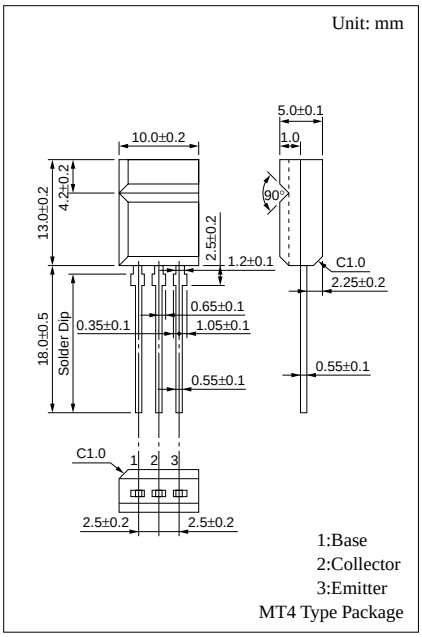
2SD2544

Silicon NPN triple diffusion planar type

For power amplification with high forward current transfer ratio



Features

- High foward current transfer ratio h_{FE}
- Satisfactory linearity of foward current transfer ratio h_{FE}
- Allowing supply with the radial taping

Absolute Maximum Ratings (T_C=25˚C)

Parameter		Symbol	Ratings	Unit
Collector to base voltage		V_{CBO}	60	V
Collector to emitter voltage		V_{CEO}	60	V
Emitter to base voltage		V_{EBO}	7	V
Peak collector current		I_{CP}	8	A
Collector current		I_C	4	A
Collector power dissipation	T_C=25°C	P_C	15	W
	Ta=25°C		2	
Junction temperature		T_j	150	˚C
Storage temperature		T_{stg}	–55 to +150	˚C

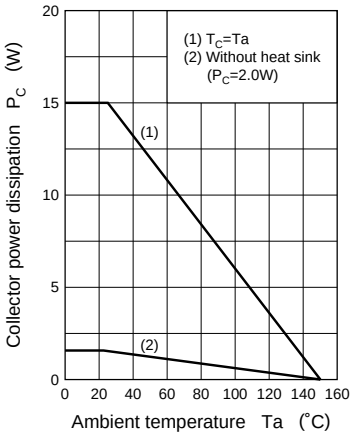
Electrical Characteristics (T_C=25˚C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 60V, I_E = 0			10	μA
Emitter cutoff current	I_{EBO}	V_{EB} = 7V, I_C = 0			10	μA
Collector to emitter voltage	V_{CEO}	I_C = 10mA, I_B = 0	60			V
Forward current transfer ratio	h_{FE1}*	V_{CE} = 2V, I_C = 0.8A	500	1000	2000	
	h_{FE2}	V_{CE} = 2V, I_C = 2A	60			
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = 2A, I_B = 50mA			0.5	V
Base to emitter saturation voltage	$V_{BE(sat)}$	I_C = 2A, I_B = 50mA			1.5	V
Transition frequency	f_T	V_{CE} = 10V, I_C = 0.5A, f = 10MHz		70		MHz
Turn-on time	t_{on}	I_C = 2A, I_{B1} = 50mA, I_{B2} = –50mA, V_{CC} = 50V		0.5		μs
Storage time	t_{stg}			3.6		μs
Fall time	t_f			1.1		μs

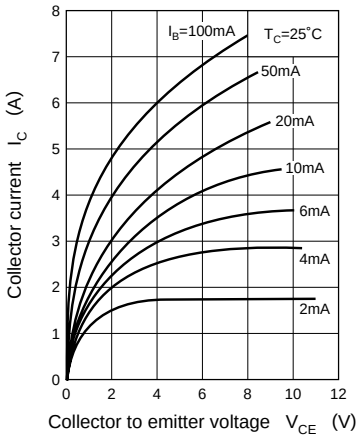
*h_{FE1} Rank classification

Rank	Q	P
h_{FE1}	500 to 1200	800 to 2000

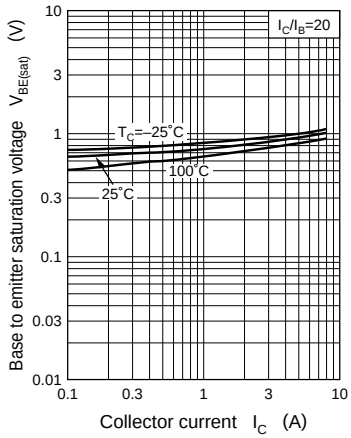
P_C — Ta



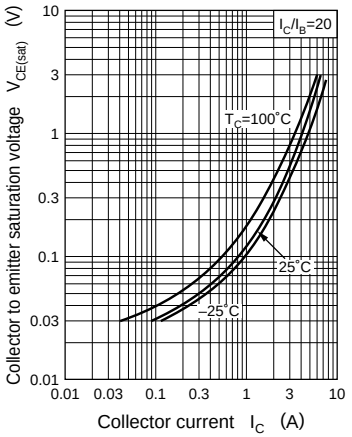
I_C — V_{CE}



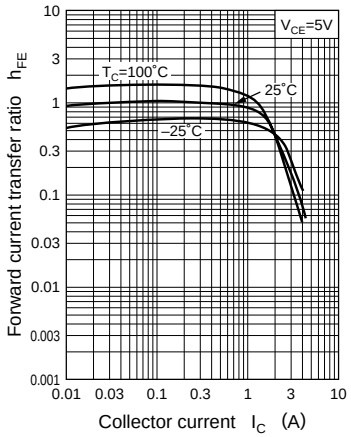
$V_{BE(sat)}$ — I_C



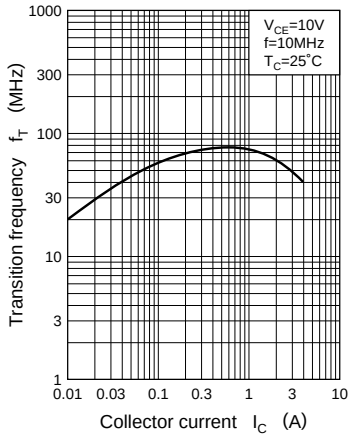
$V_{CE(sat)}$ — I_C



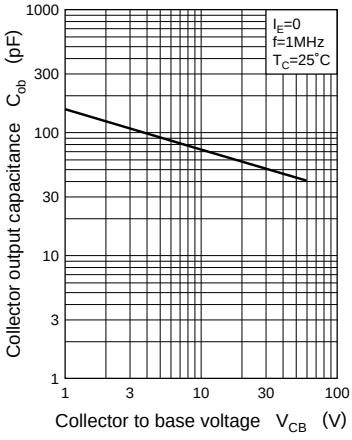
h_{FE} — I_C



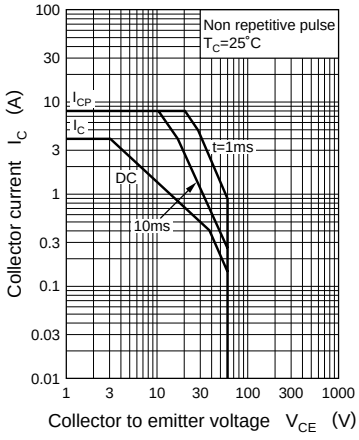
f_T — I_C



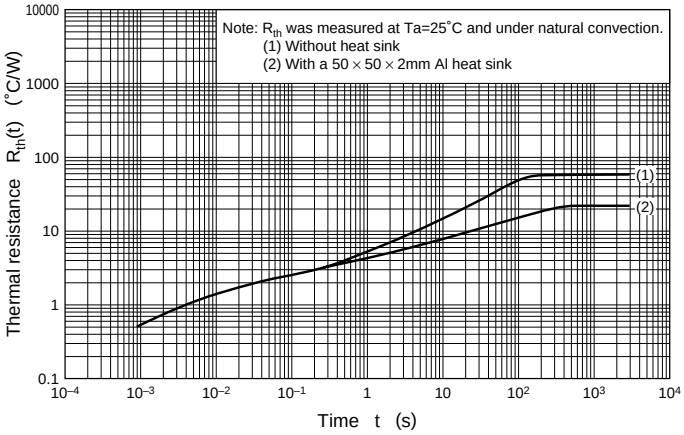
C_{ob} — V_{CB}



Area of safe operation (ASO)



$R_{th(t)}$ — t


Note: R_{th} was measured at Ta=25°C and under natural convection.
(1) Without heat sink
(2) With a 50 × 50 × 2mm Al heat sink
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)
(1)
(2)