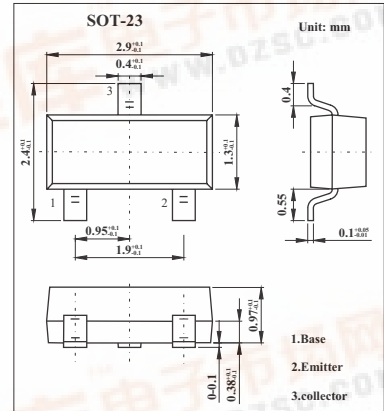


SMD Type Transistors

Silicon NPN Triple Diffused Type
2SC3138

■ Features

- High voltage. $V_{CBO} = 200\text{ V (max)}$
 $V_{CEO} = 200\text{ V (max)}$
- Small flat package.



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

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	200	V
Collector-emitter voltage	V_{CEO}	200	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	50	mA
Base current	I_B	20	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	125	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 200\text{ V}, I_E = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$			0.1	μA
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 0.1\text{ mA}, I_E = 0$	200			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{ mA}, I_B = 0$	200			V
DC current gain	h_{FE}	$V_{CE} = 3\text{ V}, I_C = 10\text{ mA}$	70		240	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\text{ mA}, I_B = 1\text{ mA}$		0.1	0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10\text{ mA}, I_B = 1\text{ mA}$		0.75	1.5	V
Transition frequency	f_T	$V_{CE} = 10\text{ V}, I_C = 2\text{ mA}$	50	100		MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$		2	4	pF
Turn-on time	t_{on}	pulse width = 5 μs , duty cycle $\leq 2\%$		0.3		μs
Storage time	t_{stg}	$I_{B1} = -I_{B2} = 0.6\text{ mA}$		2		μs
Fall time	t_f	$V_{CC} = 50\text{ V}, I_C = 6\text{ mA}$		0.4		μs

■ h_{FE} Classification

Marking	NO	NY
Bank	O	Y
h_{FE}	70~140	120~240

