

PU3123, PU4123, PU4423

Silicon NPN Triple-Diffused Planar Darlington Type

Power Amplifier, Switching

■ Features

- Built-in 60V Zener diode between C and B
- Very small fluctuation in breakdown voltage
- Large energy handling capability
- High speed switching
- PU3123: 3 NPN elements
- PU4123: 4 NPN elements
- PU4423: 2 NPN elements

■ Absolute Maximum Ratings (Tc=25°C)

Item	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	60 ± 10	V
Collector-emitter voltage	V_{CEO}	60 ± 10	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	°C
Storage temperature	T_{stg}	$-55 \sim +150$	°C

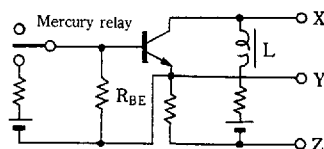
■ Electrical Characteristics (Tc=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CBO}	$V_{CBO} = 50V, I_E = 0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			2	mA
Collector-emitter voltage	V_{CEO}	$I_C = 5mA, I_B = 0$	50		70	V
DC current gain	h_{FE1}	$V_{CE} = 4V, I_C = 1A$	1000			
	h_{FE2}^{*1}	$V_{CE} = 4V, I_C = 2A$	1000		10000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2A, I_B = 8mA$			2.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2A, I_B = 8mA$			2.5	V
Transition frequency	f_T	$V_{CE} = 10V, I_C = 0.5A, f = 1MHz$		20		MHz
Turn-on time	t_{on}	$I_C = 2A, I_{B1} = 8mA, I_{B2} = -8mA$		0.4		μs
Storage time	t_{stg}			3		μs
Fall time	t_f			1		μs
Energy handling capability	E_{sb}^{*2}	$I_C = 1A, L = 100mH, R_{BE} = 100\Omega$	25			mJ

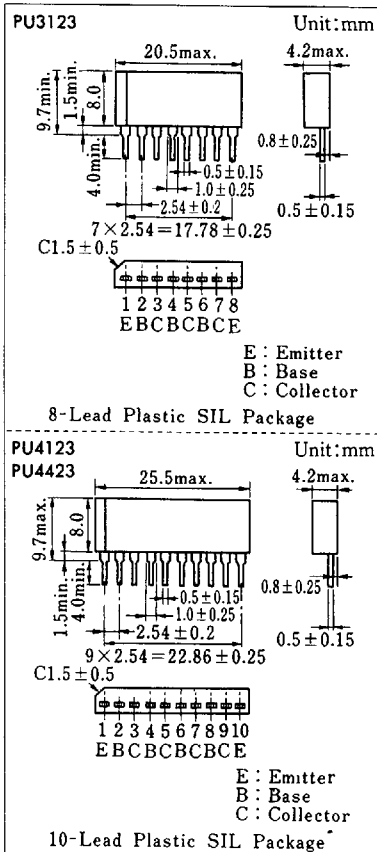
$^{*1}h_{FE2}$ Classifications

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

$^{*2}E_{sb}$ Test circuit (1 circuit)



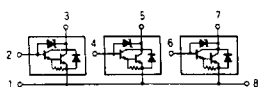
■ Package Dimensions



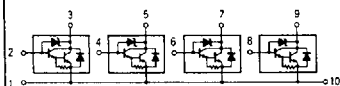
6932852 0017012 987

■ Inner Circuit

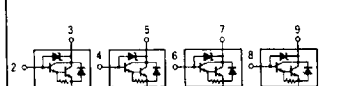
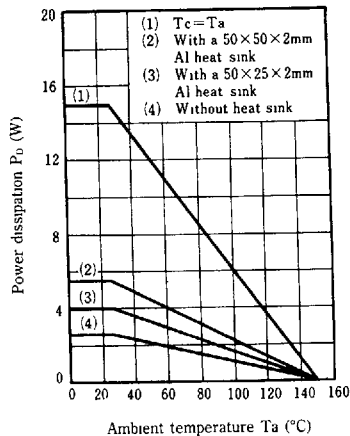
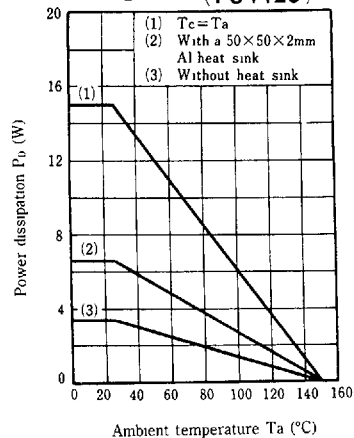
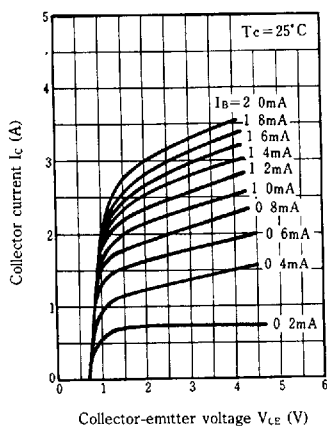
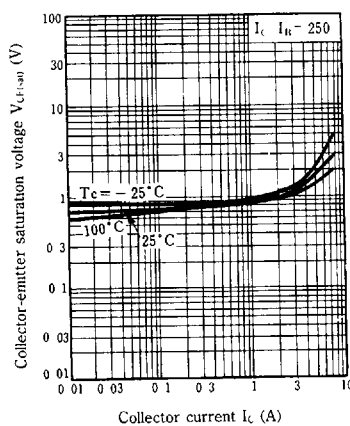
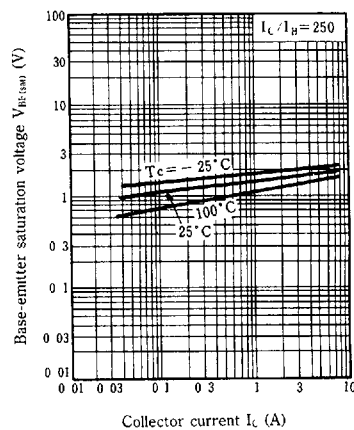
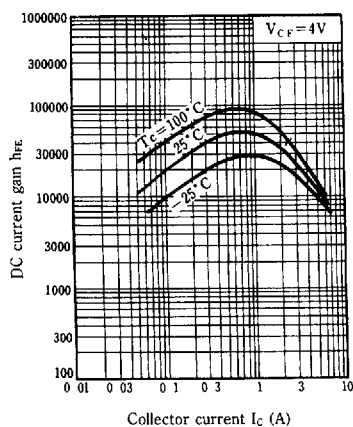
PU3123



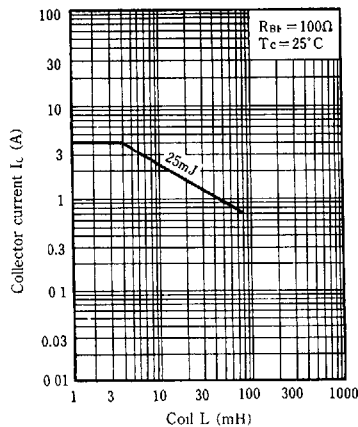
PU4123



PU4423

 $P_D - T_a$ (PU3123) $P_D - T_a$ (PU4123, PU4423) $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$ 

Induced load



Area of safe operation (ASO)

