

# PU4319

## Silicon NPN/PNP Planar Darlington Type

Power Amplifier, Switching

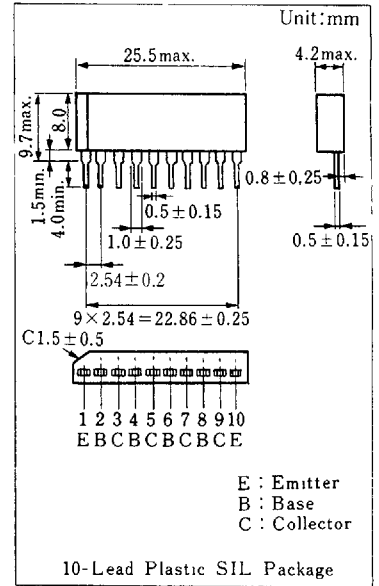
### ■ Features

- High DC current gain ( $h_{FE}$ )
- High speed switching
- 2 NPN elements + 2 PNP elements

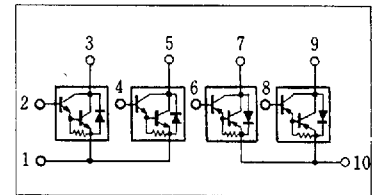
### ■ Absolute Maximum Ratings ( $T_c=25^\circ\text{C}$ )

Item	Symbol	Value	Unit
Collector-base voltage	$V_{CBO}$	$\pm 60$	V
Collector-emitter voltage	$V_{CEO}$	$\pm 60$	V
Emitter-base voltage	$V_{EBO}$	$\pm 5$	V
Peak collector current	$I_{CP}$	$\pm 4$	A
Collector current	$I_C$	$\pm 2$	A
Power dissipation	$P_D$	15	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{sig}$	$-55 \sim +150$	$^\circ\text{C}$

### ■ Package Dimensions



### ■ Inner Circuit



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

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = \pm 60\text{V}, I_E = 0$			$\pm 1$	mA
	$I_{CEO}$	$V_{CE} = \pm 30\text{V}, I_B = 0$			$\pm 2$	mA
Emitter cutoff current	$I_{EBO}$	$V_{EB} = \pm 5\text{V}, I_C = 0$			$\pm 2$	mA
Collector-emitter voltage	$V_{CEO}$	$I_C = \pm 30\text{mA}, I_B = 0$	60			V
DC current gain	$h_{FE1}$	$V_{CE} = \pm 4\text{V}, I_C = \pm 1\text{A}$	1000			
	$h_{FE2}^*$	$V_{CE} = \pm 4\text{V}, I_C = \pm 2\text{A}$	1000		10000	
Base-emitter voltage	$V_{BE}$	$V_{CE} = \pm 4\text{V}, I_C = \pm 2\text{A}$			$\pm 2.8$	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = \pm 2\text{A}, I_B = \pm 8\text{mA}$			$\pm 2.8$	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	$t_{on}$	$I_C = \pm 2\text{A}, I_{B1} = \pm 8\text{mA}, I_{B2} = \mp 8\text{mA}$		(typ.) NPN: 0.5, PNP: 0.4		$\mu\text{s}$
Storage time	$t_{stg}$		(typ.) NPN: 4, PNP: 1.5		$\mu\text{s}$	
Fall time	$t_f$		(typ.) NPN: 1, PNP: 0.5		$\mu\text{s}$	

### \* $h_{FE2}$ Classifications

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

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