

PNP Epitaxial Planar Silicon Transistors

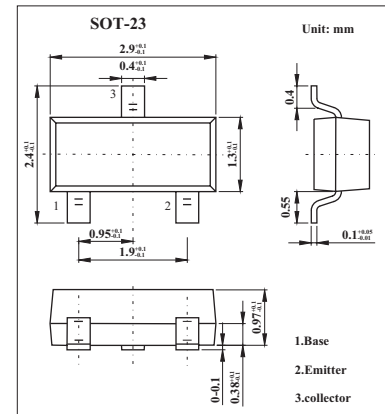
2SA1338

■ Features

- Adoption of FBET process.
- High breakdown voltage : $V_{CE0} = -50V$.
- Large current capacity and high fr.
- Ultrasmall-sized package permitting sets to be small-sized, slim.

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

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-60	V
Collector-emitter voltage	V_{CEO}	-50	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current	I_C	-500	mA
Collector current (pulse)	I_{CP}	-800	mA
Collector dissipation	P_C	200	mW
Junction temperature	T_j	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = -40V, I_E = 0$			-0.1	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = -4V, I_C = 0$			-0.1	μA
DC current Gain	h_{FE}	$V_{CE} = -5V, I_C = -10mA$	100		560	
Gain bandwidth product	f_r	$V_{CE} = -10V, I_C = -50mA$		200		MHz
Common base output capacitance	C_{ob}	$V_{CB} = -10V, f = 1MHz$		5.6		pF
Collector-to-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -100mA, I_B = -10mA$		0.15	0.4	V
Base-to-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -100mA, I_B = -10mA$		0.8	1.2	V
Collector-to-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0$	-60			V
Collector-to-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -100\mu A, R_{BE} = \infty$	-50			V
Emitter-to-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0$	-5			V
Turn-on time	t_{on}	$V_{CC} = 20V, I_C = -10mA, I_B1 = -10mA, I_B2 = 100mA$		70		ns
Storage time	t_{stg}			400		ns
Fall time	t_f			50		ns

■ h_{FE} Classification

Marking	AL			
Rank	4	5	6	7
h_{FE}	100~200	140~280	200~400	280~560