2SD1820

Silicon NPN epitaxial planar type

For general amplification
Complementary to 2SB1219

■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- S-Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing.

■ Package

- Code
  SMini3-G1
- Pin Name
  1. Base
  2. Emitter
  3. Collector

■ Marking Symbol: W

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	30	V
Collector-emitter voltage (Base open)	V_{CEO}	25	V
Emitter-base voltage (Collector open)	V_{EBO}	5	V
Collector current	I_C	500	mA
Peak collector current	I_{CP}	1	A
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

■ Electrical Characteristics $T_a = 25°C \pm 3°C$

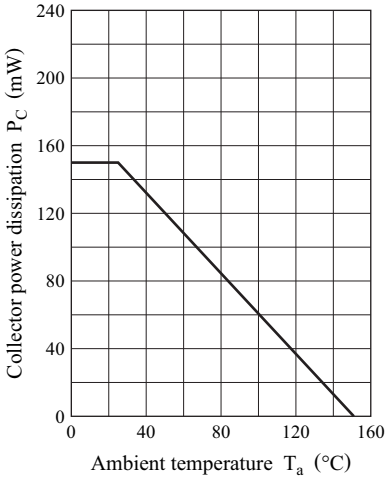
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = 10\ \mu A, I_E = 0$	30			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 2$ mA, $I_B = 0$	25			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = 10\ \mu A, I_C = 0$	5			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 20$ V, $I_E = 0$			0.1	μA
Forward current transfer ratio *1	h_{FE1} *2	$V_{CE} = 10$ V, $I_C = 150$ mA	85		340	—
	h_{FE2}	$V_{CE} = 10$ V, $I_C = 500$ mA	40			
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_C = 300$ mA, $I_B = 30$ mA		0.35	0.60	V
Transition frequency	f_T	$V_{CB} = 10$ V, $I_E = -50$ mA, f = 200 MHz		200		MHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	$V_{CB} = 10$ V, $I_E = 0$, f = 1 MHz		6	15	pF

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. *1: Pulse measurement
*2: Rank classification

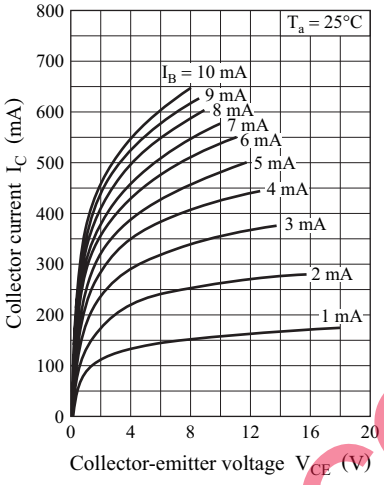
Rank	Q	R	S	No-rank
h_{FE1}	85 to 170	120 to 240	170 to 340	85 to 340
Marking symbol	WQ	WR	WS	—

Product of no-rank is not classified and have no marking symbol for rank.

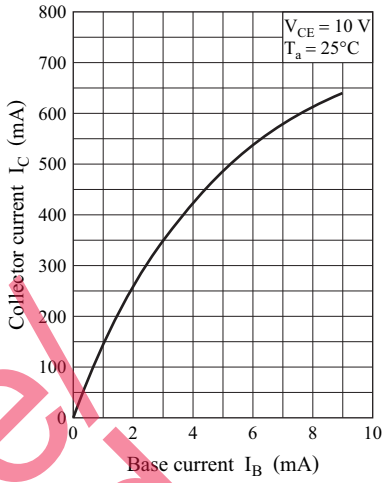
P_C — T_a



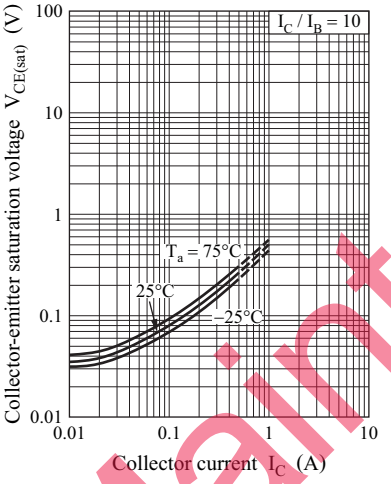
I_C — V_{CE}



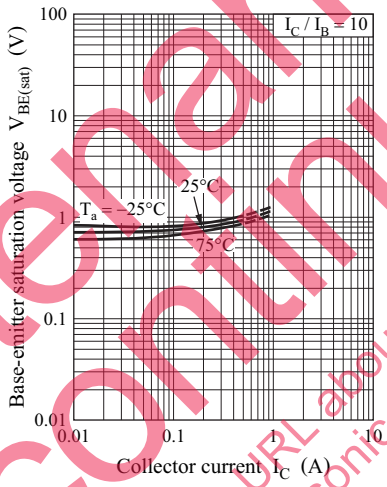
I_C — I_B



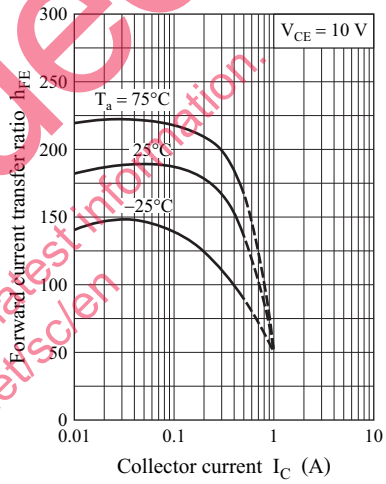
$V_{CE(sat)}$ — I_C



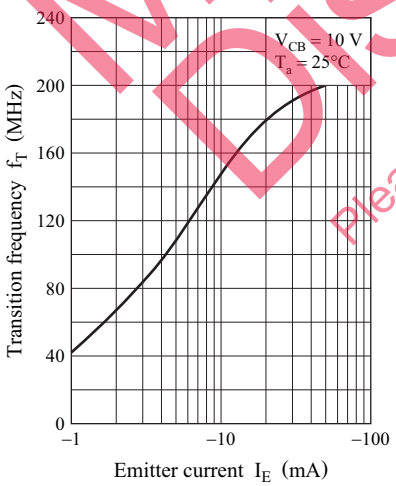
$V_{BE(sat)}$ — I_C



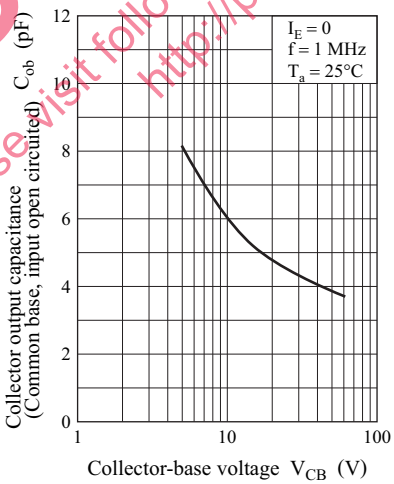
h_{FE} — I_C



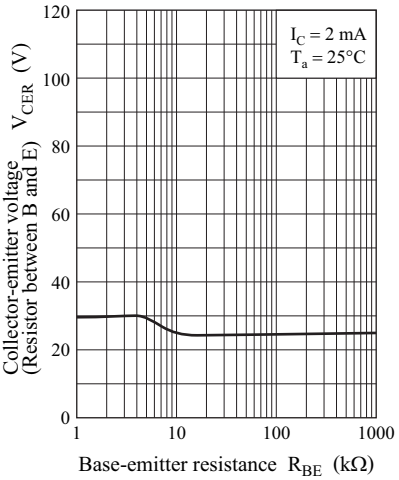
f_T — I_E



C_{ob} — V_{CB}

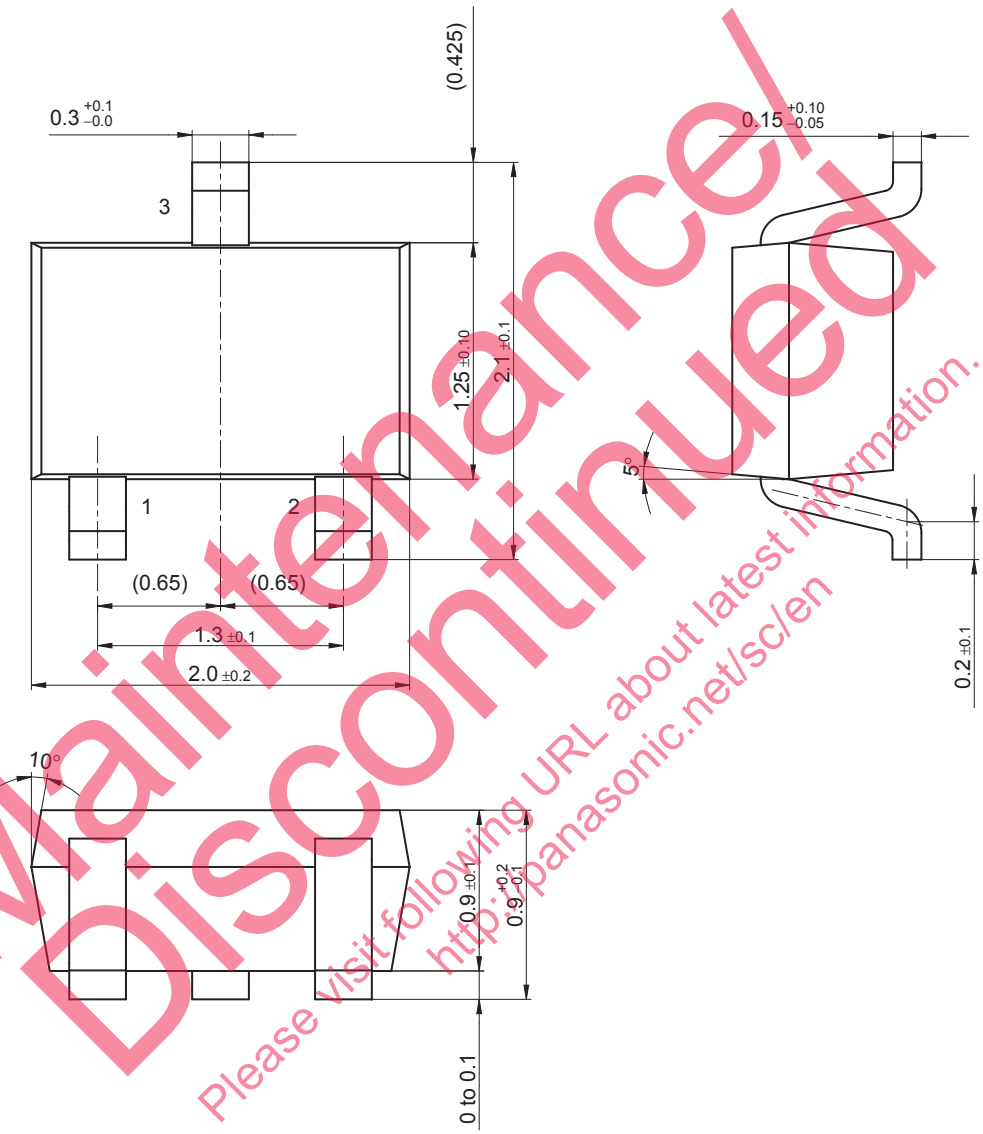


V_{CER} — R_{BE}



SMini3-G1

Unit: mm



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