

Silicon NPN epitaxial planar type

2SD1254

■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$.
- Satisfactory linearity of forward current transfer ratio h_{FE} .
- Large collector current I_C .

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	130	V
Collector-emitter voltage	V_{CEO}	80	V
Emitter-base voltage	V_{EBO}	7	V
Collector current	I_C	3	A
Peak collector current	I_{CP}	6	A
Collector power dissipation	P_C	30	W
$T_a = 25^\circ\text{C}$		1.3	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-emitter voltage	V_{CEO}	$I_C = 10\text{ mA}$, $I_B = 0$	80			V
Collector-base cutoff current	I_{CBO}	$V_{CB} = 100\text{ V}$, $I_E = 0$			10	μA
Emitter-base cutoff current	I_{EBO}	$V_{EB} = 5\text{ V}$, $I_C = 0$			50	μA
Forward current transfer ratio	h_{FE}	$V_{CE} = 2\text{ V}$, $I_C = 0.5\text{ A}$	60		260	
Forward current transfer ratio		$V_{CE} = 2\text{ V}$, $I_C = 0.1\text{ A}$	45			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2\text{ A}$, $I_B = 0.1\text{ A}$			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2\text{ A}$, $I_B = 0.1\text{ A}$			1.5	V
Transition frequency	f_T	$V_{CE} = 10\text{ V}$, $I_C = 0.5\text{ A}$, $f = 10\text{ MHz}$		30		MHz
Turn-on time	t_{on}	$I_C = 0.5\text{ A}$ $I_{B1} = -I_{B2} = 50\text{ mA}$ $V_{CC} = 50\text{ V}$		0.5		μs
Storage time	t_{stg}			2.5		μs
Fall time	t_f			0.15		μs

■ h_{FE} Classification

Rank	R	Q	P
h_{FE}	60~120	90~180	130~260

