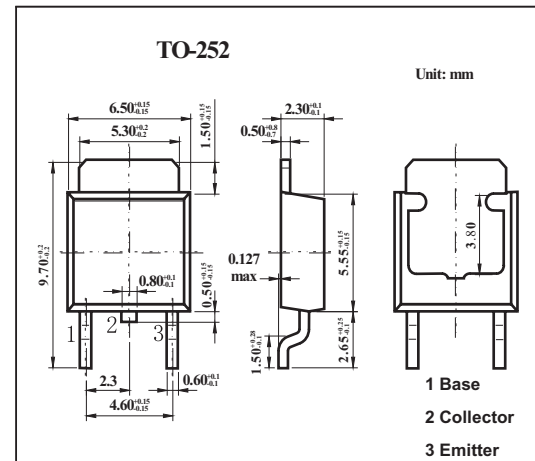


NPN Silicon Epitaxial Transistor

2SD1899-Z

■ Features

- Low $V_{CE(sat)}$.
- High h_{FE} .

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	60	V
Collector-emitter voltage	V_{CEO}	60	V
Emitter-base voltage	V_{EBO}	7	V
Collector current (DC)	I_C	3	A
Collector Current (pulse) *1	I_{CP}	5	A
Base current	I_B	0.5	A
Total power dissipation $T_a = 25^\circ\text{C}$	P_T *2	2	W
Total power dissipation $T_c = 25^\circ\text{C}$	P_T	10	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

*1 Pulse Test $PW \leq 10\text{ms}$, Duty Cycle $\leq 50\%$.

*2 Mounted on ceramic substrate of $7.5\text{mm}^2 \times 0.7\text{mm}$

2SD1899-Z■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 60\text{ V}, I_E = 0$			10	μs
Emitter cutoff current	I_{EBO}	$V_{EB} = 7\text{ V}, I_C = 0$			10	μA
DC current gain *	h_{FE}	$V_{CE} = 2\text{ V}, I_C = 0.2\text{ A}$	60			
		$V_{CE} = 2\text{ V}, I_C = 0.6\text{ A}$	100		400	
		$V_{CE} = 2\text{ V}, I_C = 2.0\text{ A}$	50			
Collector saturation voltage *	$V_{CE(sat)}$	$I_C = 1.5\text{ A}, I_B = 0.15\text{ A}$		0.14	0.25	V
Base saturation voltage *	$V_{BE(sat)}$	$I_C = 1.5\text{ A}, I_B = 0.15\text{ A}$		0.93	1.2	V
Gain bandwidth product	f_T	$V_{CE} = 5\text{ V}, I_E = -1.5\text{ A}$		120		MHz
Output capacitance	C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$		30		pF
Turn-on time	t_{on}	$I_C = 1\text{ A}, V_{CC} = 10\text{ V}$		0.15	0.5	μs
Storage time	t_{stg}	$I_{B1} = -I_{B2} = 0.1\text{ A}$		0.75	2	μs
Fall time	t_f	$R_L = 10\Omega$		0.2	0.5	μs

* Pulsed: $PW \leq 350\ \mu\text{s}$, duty cycle $\leq 2\%$

■ hFE Classification

Marking	M	L	K
hFE	100~200	160~320	200~400