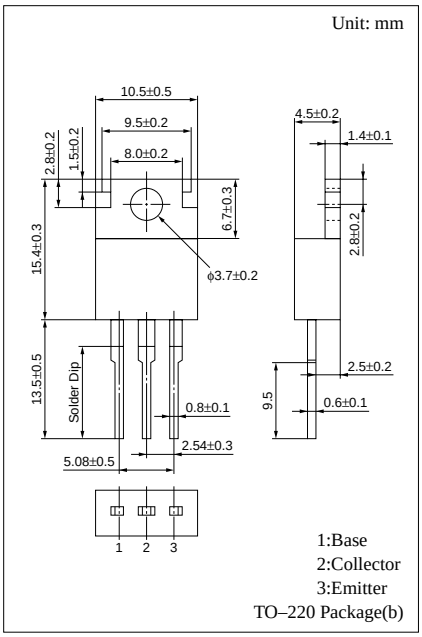
2SC4576

Silicon NPN triple diffusion planar type

For high breakdown voltage high-speed switching



Features

- High-speed switching
- High collector to base voltage V_{CBO}
- Wide area of safe operation (ASO)
- Satisfactory linearity of foward current transfer ratio h_{FE}

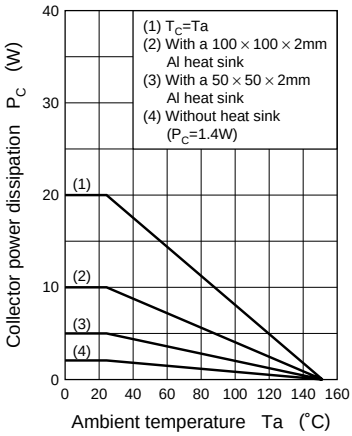
Absolute Maximum Ratings (T_C=25˚C)

Parameter		Symbol	Ratings	Unit
Collector to base voltage		V_{CBO}	1400	V
Collector to emitter voltage		V_{CER}	1400	V
		V_{CEO}	700	V
Emitter to base voltage		V_{EBO}	5	V
Peak collector current		I_{CP}	1.0	A
Collector current		I_C	0.3	A
Collector power dissipation	T_C=25°C	P_C	20	W
	Ta=25°C		1.4	
Junction temperature		T_j	150	˚C
Storage temperature		T_{stg}	–55 to +150	˚C

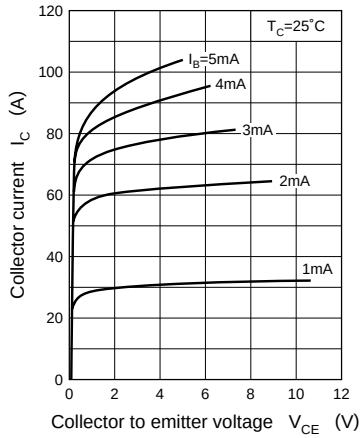
Electrical Characteristics (T_C=25˚C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 1100V, I_E = 0			10	µA
Emitter cutoff current	I_{EBO}	V_{EB} = 4V, I_C = 0			10	µA
Collector to emitter voltage	V_{CEO}	I_C = 1mA, I_B = 0	700			V
	V_{CER}	I_C = 1mA, R_{BE} = 100Ω	1400			V
Emitter to base voltage	V_{EBO}	I_E = 1mA, I_C = 0	5			V
Forward current transfer ratio	h_{FE}	V_{CE} = 5V, I_C = 30mA	10		40	
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = 60mA, I_B = 6mA			2	V
Base to emitter saturation voltage	$V_{BE(sat)}$	I_C = 60mA, I_B = 6mA			2	V
Transition frequency	f_T	V_{CE} = 10V, I_C = 30mA, f = 1MHz		12		MHz
Turn-on time	t_{on}	I_C = 150mA,			2	µs
Storage time	t_{stg}	I_{B1} = 15mA, I_{B2} = –30mA,			3	µs
Fall time	t_f	V_{CC} = 250V			1	µs

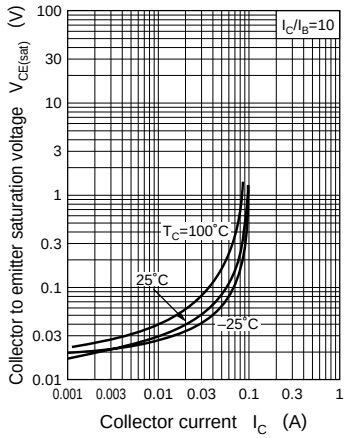
P_C — Ta



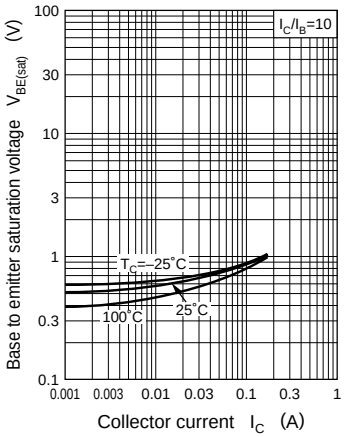
I_C — V_{CE}



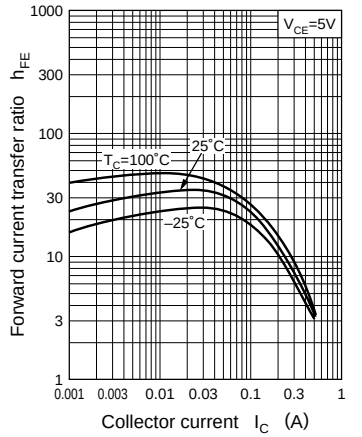
$V_{CE(sat)}$ — I_C



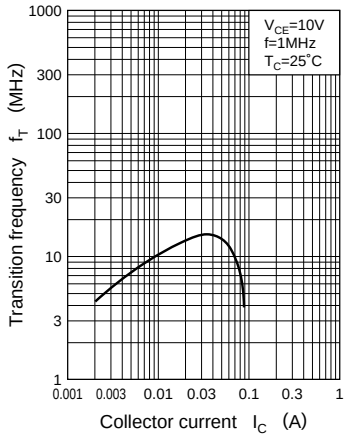
$V_{BE(sat)}$ — I_C



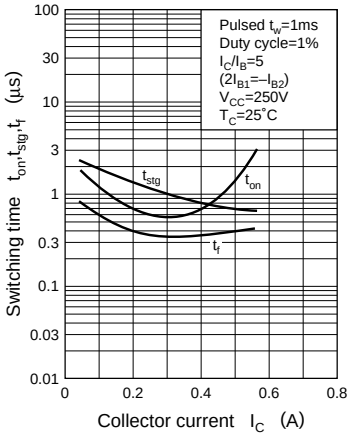
h_{FE} — I_C



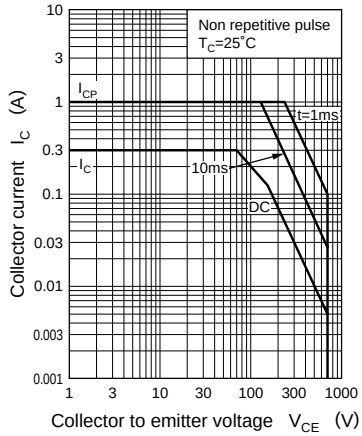
f_T — I_C



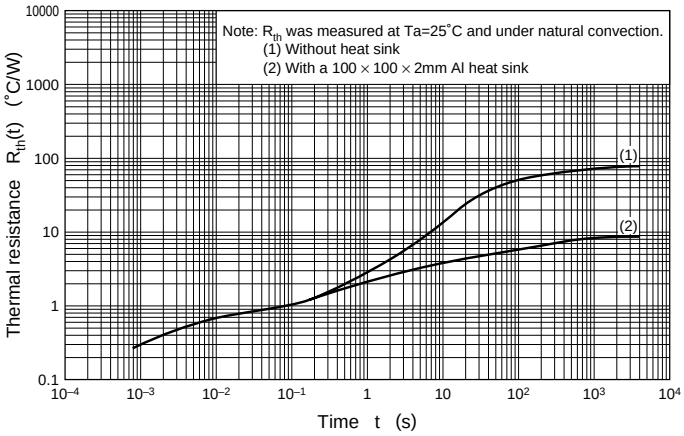
t_{on}, t_{stg}, t_f — I_C



Area of safe operation (ASO)



$R_{th(t)}$ — t


Note: R_{th} was measured at Ta=25˚C and under natural convection.
(1) Without heat sink
(2) With a 100 × 100 × 2mm Al heat sink
(1)
(2)
Thermal resistance $R_{th}(t)$ (˚C/W)
10000
1000
100
10
1
0.1
10^{-4}
10^{-3}
10^{-2}
10^{-1}
1
10
10^{2}
10^{3}
10^{4}
Time t (s)