

# 2SB1415

## Silicon PNP Epitaxial Planar Darlington Type

### AF Amplifier

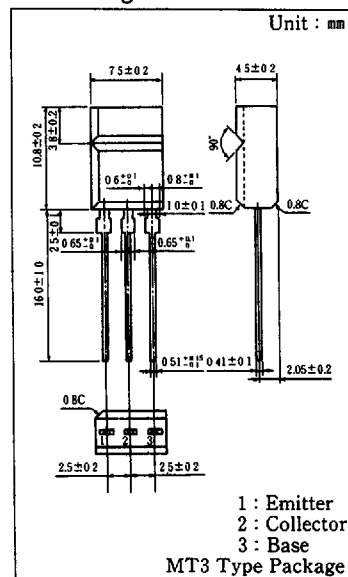
#### ■ Features

- High DC current gain ( $h_{FE}$ )
- Built-in 60V Zener diode between C and B
- Darlington configuration
- Automatic mounting by radial taping is possible.

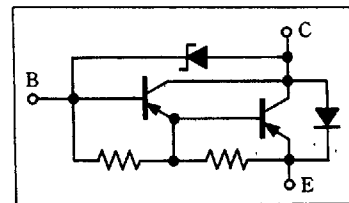
#### ■ Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

Item	Symbol	Value	Unit
Collector-base voltage	$V_{CB0}$	$-60 \pm 10$	V
Collector-emitter voltage	$V_{CEO}$	$-60 \pm 10$	V
Emitter-base voltage	$V_{EBO}$	-5	V
Peak collector current	$I_{CP}$	-1.5	A
Collector current	$I_C$	-1	A
Collector power dissipation	$P_C$	1.5	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{str}$	$-55 \sim +150$	$^\circ\text{C}$

#### ■ Package Dimensions



#### ■ Inner Circuit



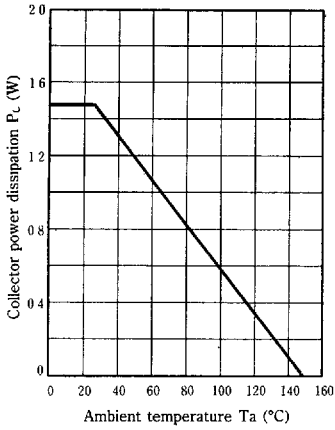
#### ■ Electrical Characteristics ( $T_c=25^\circ\text{C}$ )

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = -25\text{V}, I_E = 0$			-1	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = -4\text{V}, I_C = 0$			-2	mA
Emitter-base voltage	$V_{CBO}$	$I_C = -100\mu\text{A}, I_E = 0$	-50		-70	V
Collector-emitter voltage	$V_{CEO}$	$I_C = -1\text{mA}, I_B = 0$	-50		-70	V
DC current gain	$h_{FE}^*$	$V_{CE} = -10\text{V}, I_C = -1.0\text{A}$	4000		40000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -1.0\text{A}, I_B = -1.0\text{mA}$			-1.8	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -1.0\text{A}, I_B = -1.0\text{mA}$			-2.2	V
Transition frequency	$f_T$	$V_{CB} = -10\text{V}, I_E = 50\text{mA}, f = 200\text{MHz}$		150		MHz

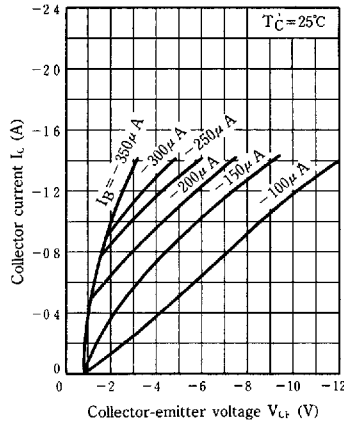
#### \* $h_{FE}$ Classifications

Class	Q	R	S
$h_{FE}$	4000~10000	8000~20000	16000~40000

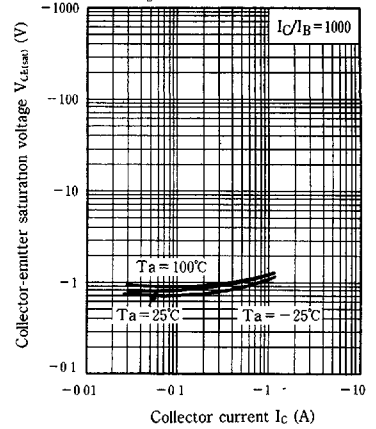
$P_C - T_a$



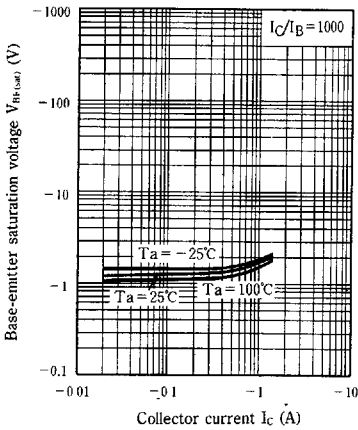
$I_C - V_{CE}$



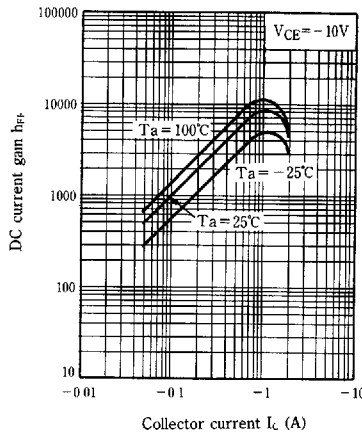
$V_{CE(sat)} - I_C$



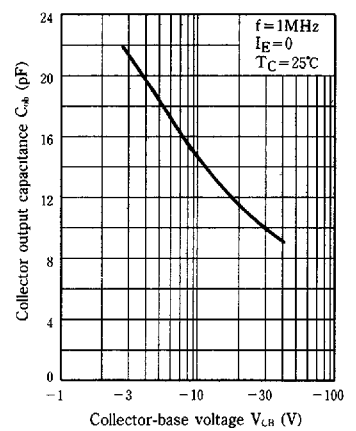
$V_{BE(sat)} - I_C$



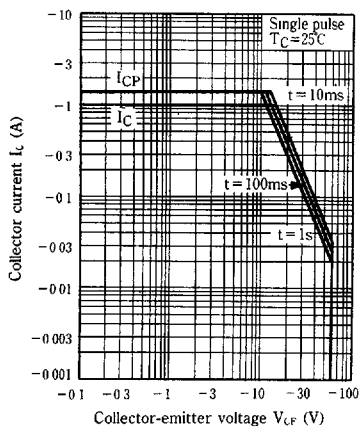
$h_{FE} - I_C$



$C_{ob} - V_{CB}$



Area of safe operation (ASO)



$R_{th(t)} - t$

