

2SD1257, 2SD1257A

Silicon NPN epitaxial planar type

For power switching

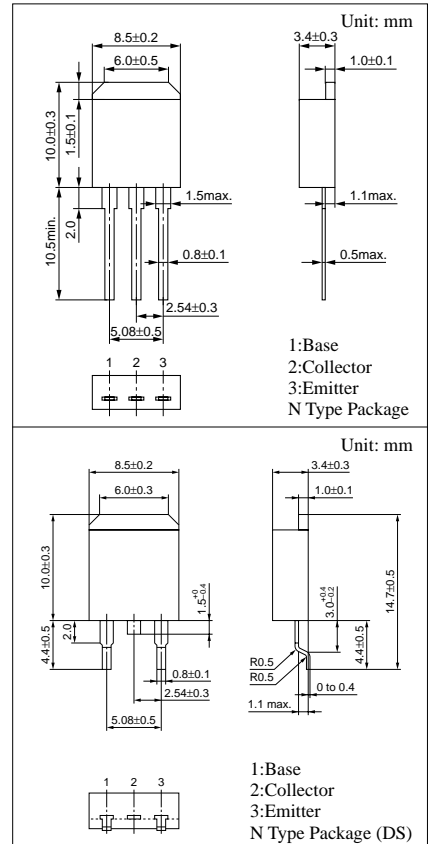
Complementary to 2SB934

Features

- Low collector to emitter saturation voltage $V_{CE(sat)}$
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Large collector current I_C
- N type package enabling direct soldering of the radiating fin to the printed circuit board, etc. of small electronic equipment.

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

Parameter	Symbol	Rated	Unit
Collector to base voltage	2SD1257	130	V
	2SD1257A	150	
Collector to emitter voltage	2SD1257	80	V
	2SD1257A	100	
Emitter to base voltage	V_{EBO}	7	V
Peak collector current	I_{CP}	15	A
Collector current	I_C	7	A
Collector power dissipation	$T_C=25^\circ\text{C}$	40	W
	$T_a=25^\circ\text{C}$	1.3	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

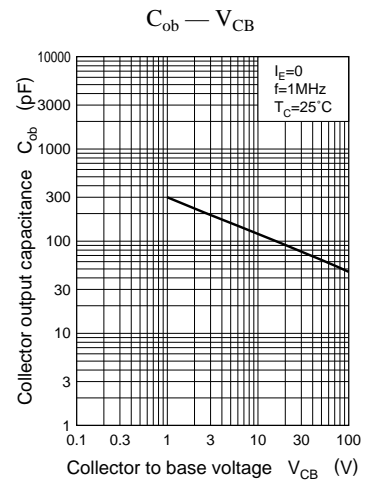
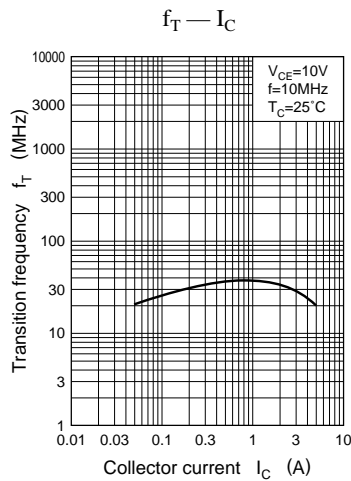
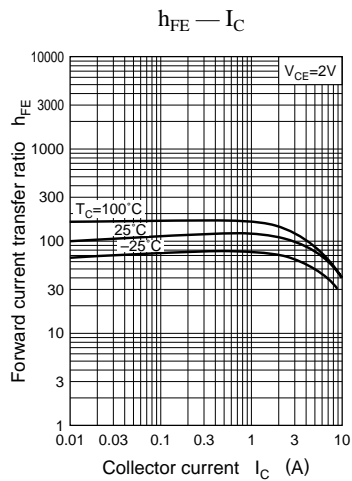
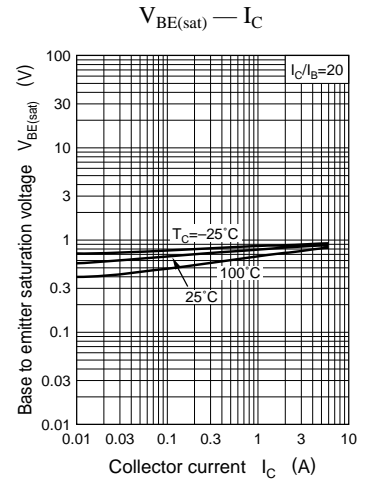
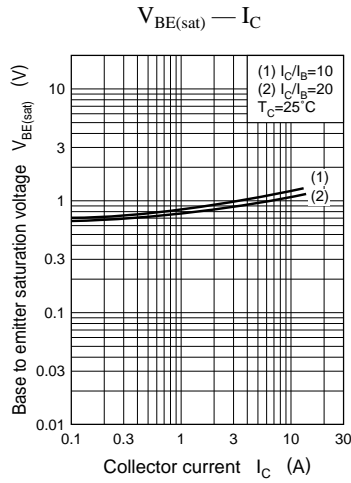
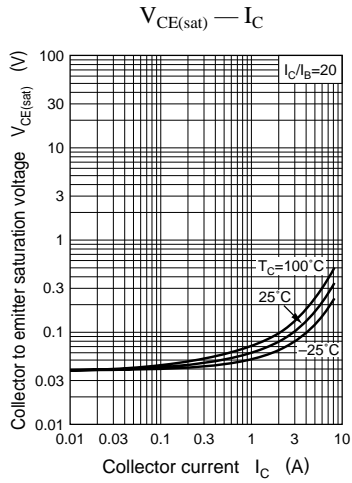
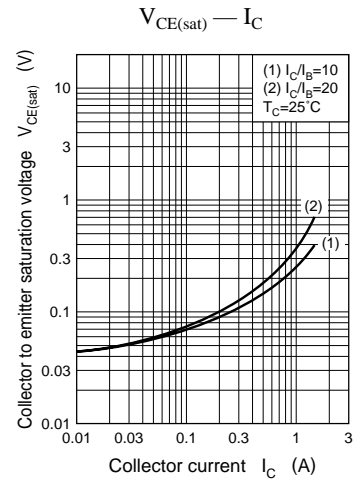
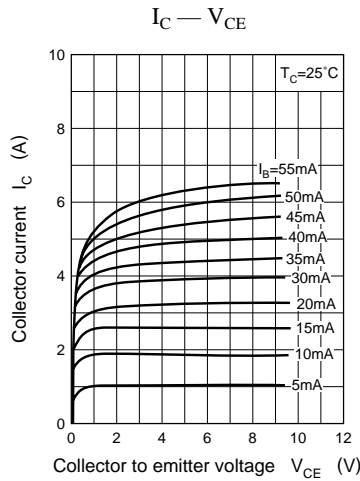
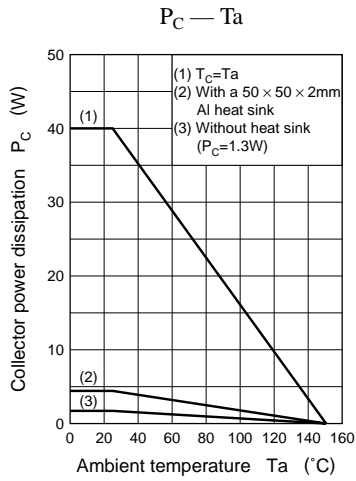


Electrical Characteristics ($T_C=25^\circ\text{C}$)

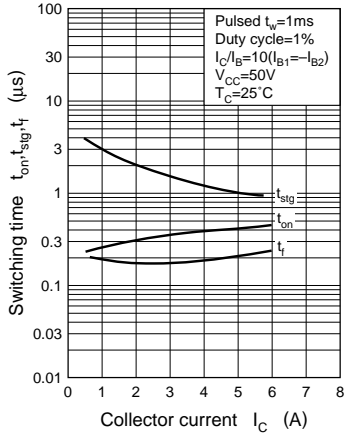
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 100V, I_E = 0$			10	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			50	μA
Collector to emitter voltage	V_{CEO}	$I_C = 10\text{mA}, I_B = 0$	80			V
			100			
Forward current transfer ratio	h_{FE1}	$V_{CE} = 2V, I_C = 0.1A$	45			
	h_{FE2}^*	$V_{CE} = 2V, I_C = 3A$	60		260	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 5A, I_B = 0.25A$			0.5	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 5A, I_B = 0.25A$			1.5	V
Transition frequency	f_T	$V_{CE} = 10V, I_C = 0.5A, f = 10\text{MHz}$		30		MHz
Turn-on time	t_{on}	$I_C = 3A, I_{B1} = 0.3A, I_{B2} = -0.3A, V_{CC} = 50V$		0.5		μs
Storage time	t_{stg}			1.5		μs
Fall time	t_f			0.1		μs

* h_{FE2} Rank classification

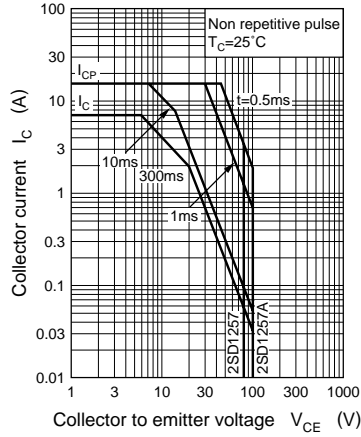
Rank	R	Q	P
h_{FE2}	60 to 120	90 to 180	130 to 260



$t_{on}, t_{stg}, t_f - I_C$



Area of safe operation (ASO)



$R_{th(t)} - t$

