

# 2SD2052

## Silicon NPN triple diffusion planar type

For high power amplification  
Complementary to 2SB1361

### ■ Features

- Satisfactory forward current transfer ratio  $h_{FE}$  vs. collector current  $I_C$  characteristics
- Wide area of safe operation (ASO)
- High transition frequency  $f_T$
- Optimum for the output stage of a HiFi audio amplifier
- Full-pack package which can be installed to the heat sink with one screw

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

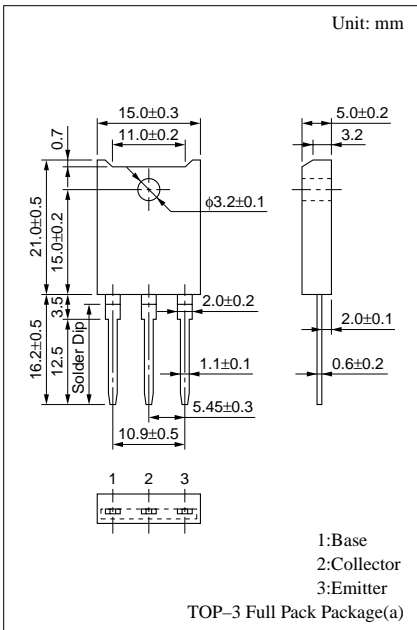
Parameter	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	150	V
Collector to emitter voltage	$V_{CEO}$	150	V
Emitter to base voltage	$V_{EBO}$	5	V
Peak collector current	$I_{CP}$	15	A
Collector current	$I_C$	9	A
Collector power dissipation	$P_C$	$T_C=25^\circ\text{C}$	W
		$T_a=25^\circ\text{C}$	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +155	$^\circ\text{C}$

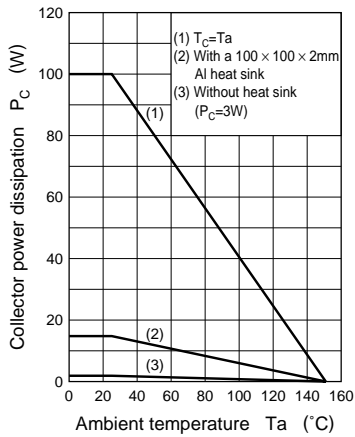
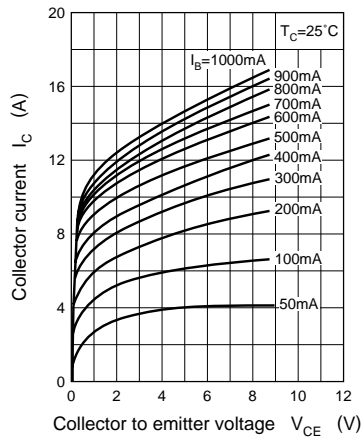
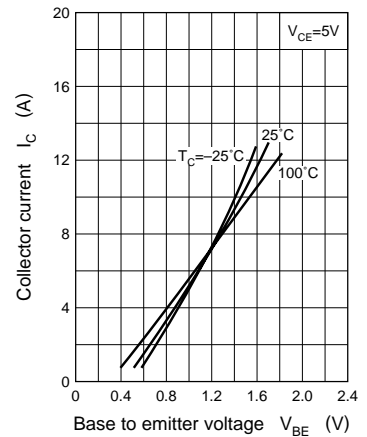
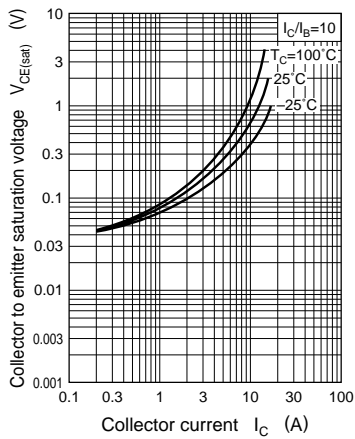
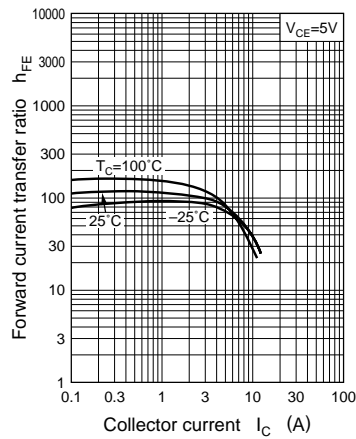
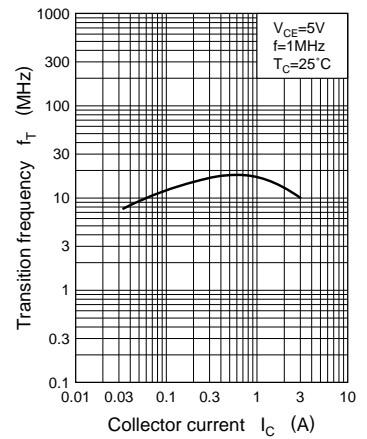
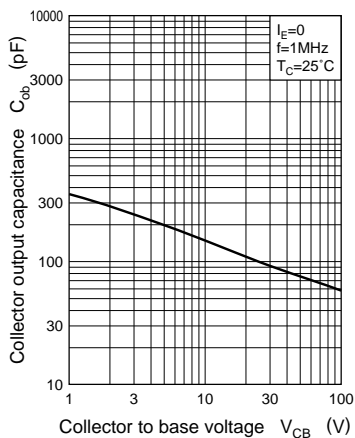
### ■ Electrical Characteristics ( $T_C=25^\circ\text{C}$ )

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 150\text{V}, I_E = 0$			50	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 3\text{V}, I_C = 0$			50	$\mu\text{A}$
Forward current transfer ratio	$h_{FE1}$	$V_{CE} = 5\text{V}, I_C = 20\text{mA}$	20			
	$h_{FE2}^*$	$V_{CE} = 5\text{V}, I_C = 1\text{A}$	60		200	
	$h_{FE3}$	$V_{CE} = 5\text{V}, I_C = 7\text{A}$	20			
Base to emitter voltage	$V_{BE}$	$V_{CE} = 5\text{V}, I_C = 7\text{A}$			1.8	V
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 7\text{A}, I_B = 0.7\text{A}$			2.0	V
Transition frequency	$f_T$	$V_{CE} = 5\text{V}, I_C = 0.5\text{A}, f = 1\text{MHz}$		20		MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$		150		pF

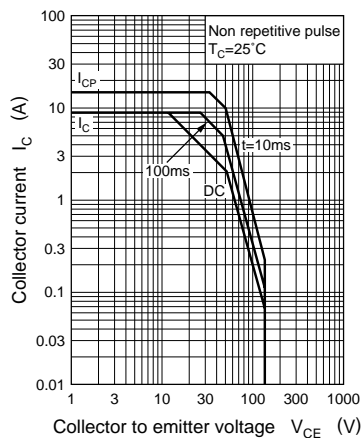
\* $h_{FE2}$  Rank classification

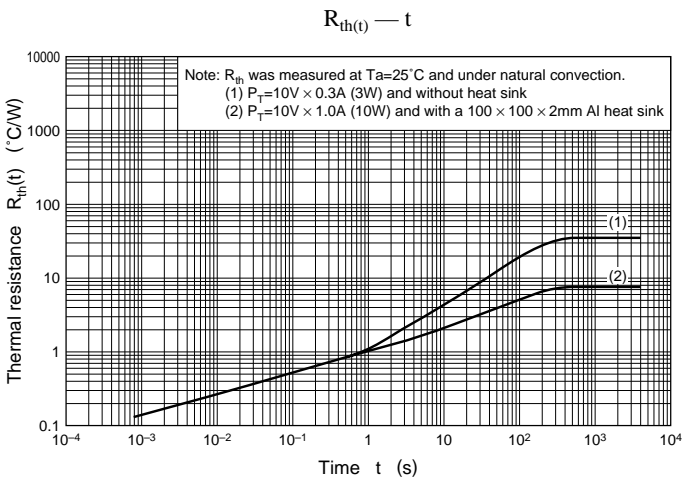
Rank	Q	S	P
$h_{FE2}$	60 to 120	80 to 160	100 to 200



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

Area of safe operation (ASO)





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