

2SD1457, 2SD1457A

Silicon NPN triple diffusion planar type Darlington

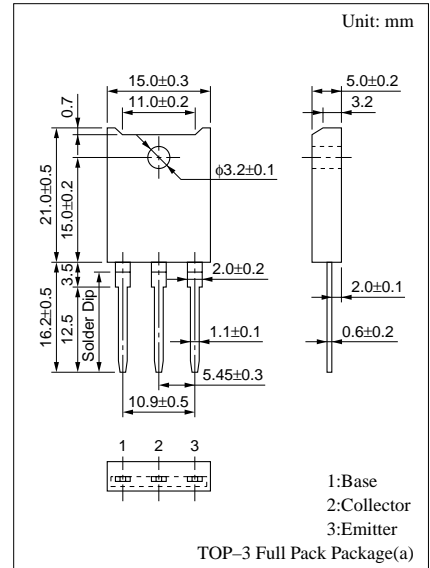
For power amplification

Features

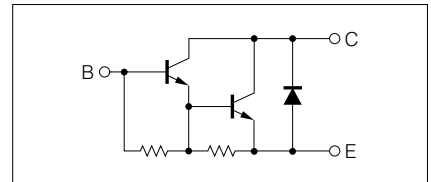
- High forward current transfer ratio h_{FE}
- High collector to base voltage V_{CBO}
- Full-pack package which can be installed to the heat sink with one screw

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



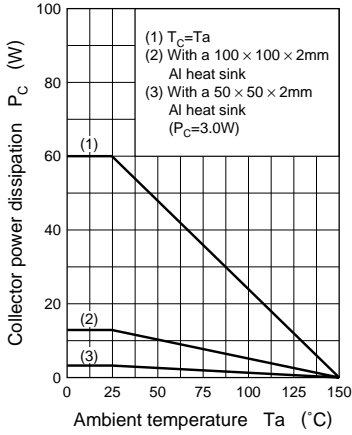
Electrical Characteristics ($T_C=25^\circ\text{C}$)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 200\text{V}, I_E = 0$			100	μA
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

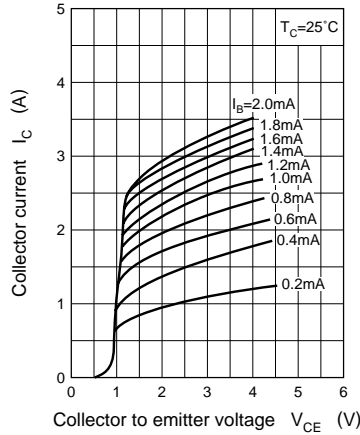
* h_{FE} Rank classification

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

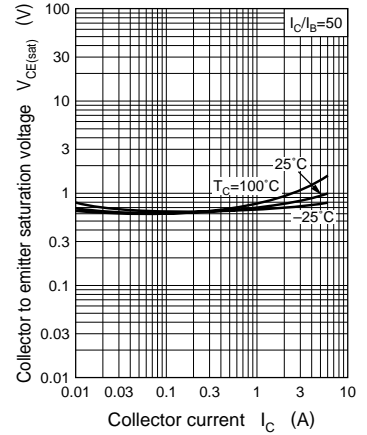
$P_C - T_a$



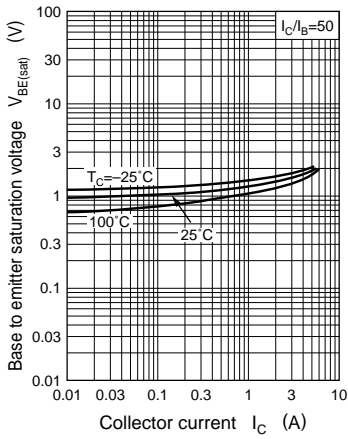
$I_C - V_{CE}$



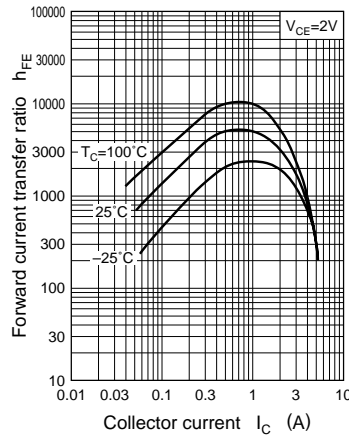
$V_{CE(sat)} - I_C$



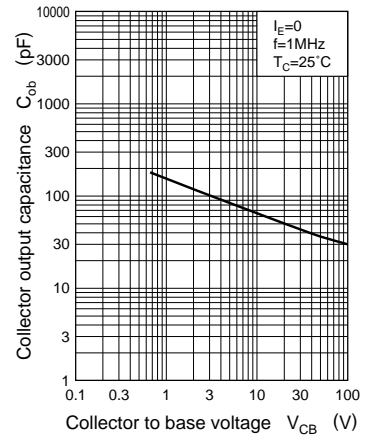
$V_{BE(sat)} - I_C$



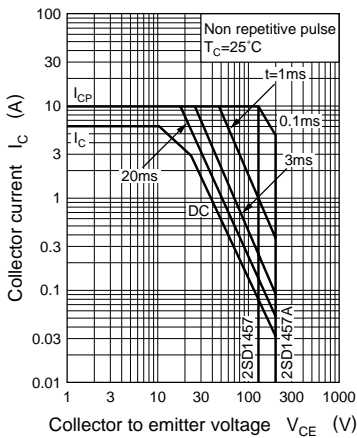
$h_{FE} - I_C$



$C_{ob} - V_{CB}$



Area of safe operation (ASO)



$R_{th(t)} - t$

