2SD2178

Silicon NPN epitaxial planar type

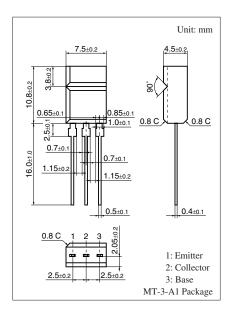
For low-frequency output amplification

■ Features

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

■ Absolute Maximum Ratings $T_a = 25$ °C

Parameter	Symbol	Rating	Unit	
Collector-base voltage (Emitter open)	V _{CBO}	50	V	
Collector-emitter voltage (Base open)	V _{CEO}	50	V	
Emitter-base voltage (Collector open)	V_{EBO}	5	V	
Collector current	I_C	2	A	
Peak collector current	I_{CP}	3	A	
Collector power dissipation	P_{C}	1.5	W	
Junction temperature	T_{j}	150	°C	
Storage temperature	T_{stg}	-55 to +150	°C	



■ Electrical Characteristics $T_a = 25$ °C ± 3 °C

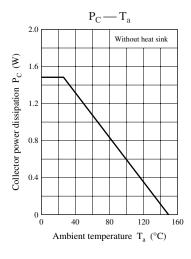
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Collector-base voltage (Emitter open)	V _{CBO}	$I_C = 10 \mu\text{A}, I_E = 0$	50			V
Collector-emitter voltage (Base open)	V _{CEO}	$I_C = 1 \text{ mA}, I_B = 0$	50			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = 10 \ \mu A, I_C = 0$	5			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 20 \text{ V}, I_{E} = 0$			0.1	μΑ
Forward current transfer ratio	h _{FE1} *	$V_{CE} = 2 \text{ V}, I_{C} = 200 \text{ mA}$	120		340	_
	h _{FE2}	$V_{CE} = 2 \text{ V}, I_{C} = 1 \text{ A}$	80			
Collector-emitter saturation voltage	V _{CE(sat)}	$I_C = 1 \text{ A}, I_B = 50 \text{ mA}$		0.15	0.30	V
Base-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	$V_{CB} = 10 \text{ V}, I_{E} = -50 \text{ mA}, f = 200 \text{ MHz}$		150		MHz
Collector output capacitance	C _{ob}	$V_{CB} = 10 \text{ V}, I_{E} = 0, f = 1 \text{ MHz}$		23	35	pF
(Common base, input open circuited)						

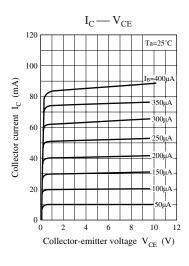
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

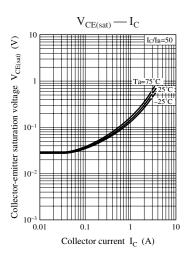
2. *: Rank classification

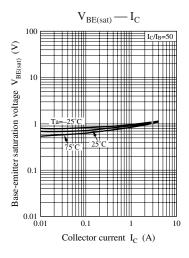
Publication date: May 2003

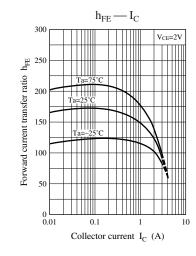
Rank	R	S
$h_{\rm FE1}$	120 to 240	170 to 340

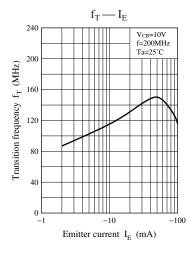


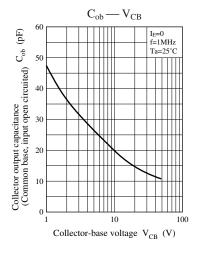


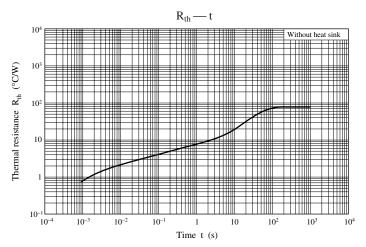












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