

# 2SB937, 2SB937A

Silicon PNP epitaxial planar type Darlington

For power amplification and switching

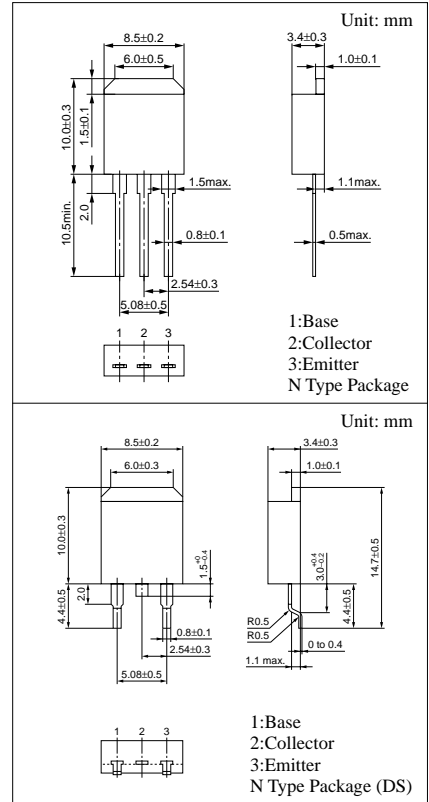
Complementary to 2SD1260 and 2SD1260A

**Features**

- High forward current transfer ratio  $h_{FE}$
- High-speed switching
- N type package enabling direct soldering of the radiating fin to the printed circuit board, etc. of small electronic equipment.

**Absolute Maximum Ratings** ( $T_C=25^\circ C$ )

Parameter	Symbol	Ratings	Unit	
Collector to base voltage	V <sub>CBO</sub>	-60	V	
2SB937A		-80		
Collector to emitter voltage	V <sub>CEO</sub>	-60	V	
2SB937A		-80		
Emitter to base voltage	V <sub>EBO</sub>	-5	V	
Peak collector current	I <sub>CP</sub>	-4	A	
Collector current	I <sub>C</sub>	-2	A	
Collector power dissipation	P <sub>C</sub>	T <sub>C</sub> =25°C	35	W
		T <sub>a</sub> =25°C	1.3	
Junction temperature	T <sub>j</sub>	150	°C	
Storage temperature	T <sub>stg</sub>	-55 to +150	°C	



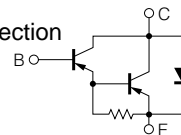
**Electrical Characteristics** ( $T_C=25^\circ C$ )

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I <sub>CBO</sub>	V <sub>CB</sub> = -60V, I <sub>E</sub> = 0			-1	mA
		V <sub>CB</sub> = -80V, I <sub>E</sub> = 0			-1	
Collector cutoff current	I <sub>CEO</sub>	V <sub>CE</sub> = -30V, I <sub>B</sub> = 0			-2	mA
		V <sub>CE</sub> = -40V, I <sub>B</sub> = 0			-2	
Emitter cutoff current	I <sub>EBO</sub>	V <sub>EB</sub> = -5V, I <sub>C</sub> = 0			-2	mA
Collector to emitter voltage	V <sub>CEO</sub>	I <sub>C</sub> = -30mA, I <sub>B</sub> = 0	-60			V
			-80			
Forward current transfer ratio	h <sub>FE1</sub>	V <sub>CE</sub> = -4V, I <sub>C</sub> = -1A	1000			
	h <sub>FE2</sub> *	V <sub>CE</sub> = -4V, I <sub>C</sub> = -2A	2000		10000	
Base to emitter voltage	V <sub>BE</sub>	V <sub>CE</sub> = -4V, I <sub>C</sub> = -2A			-2.8	V
Collector to emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = -2A, I <sub>B</sub> = -8mA			-2.5	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = -10V, I <sub>C</sub> = -0.5A, f = 1MHz		20		MHz
Turn-on time	t <sub>on</sub>	I <sub>C</sub> = -2A, I <sub>B1</sub> = -8mA, I <sub>B2</sub> = 8mA		0.4		μs
Storage time	t <sub>stg</sub>			1.5		μs
Fall time	t <sub>f</sub>				0.5	

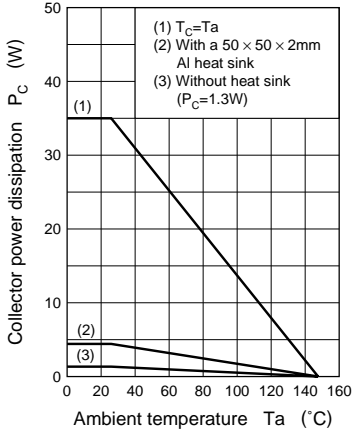
\*h<sub>FE2</sub> Rank classification

Rank	Q	P
h <sub>FE2</sub>	2000 to 5000	4000 to 10000

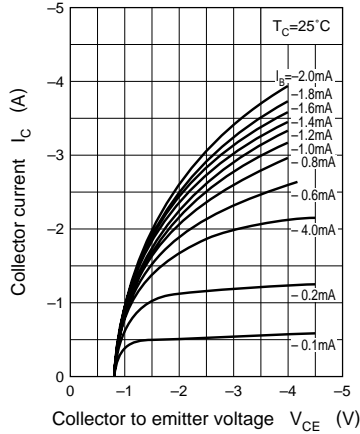
Internal Connection



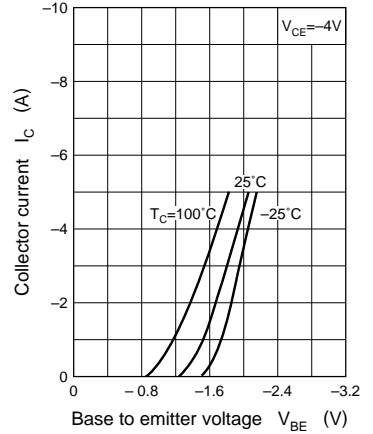
$P_C - T_a$



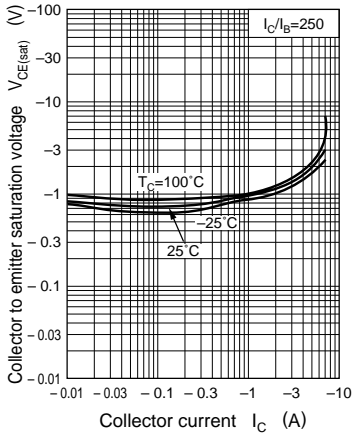
$I_C - V_{CE}$



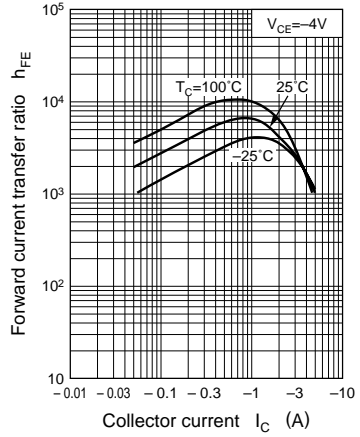
$I_C - V_{BE}$



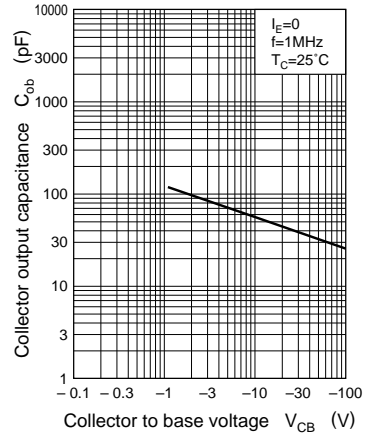
$V_{CE(sat)} - I_C$



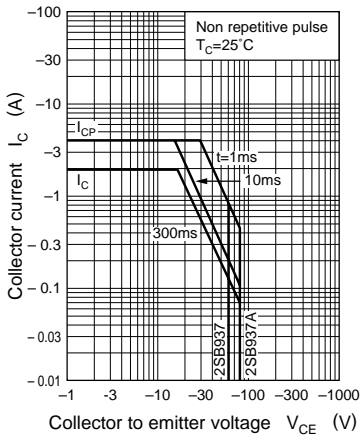
$h_{FE} - I_C$



$C_{ob} - V_{CB}$



Area of safe operation (ASO)



$R_{th(t)} - t$

