

# 2SD1253, 2SD1253A

Silicon NPN triple diffusion planar type

For power amplification

Complementary to 2SB930 and 2SB930A

## Features

- High forward current transfer ratio  $h_{FE}$  which has satisfactory linearity
- Low collector to emitter saturation voltage  $V_{CE(sat)}$
- 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	$V_{CBO}$	60	V
2SD1253A		80	
Collector to emitter voltage	$V_{CEO}$	60	V
2SD1253A		80	
Emitter to base voltage	$V_{EBO}$	5	V
Peak collector current	$I_{CP}$	8	A
Collector current	$I_C$	4	A
Collector power dissipation	$P_C$	$T_C=25^\circ\text{C}$	40
		$T_a=25^\circ\text{C}$	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	2SD1253	$I_{CES}$	$V_{CE} = 60\text{V}, V_{BE} = 0$		400	$\mu\text{A}$
	2SD1253A					
Collector cutoff current	2SD1253	$I_{CEO}$	$V_{CE} = 30\text{V}, I_B = 0$		700	$\mu\text{A}$
	2SD1253A					
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 5\text{V}, I_C = 0$			1	mA
Collector to emitter voltage	2SD1253	$V_{CEO}$	$I_C = 30\text{mA}, I_B = 0$	60		V
	2SD1253A			80		
Forward current transfer ratio		$h_{FE1}^*$	$V_{CE} = 4\text{V}, I_C = 1\text{A}$	40		250
		$h_{FE2}$	$V_{CE} = 4\text{V}, I_C = 3\text{A}$	15		
Base to emitter voltage	$V_{BE}$	$V_{CE} = 4\text{V}, I_C = 3\text{A}$			2	V
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 4\text{A}, I_B = 0.4\text{A}$			1.5	V
Transition frequency	$f_T$	$V_{CE} = 5\text{V}, I_C = 0.5\text{A}, f = 1\text{MHz}$		20		MHz
Turn-on time	$t_{on}$	$I_C = 4\text{A}, I_{B1} = 0.4\text{A}, I_{B2} = -0.4\text{A}, V_{CC} = 50\text{V}$		0.4		$\mu\text{s}$
Storage time	$t_{stg}$			1.2		$\mu\text{s}$
Fall time	$t_f$			0.5		$\mu\text{s}$

\* $h_{FE1}$  Rank classification

Rank	R	Q	P
$h_{FE1}$	40 to 90	70 to 150	120 to 250



