

# 2SC3757

## Silicon NPN epitaxial planer type

For high speed switching

### ■ Features

- High-speed switching
- Low collector to emitter saturation voltage  $V_{CE(sat)}$
- Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.
- Allowing pair use with 2SA1738

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

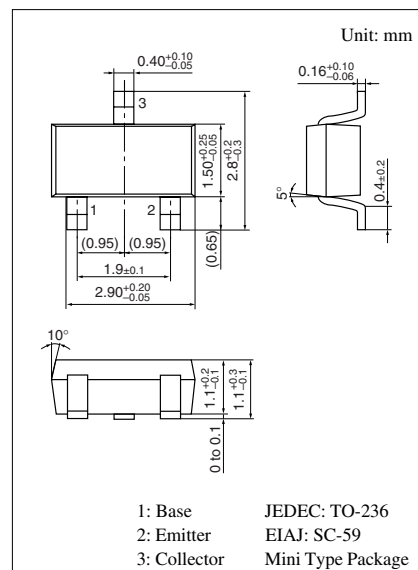
Parameter	Symbol	Rating	Unit
Collector to base voltage	$V_{CBO}$	40	V
Collector to emitter voltage	$V_{CES}$	40	V
Emitter to base voltage	$V_{EBO}$	5	V
Peak collector current	$I_{CP}$	300	mA
Collector current	$I_C$	100	mA
Collector power dissipation	$P_C$	200	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 15\text{ V}, I_E = 0$			0.1	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 4\text{ V}, I_C = 0$			0.1	$\mu\text{A}$
Forward current transfer ratio *	$h_{FE}$	$V_{CE} = 1\text{ V}, I_C = 10\text{ mA}$	60		200	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\text{ mA}, I_B = 1\text{ mA}$		0.17	0.25	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10\text{ mA}, I_B = 1\text{ mA}$			1.0	V
Transition frequency	$f_T$	$V_{CB} = 10\text{ V}, I_E = -10\text{ mA}, f = 200\text{ MHz}$		450		MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$		2	6	pF
Turn-on time	$t_{on}$	Refere to the measurement circuit		17		ns
Turn-off time	$t_{off}$			17		ns
Storage time	$t_{stg}$			10		ns

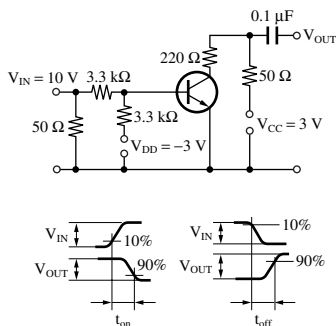
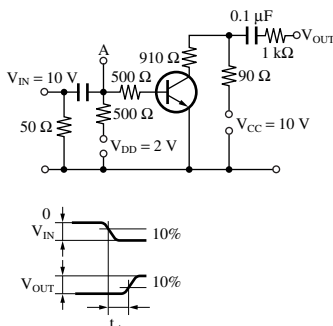
Note) \*: Rank classification

Rank	Q	R
$h_{FE}$	60 to 120	90 to 200
Marking symbol	2YQ	2YR

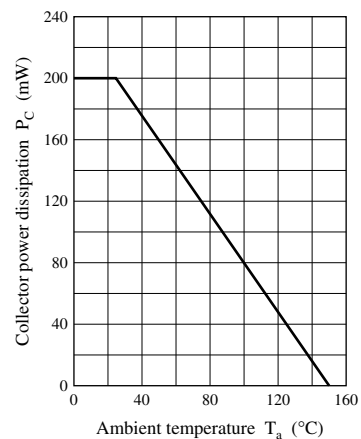
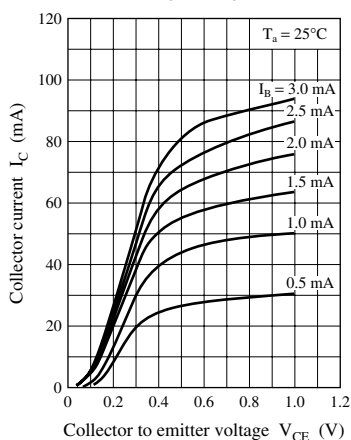
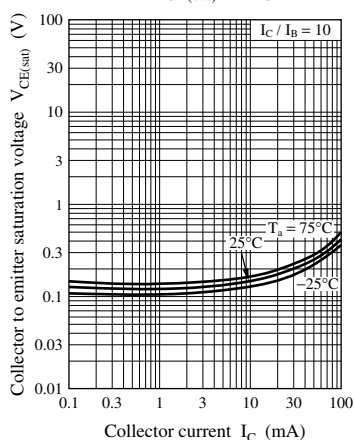
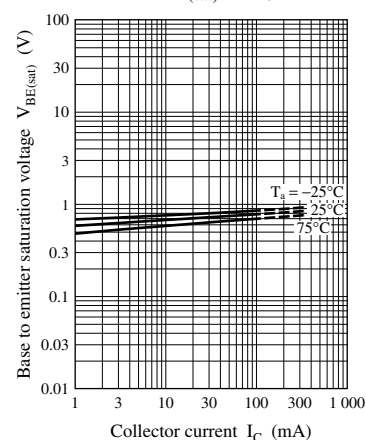
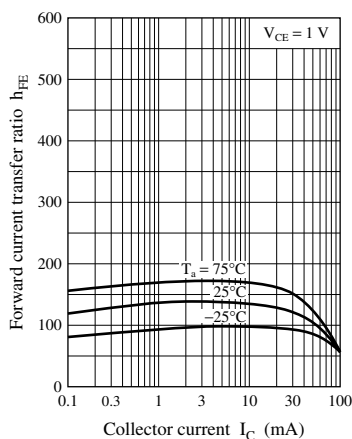
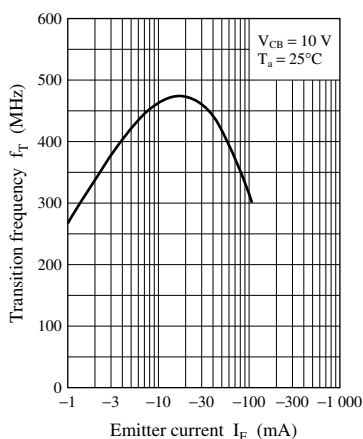


Marking Symbol: 2Y

## Switching time measurement circuit

 $t_{on}$ ,  $t_{off}$  Test circuit $t_{stg}$  Test circuit

(Waveform at A)

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