

# 2SD1457, 2SD1457A

Silicon NPN triple diffusion planar type Darlington

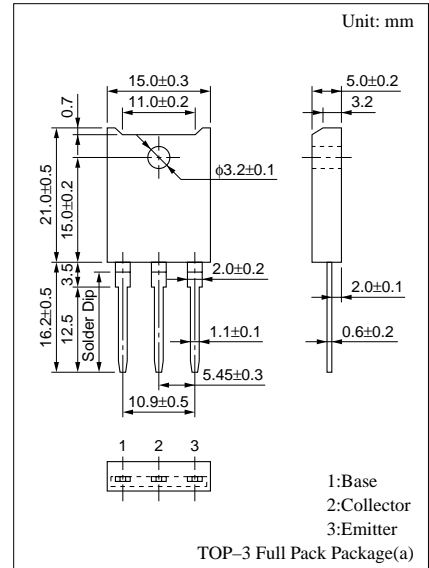
For power amplification

## Features

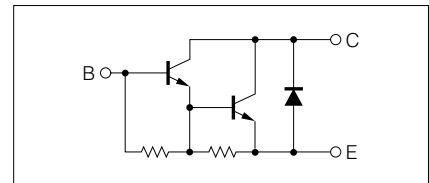
- High forward current transfer ratio  $h_{FE}$
- High collector to base voltage  $V_{CBO}$
- Full-pack package which can be installed to the heat sink with one screw

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

Parameter	Symbol	Rated	Unit
Collector to base voltage	$V_{CBO}$	200	V
Collector to emitter voltage	$V_{CEO}$	150	V
2SD1457		200	
2SD1457A			
Emitter to base voltage	$V_{EBO}$	5	V
Peak collector current	$I_{CP}$	10	A
Collector current	$I_C$	6	A
Collector power dissipation	$P_C$	60	W
$T_C=25^\circ\text{C}$		3	
$T_a=25^\circ\text{C}$			
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$



## Internal Connection



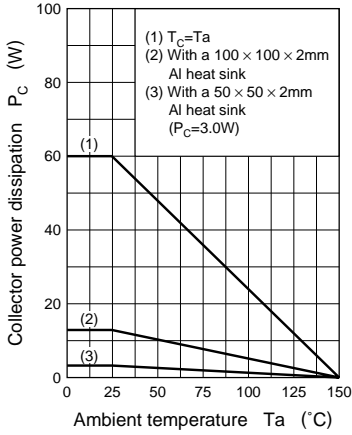
## Electrical Characteristics ( $T_C=25^\circ\text{C}$ )

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 200\text{V}, I_E = 0$			100	$\mu\text{A}$
Collector to emitter voltage	$V_{CEO(sus)}$	$I_C = 2\text{A}, L = 10\text{mH}$	150			V
Emitter to base voltage	$V_{EBO}$	$I_E = 0.1\text{A}, I_C = 0$	5			V
Forward current transfer ratio	$h_{FE}^*$	$V_{CE} = 2\text{V}, I_C = 2\text{A}$	700		10000	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3\text{A}, I_B = 0.06\text{A}$			1.5	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 3\text{A}, I_B = 0.06\text{A}$			2.5	V
Transition frequency	$f_T$	$V_{CE} = 10\text{V}, I_C = 0.5\text{A}, f = 1\text{MHz}$		15		MHz

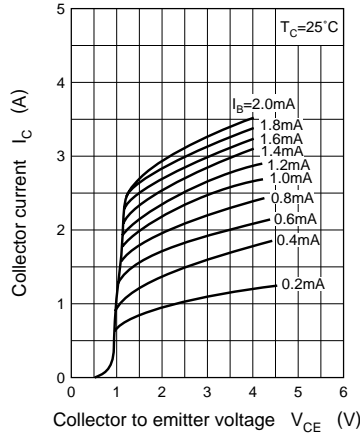
\* $h_{FE}$  Rank classification

Rank	Q	P	O
$h_{FE}$	700 to 2500	2000 to 5000	4000 to 10000

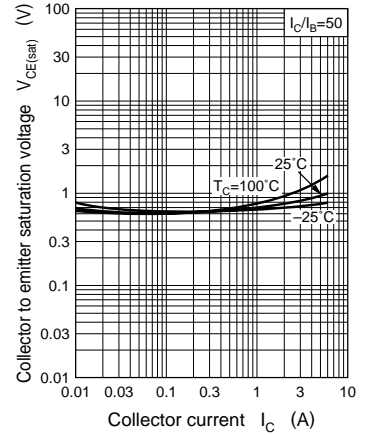
$P_C - T_a$



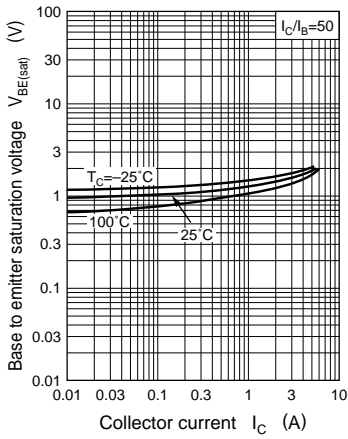
$I_C - V_{CE}$



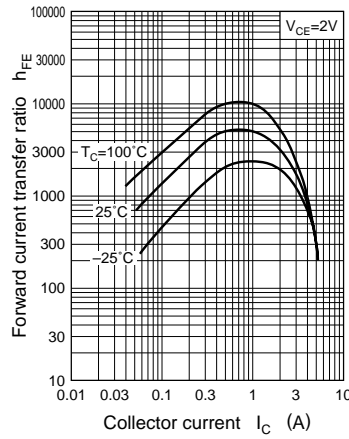
$V_{CE(sat)} - I_C$



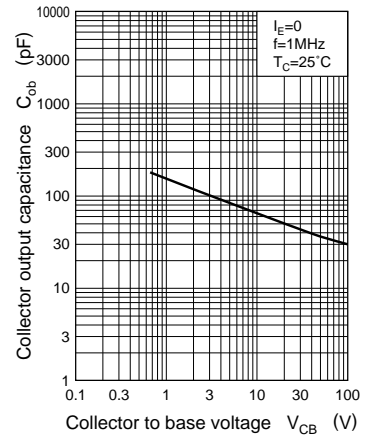
$V_{BE(sat)} - I_C$



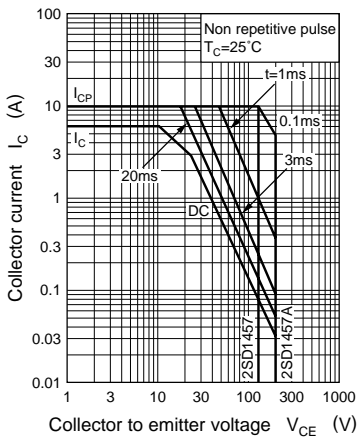
$h_{FE} - I_C$



$C_{ob} - V_{CB}$



Area of safe operation (ASO)



$R_{th(t)} - t$

