2SD1478

Silicon NPN epitaxial planar type darlington

For low-frequency amplification

■ Features

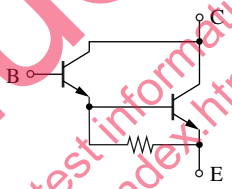
- Forward current transfer ratio h_{FE} is designed high, which is appropriate to the driver circuit of motors and printer hammer
- A shunt resistor is omitted from the driver.

■ Package

- Code
  Mini3-G1
- Pin Name
  1: Base
  2: Emitter
  3: Collector

■ Marking Symbol: 2N

■ Internal Connection



■ 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}	750	mA
Collector power dissipation	P_C	200	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

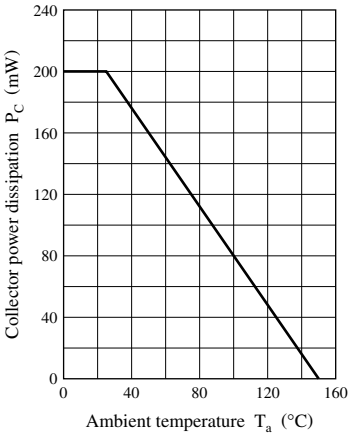
■ Electrical Characteristics $T_a = 25°C \pm 3°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = 100\ \mu A$, $I_E = 0$	30			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 1$ mA, $I_B = 0$	25			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = 100\ \mu A$, $I_C = 0$	5			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 25$ V, $I_E = 0$			100	nA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 4$ V, $I_C = 0$			100	nA
Forward current transfer ratio *1, 2	h_{FE}	$V_{CE} = 10$ V, $I_C = 500$ mA	4000		20000	—
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_C = 500$ mA, $I_B = 0.5$ mA			2.5	V
Base-emitter saturation voltage *1	$V_{BE(sat)}$	$I_C = 500$ mA, $I_B = 0.5$ mA			3.0	V
Transition frequency	f_T	$V_{CB} = 10$ V, $I_E = -50$ mA, $f = 200$ MHz		200		MHz

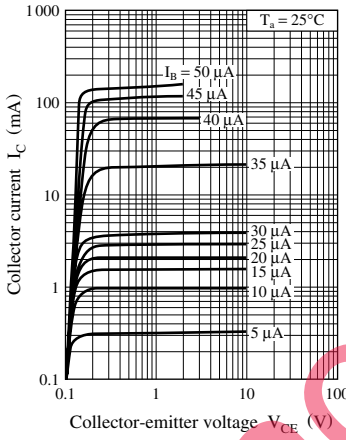
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. *1: Pulse measurement
*2: Rank classification

Rank	Q	R
h_{FE}	4000 to 10000	8000 to 20000

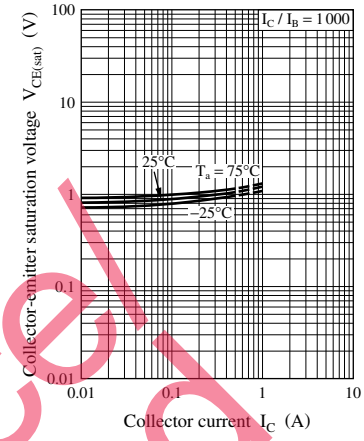
P_C — T_a



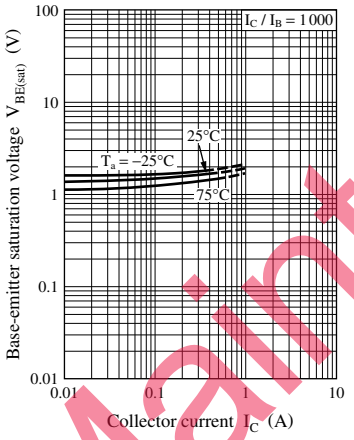
I_C — V_{CE}



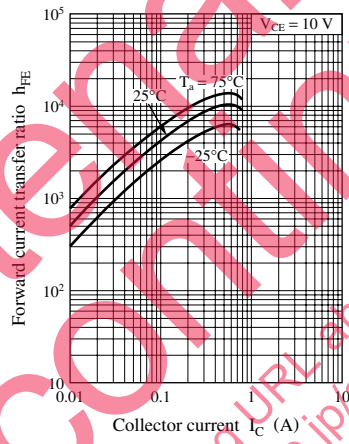
$V_{CE(sat)}$ — I_C



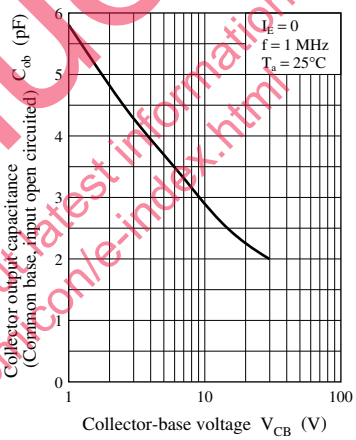
$V_{BE(sat)}$ — I_C



h_{FE} — I_C

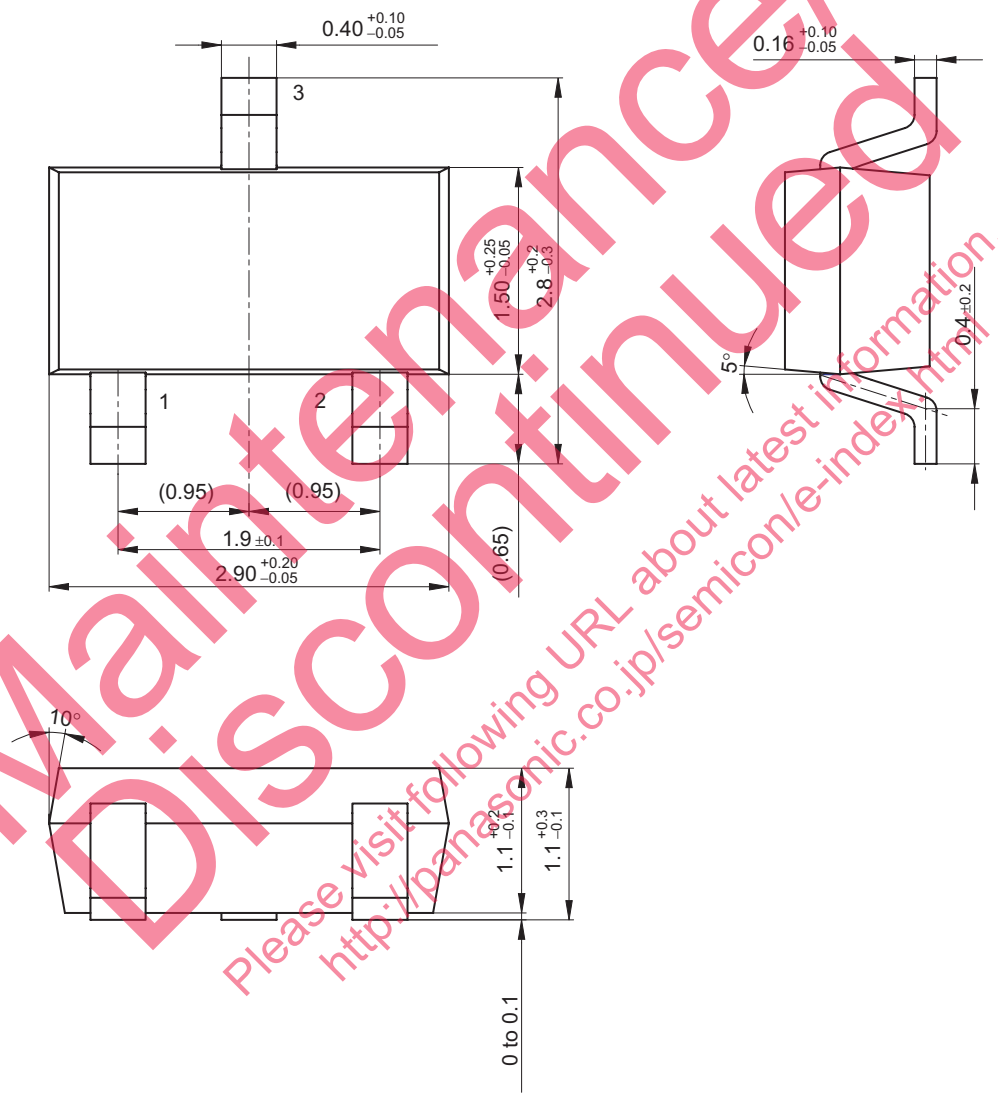


C_{ob} — V_{CB}



Mini3-G1

Unit: mm



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