

# 2SD1280

## Silicon NPN epitaxial planer type

For low-voltage type medium output power amplification

### Features

- Low collector to emitter saturation voltage  $V_{CE(sat)}$ .
- Satisfactory operation performances at high efficiency with the low-voltage power supply.
- Mini Power type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	20	V
Collector to emitter voltage	$V_{CEO}$	20	V
Emitter to base voltage	$V_{EBO}$	5	V
Peak collector current	$I_{CP}$	2	A
Collector current	$I_C$	1	A
Collector power dissipation	$P_C^*$	1	W
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 ~ +150	°C

\* Printed circuit board: Copper foil area of 1cm<sup>2</sup> or more, and the board thickness of 1.7mm for the collector portion

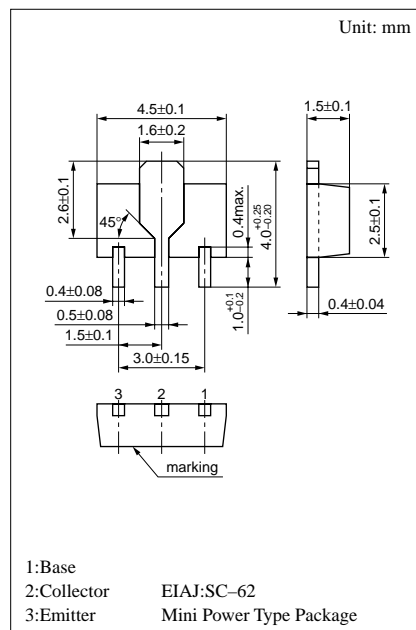
### Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 10V, I_E = 0$			1	μA
Collector to emitter voltage	$V_{CEO}$	$I_C = 1mA, I_B = 0$	20			V
Emitter to base voltage	$V_{EBO}$	$I_E = 10μA, I_C = 0$	5			V
Forward current transfer ratio	$h_{FE1}^{*1}$	$V_{CE} = 2V, I_C = 500mA^{*2}$	90	150	360	
	$h_{FE2}$	$V_{CE} = 2V, I_C = 1.5A^{*2}$	50	100		
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 500mA, I_B = 50mA^{*2}$			1.2	V
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1A, I_B = 50mA^{*2}$			0.5	V
Transition frequency	$f_T$	$V_{CB} = 6V, I_E = -50mA, f = 200MHz$		150		MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 6V, I_E = 0, f = 1MHz$		18		pF

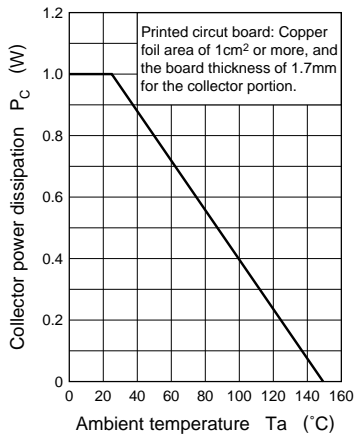
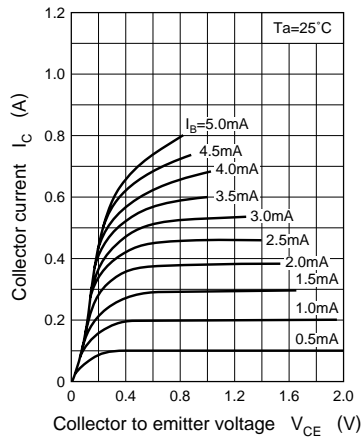
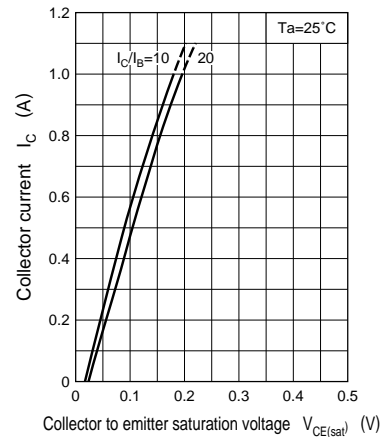
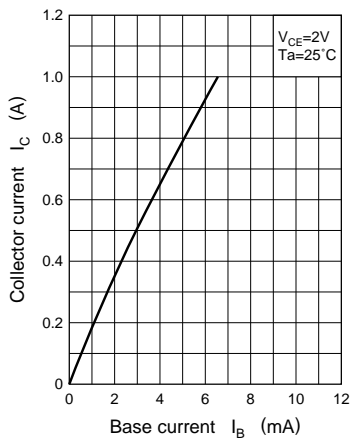
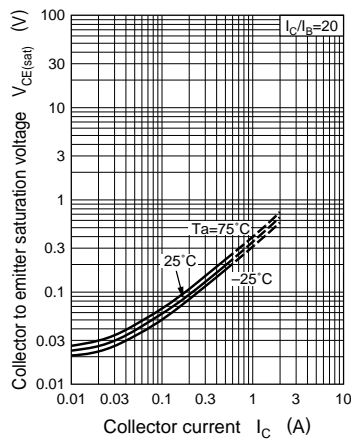
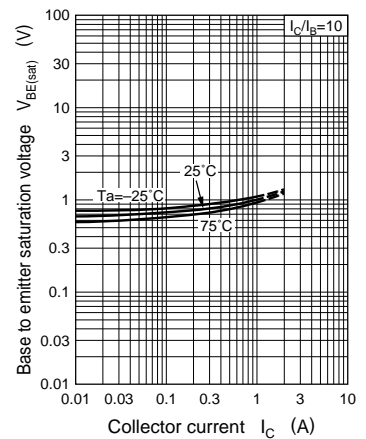
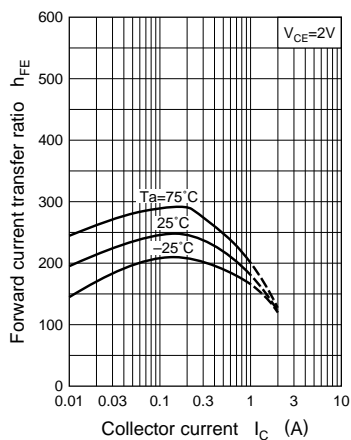
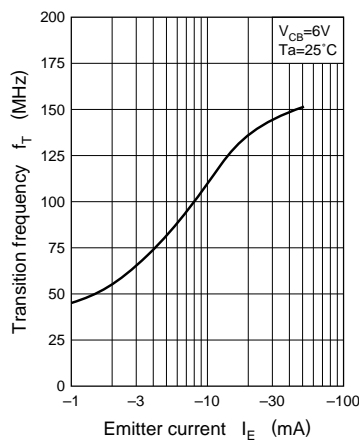
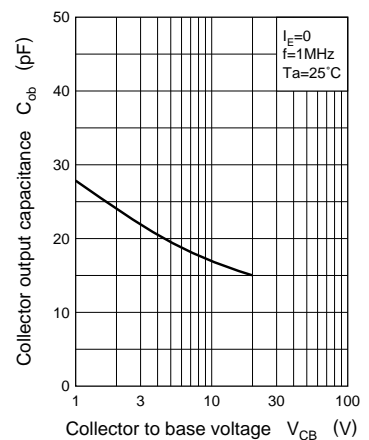
\*1  $h_{FE1}$  Rank classification

Rank	Q	R	S	T
$h_{FE1}$	90 ~ 155	130 ~ 210	180 ~ 280	250 ~ 360
Marking Symbol	RQ	RR	RS	RT

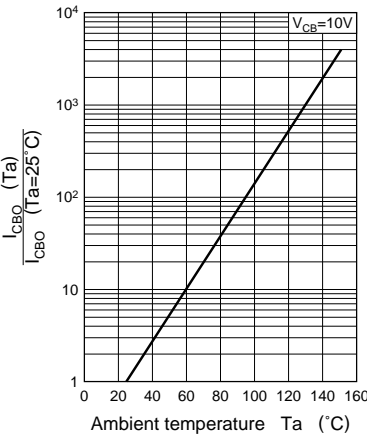
\*2 Pulse measurement



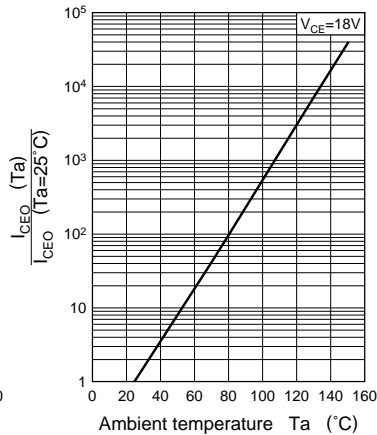
Marking symbol : R

$P_C - T_a$  $I_C - V_{CE}$  $I_C - V_{CE(sat)}$  $I_C - I_B$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_E$  $C_{ob} - V_{CB}$ 

$I_{CBO} - T_a$



$I_{CEO} - T_a$



Area of safe operation (ASO)

