

# 2SD2053

## Silicon NPN triple diffusion planar type

For high power amplification

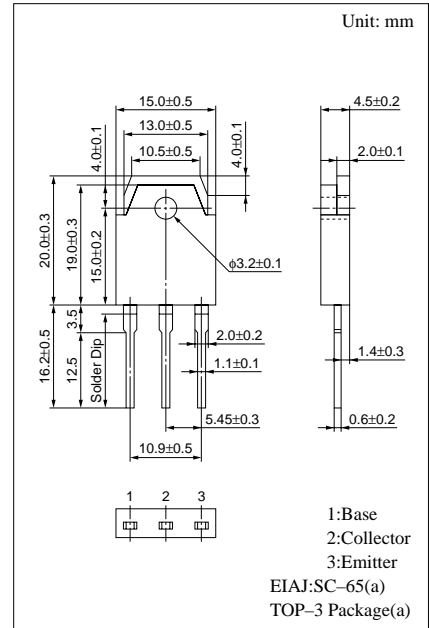
Complementary to 2SB1362

### Features

- High breakdown voltage:  $V_{CEO} = 150V$
- Satisfactory linearity of forward current transfer ratio  $h_{FE}$
- Wide area of safe operation (ASO)
- High transition frequency  $f_T$

### Absolute Maximum Ratings ( $T_C=25^\circ C$ )

Parameter	Symbol	Rated	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	$P_C$	100	W
		2.5	
Junction temperature	$T_j$	150	$^\circ C$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ C$



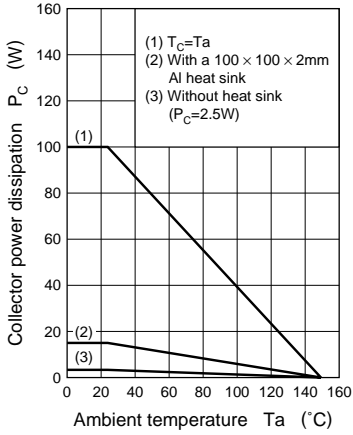
### Electrical Characteristics ( $T_C=25^\circ C$ )

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

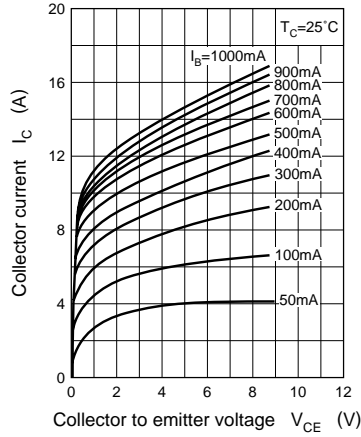
\* $h_{FE2}$  Rank classification

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

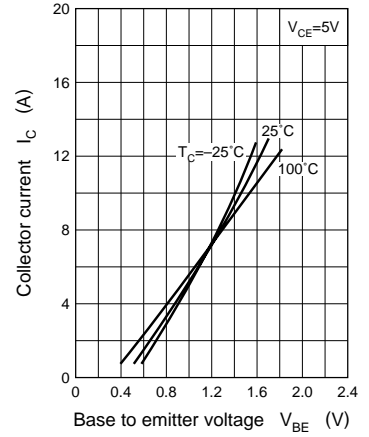
$P_C - T_a$



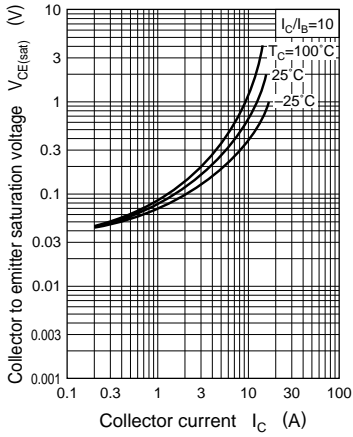
$I_C - V_{CE}$



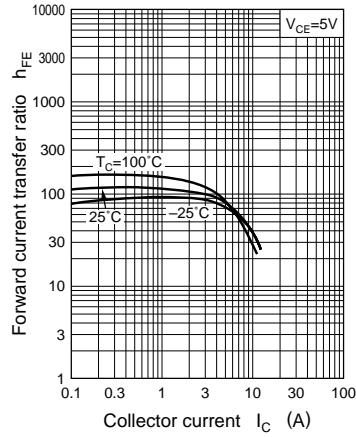
$I_C - V_{BE}$



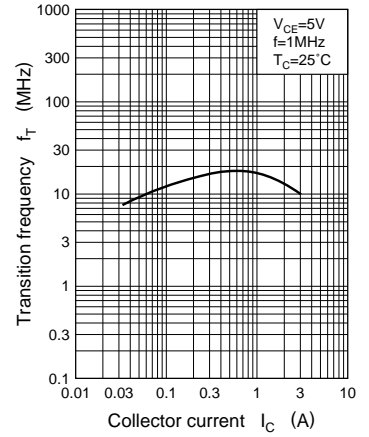
$V_{CE(sat)} - I_C$



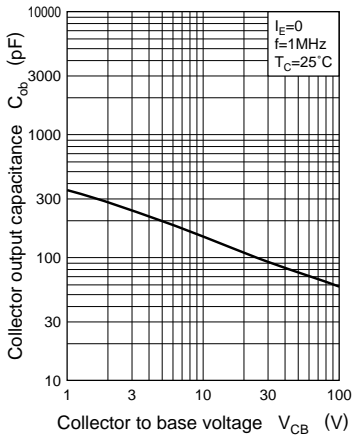
$h_{FE} - I_C$



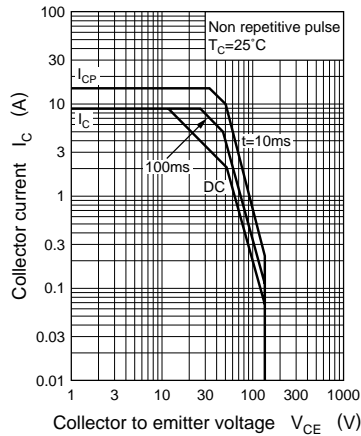
$f_T - I_C$



$C_{ob} - V_{CB}$



Area of safe operation (ASO)



$$R_{th(t)} - t$$

