

2SB949, 2SB949A

Silicon PNP epitaxial planar type Darlington

For power amplification and switching

Complementary to 2SD1275 and 2SD1275A

Features

- High forward current transfer ratio h_{FE}
- High-speed switching
- Full-pack package which can be installed to the heat sink with one screw

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

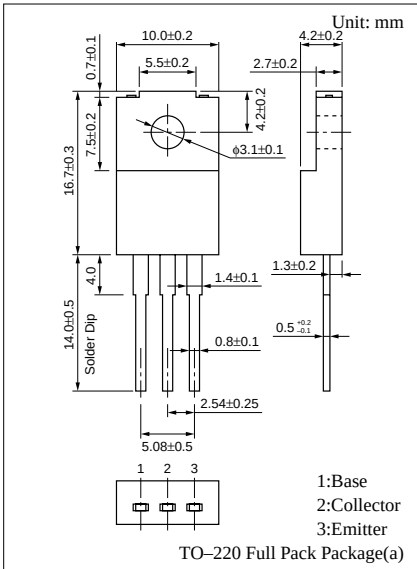
Parameter		Symbol	Ratings	Unit
Collector to base voltage	2SB949	V_{CBO}	-60	V
	2SB949A		-80	
Collector to emitter voltage	2SB949	V_{CEO}	-60	V
	2SB949A		-80	
Emitter to base voltage		V_{EBO}	-5	V
Peak collector current		I_{CP}	-4	A
Collector current		I_C	-2	A
Collector power dissipation	$T_C=25^\circ\text{C}$	P_C	35	W
	$T_a=25^\circ\text{C}$		2	
Junction temperature		T_j	150	$^\circ\text{C}$
Storage temperature		T_{stg}	-55 to +150	$^\circ\text{C}$

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

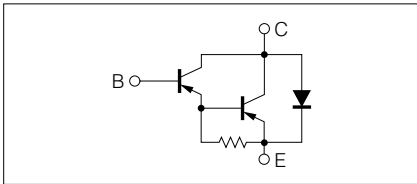
Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	2SB949	I _{CBO}	V _{CB} = −60V, I _E = 0			−1	mA
	2SB949A		V _{CB} = −80V, I _E = 0			−1	
Collector cutoff current	2SB949	I _{CEO}	V _{CB} = −30V, I _B = 0			−2	mA
	2SB949A		V _{CB} = −40V, I _B = 0			−2	
Emitter cutoff current		I _{EBO}	V _{EB} = −5V, I _C = 0			−2	mA
Collector to emitter voltage	2SB949	V _{CEO}	I _C = −30mA, I _B = 0	−60			V
	2SB949A			−80			
Forward current transfer ratio		h _{FE1}	V _{CE} = −4V, I _C = −1A	1000			
		h _{FE2} [*]	V _{CE} = −4V, I _C = −2A	2000		10000	
Base to emitter voltage		V _{BE}	V _{CE} = −4V, I _C = −2A			−2.8	V
Collector to emitter saturation voltage		V _{CE(sat)}	I _C = −2A, I _B = −8mA			−2.5	V
Transition frequency		f _T	V _{CE} = −10V, I _C = −0.5A, f = 1MHz		20		MHz
Turn-on time		t _{on}	I _C = −2A, I _{B1} = −8mA, I _{B2} = 8mA, V _{CC} = −50V		0.4		μs
Storage time		t _{stg}			1.5		μs
Fall time		t _f			0.5		μs

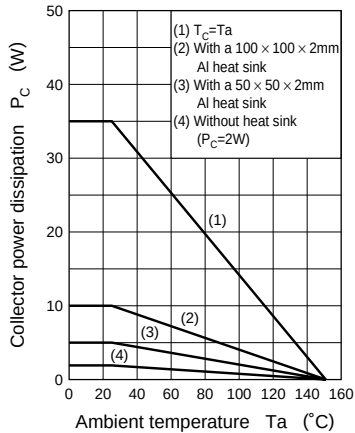
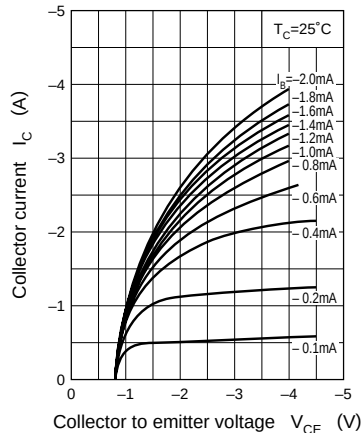
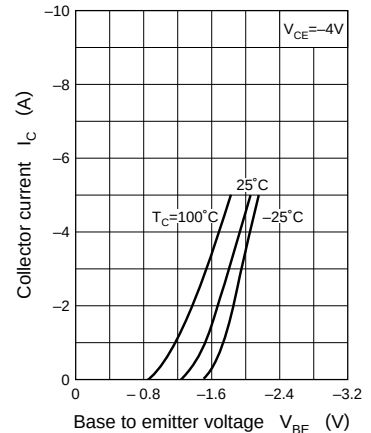
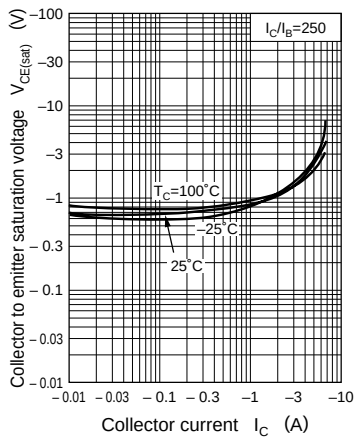
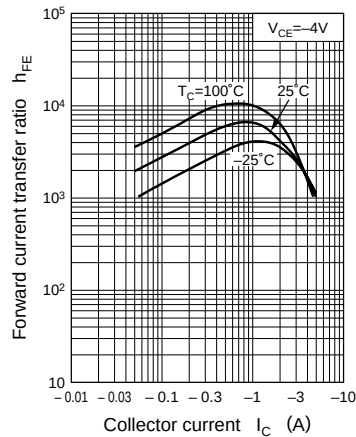
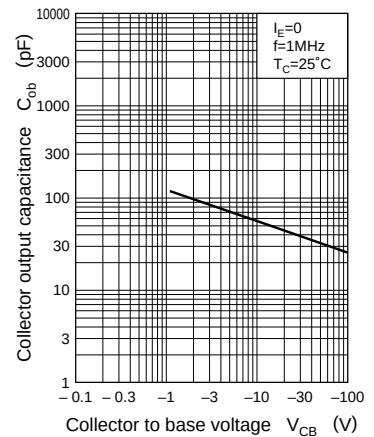
* h_{FE2} Rank classification

Rank	Q	P
h_{FE2}	2000 to 5000	4000 to 10000

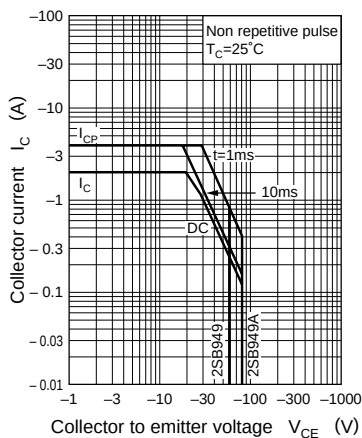


Internal Connection



$P_C - T_a$  $I_C - V_{CE}$  $I_C - V_{BE}$  $V_{CE(\text{sat})} - I_C$  $h_{FE} - I_C$  $C_{ob} - V_{CB}$ 

Area of safe operation (ASO)

 $R_{th(t)} - t$ 