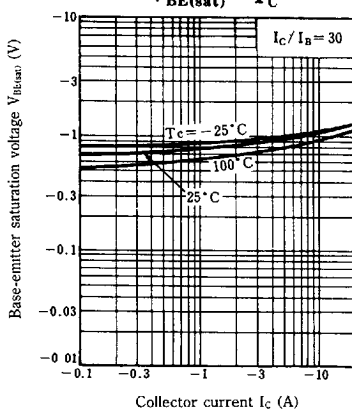
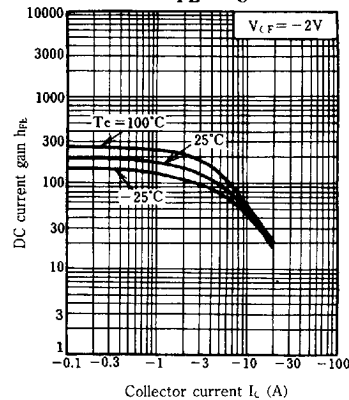
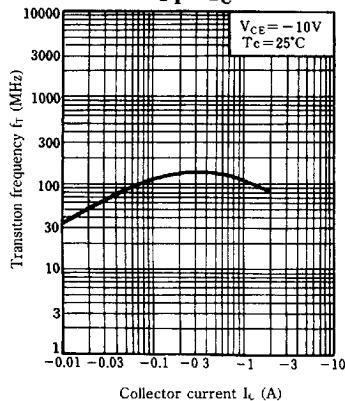
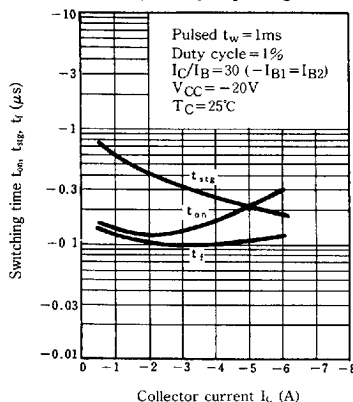


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$P_D - T_a$ (PU3214) $P_D - T_a$ (PU4214, PU4514) $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_C$  $t_{on}, t_{stg}, t_f - I_C$ 

Area of safe operation (ASO)

