

2SD2178

Silicon NPN epitaxial planar type

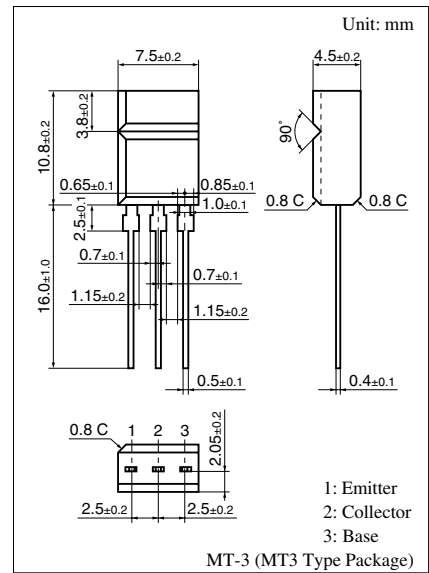
For low-frequency output amplification

■ Features

- Low collector to emitter saturation voltage $V_{CE(sat)}$
- Large collector current I_C

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	50	V
Collector to emitter voltage	V_{CEO}	50	V
Emitter to base voltage	V_{EBO}	5	V
Peak collector current	I_{CP}	3	A
Collector current	I_C	2	A
Collector power dissipation	P_C	1.5	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

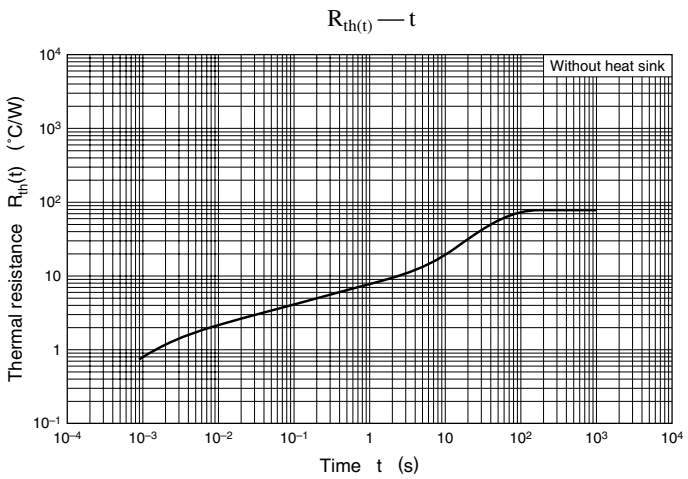
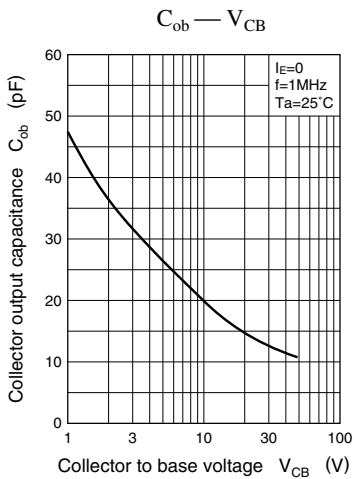
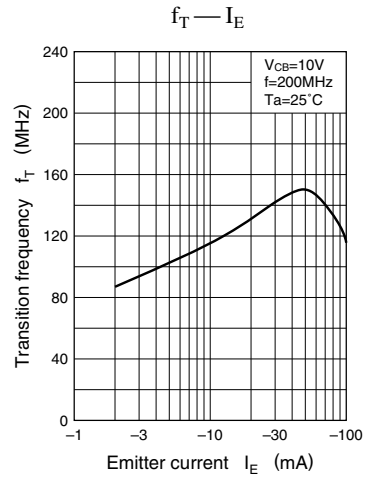
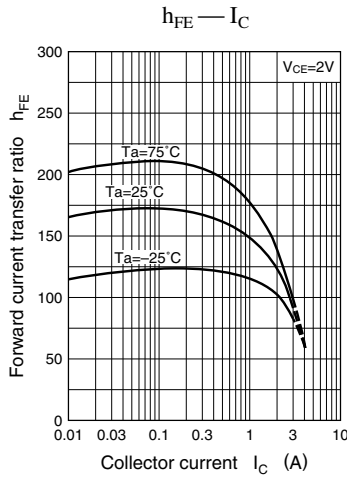
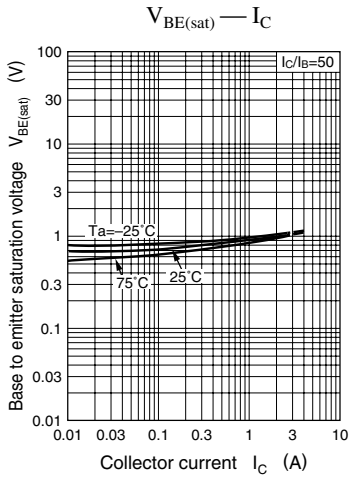
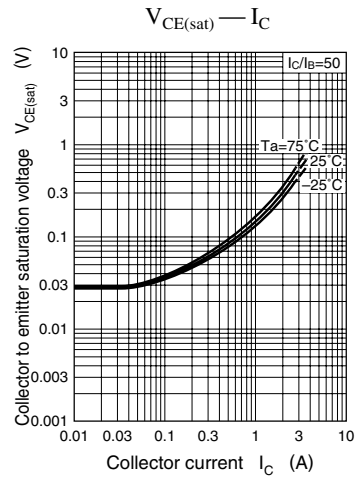
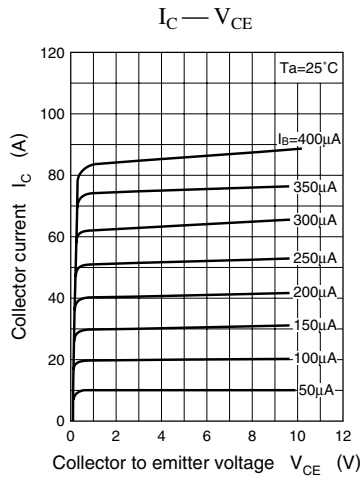
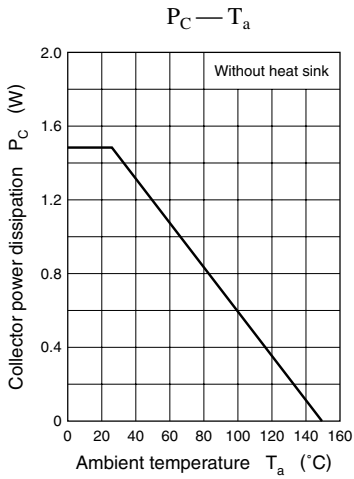


■ Electrical Characteristics $T_C = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 20\text{ V}, I_E = 0$			0.1	μA
Collector to base voltage	V_{CBO}	$I_C = 10\ \mu\text{A}, I_E = 0$	50			V
Collector to emitter voltage	V_{CEO}	$I_C = 1\ \text{mA}, I_B = 0$	50			V
Emitter to base voltage	V_{EBO}	$I_E = 10\ \mu\text{A}, I_C = 0$	5			V
Forward current transfer ratio	h_{FE1}^*	$V_{CE} = 2\ \text{V}, I_C = 200\ \text{mA}$	120		340	
	h_{FE2}	$V_{CE} = 2\ \text{V}, I_C = 1.0\ \text{A}$	80			
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1\ \text{A}, I_B = 50\ \text{mA}$		0.15	0.3	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1\ \text{A}, I_B = 50\ \text{mA}$		0.9	1.2	V
Transition frequency	f_T	$V_{CE} = 10\ \text{V}, I_E = -50\ \text{mA}, f = 200\ \text{MHz}$		150		MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\ \text{V}, I_E = 0, f = 1\ \text{MHz}$		23	35	pF

Note) *: Rank classification

Rank	R	S
h_{FE1}	120 to 240	170 to 340



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