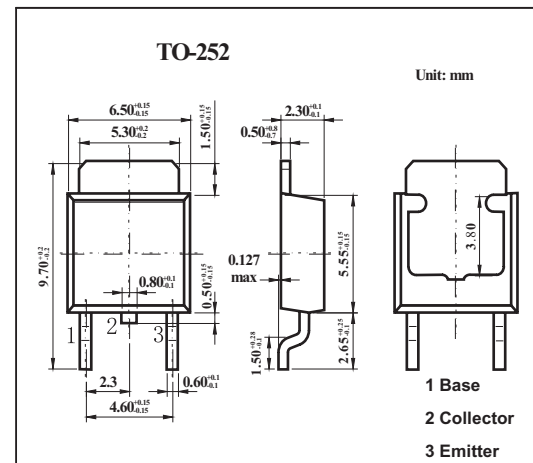# Silicon NPN Epitaxial Planar Type

2SD1257,2SD1257A

■ Features

● Low collector-emitter saturation voltage $V_{CE(sat)}$.

● Satisfactory linearity of forward current transfer ratio hFE.

● Large collector current I_C.

TO-252

Unit: mm

1 Base

2 Collector

3 Emitter

■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Collector-base voltage	2SD1257	V_{CBO}	130	V
	2SD1257A		150	V
Collector-emitter voltage	2SD1257	V_{CEO}	80	V
	2SD1257A		100	V
Emitter-base voltage		V_{EBO}	7	V
Collector current		I_C	7	A
Peak collector current		I_{CP}	15	A
Collector power dissipation Ta = 25℃		P_C	1.3	W
			40	W
Junction temperature		T_j	150	℃
Storage temperature		T_{stg}	-55 to +150	℃

2SD1257,2SD1257A

■ Electrical Characteristics Ta = 25℃

Parameter		Symbol	Testconditons	Min	Typ	Max	Unit
Collector-emitter voltage	2SD1257	V_{CEO}	I_C = 10 mA, I_B = 0	80			V
	2SD1257A			100			V
Collector-base cutoff current		I_{CBO}	V_{CB} = 100 V, I_E = 0			10	μA
Emitter-base cutoff current		I_{EBO}	V_{EB} = 5 V, I_C = 0			50	μA
Forward current transfer ratio		h_{FE}	V_{CE} = 2 V, I_C = 3 A	90		260	
Forward current transfer ratio			V_{CE} = 2 V, I_C = 0.1A	45			
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C = 5 A, I_B = 0.25 A			0.5	V
Base-emitter saturation voltage		$V_{BE(sat)}$	I_C = 5 A, I_B = 0.25 A			1.5	V
Transition frequency		f_T	V_{CE} = 10 V, I_C = 0.5 A, f = 10 MHz		30		MHz
Turn-on time		t_{on}	I_C=3A		0.5		μs
Storage time		t_{stg}	I_{B1}=-I_{B2}=0.3 A		1.5		μs
Fall time		t_f	V_{CC}=50V		0.1		μs

■ h_{FE} Classification

Rank	Q	P
h_{FE}	90～180	130～260