

2SB938, 2SB938A

Silicon PNP Epitaxial Planar Darlington Type

Power Amplifier, Switching
Complementary Pair with 2SD1261, 2SD1261A

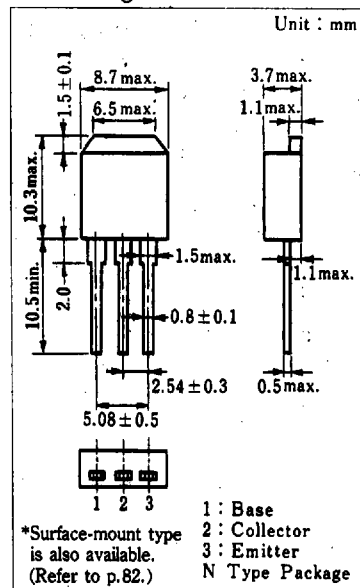
■ Features

- High DC current gain (h_{FE})
- High speed switching
- "N Type" package configuration with a cooling fin for direct soldering on PC board of a small-size electronic equipment

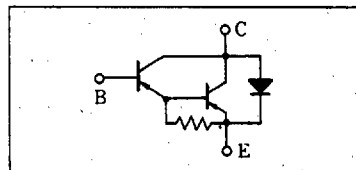
■ Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)

Item	Symbol	Value	Unit
Collector-base voltage	2SB938	-60	V
	2SB938A	-80	
Collector-emitter voltage	2SB938	-60	V
	2SB938A	-80	
Emitter-base voltage	V_{EB0}	-5	V
Peak collector current	I_{CP}	-8	A
Collector current	I_C	-4	A
Collector power dissipation	$T_a=25^\circ\text{C}$	40	W
	$T_c=25^\circ\text{C}$	1.3	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 ~ +150	$^\circ\text{C}$

■ Package Dimensions



■ Inner Circuit



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

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	2SB938	$V_{CB} = -60\text{V}, I_E = 0$			-200	μA
	2SB938A	$V_{CB} = -80\text{V}, I_E = 0$			-200	
Collector cutoff current	2SB938	$V_{CE} = -30\text{V}, I_B = 0$			-500	μA
	2SB938A	$V_{CE} = -40\text{V}, I_B = 0$			-500	
Emitter cutoff current	I_{EB0}	$V_{EB} = -5\text{V}, I_C = 0$			-2	mA
Collector-emitter voltage	2SB938	$I_C = -30\text{mA}, I_B = 0$	-60			V
	2SB938A	$I_C = -30\text{mA}, I_B = 0$	-80			
DC current gain	h_{FE1}	$V_{CE} = -3\text{V}, I_C = -0.5\text{A}$	1000			
	h_{FE2}^*	$V_{CE} = -3\text{V}, I_C = -3\text{A}$	1000		10000	
Base-emitter voltage	V_{BE}	$V_{CE} = -3\text{V}, I_C = -3\text{A}$			-2.5	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -3\text{A}, I_B = -12\text{mA}$			-2	V
		$I_C = -5\text{A}, I_B = -20\text{mA}$			-4	
Transition frequency	f_T	$V_{CE} = -10\text{V}, I_C = -0.5\text{A}, f = 1\text{MHz}$		15		MHz
Turn-on time	t_{on}	$I_C = -3\text{A}, I_{B1} = -12\text{mA}, I_{B2} = 12\text{mA}$		0.3		μs
Storage time	t_{stg}			2		μs
Collector current fall time	t_f			0.5		μs

* h_{FE2} Classifications

Class	R	Q	P
h_{FE2}	1000 ~ 2500	2000 ~ 5000	4000 ~ 10000

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