

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 ($T_C=25^\circ C$)

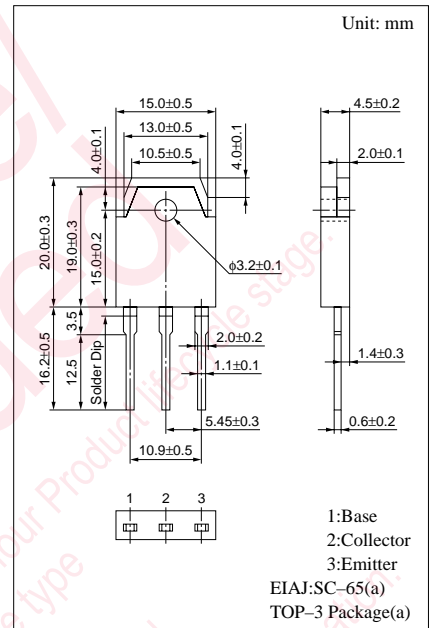
Parameter	Symbol	Rated	Unit
Collector to base voltage	V_{CBO}	150	V
Collector to emitter voltage	V_{CEO}	150	V
Emitter to base voltage	V_{EBO}	5	V
Peak collector current	I_{CP}	15	A
Collector current	I_C	9	A
Collector power dissipation	P_C	100	W
		2.5	
Junction temperature	T_j	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

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

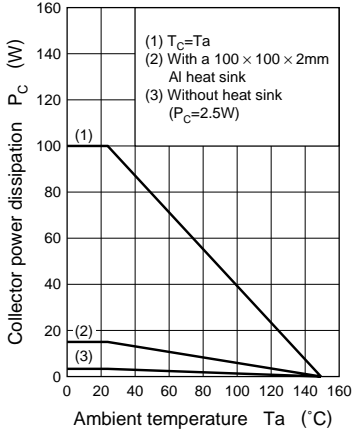
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 150V, I_E = 0$			50	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 3V, I_C = 0$			50	μA
Forward current transfer ratio	h_{FE1}	$V_{CE} = 5V, I_C = 20mA$	20			
	h_{FE2}^*	$V_{CE} = 5V, I_C = 1A$	60		200	
	h_{FE3}	$V_{CE} = 5V, I_C = 7A$	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

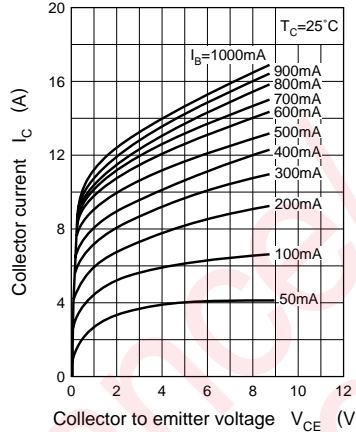
Rank	Q	S	P
h_{FE2}	60 to 120	80 to 160	100 to 200



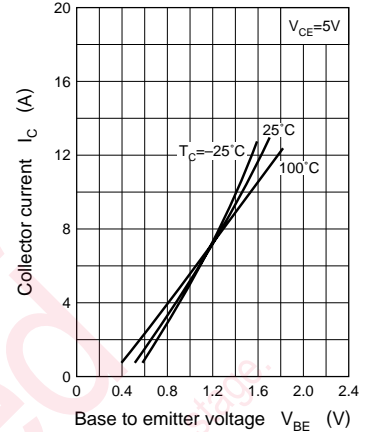
$P_C - T_a$



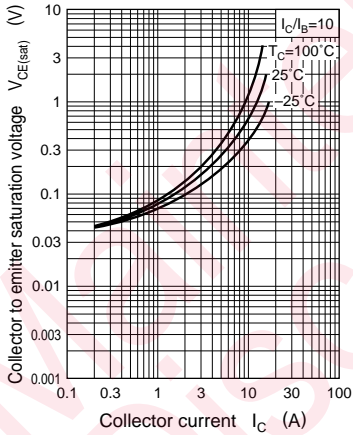
$I_C - V_{CE}$



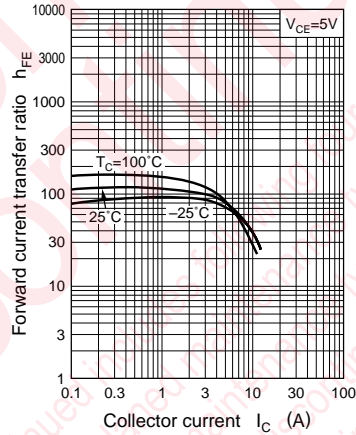
$I_C - V_{BE}$



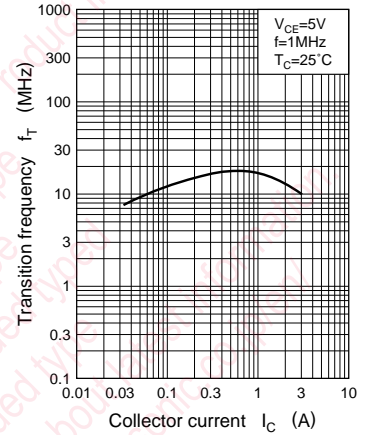
$V_{CE(sat)} - I_C$



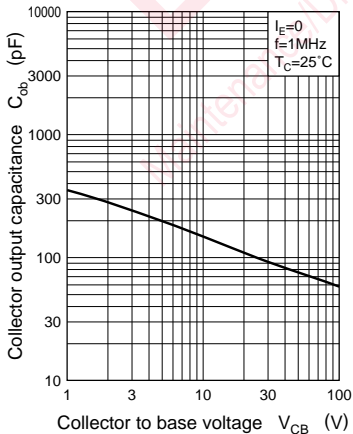
$h_{FE} - I_C$



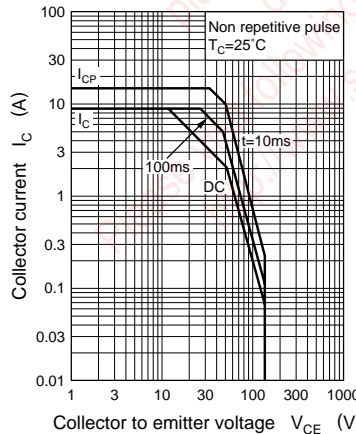
$f_T - I_C$



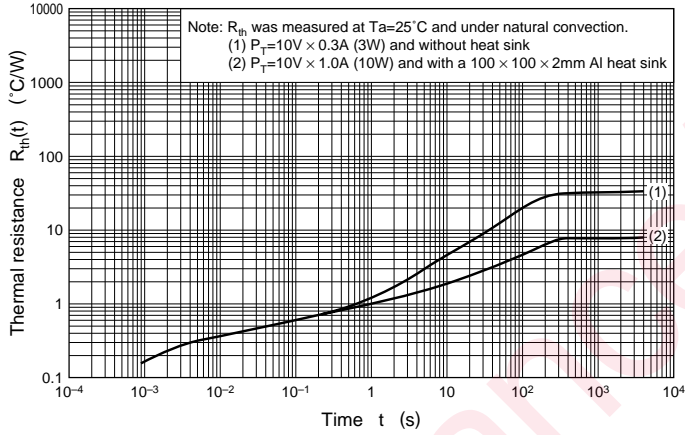
$C_{ob} - V_{CB}$



Area of safe operation (ASO)



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



Maintenance/Discontinued includes following four Product lifecycle stage.
 planned maintenance type
 maintenance type
 planned discontinued type
 discontinued type
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