

High-voltage, high-current switch

The BSV77 is an NPN silicon planar epitaxial transistor suitable for high voltage, high current switching applications. The $V_{CEO(sust)}$ of 40V, $V_{CE(sat)}$ of 0.95V at 1A together with high speed at high current, make the BSV77 ideal for use in fast high current memory applications.

ELECTRICAL CHARACTERISTICS

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Characteristic and test conditions	Min.	Typ.	Max.	Unit
h_{FE}	DC Current Gain (5)				
	$I_C = 10\text{mA}$ $V_{CE} = 1\text{V}$	30	60		
	$I_C = 100\text{mA}$ $V_{CE} = 1\text{V}$	60	90	150	
	$I_C = 500\text{mA}$ $V_{CE} = 1\text{V}$	30	50		
$V_{BE(sat)}$	Base Saturation Voltage (5)				
	$I_C = 100\text{mA}$ $I_B = 10\text{mA}$	0.8	0.78		V
	$I_C = 500\text{mA}$ $I_B = 0\text{mA}$		1	1.2	V
	$I_C = 1\text{A}$ $I_B = 0.1\text{A}$		1.2	1.7	V
$V_{CE(sat)}$	Collector Saturation Voltage (5)				
	$I_C = 100\text{mA}$ $I_B = 10\text{mA}$		0.17		V
	$I_C = 500\text{mA}$ $I_B = 50\text{mA}$		0.35	0.40	V
	$I_C = 1\text{A}$ $I_B = 0.1\text{A}$		0.65	0.95	V
I_{CBO}	Collector Reverse Current				
	$V_{CB} = 40\text{V}$ $I_E = 0$		0.1	1.7	μA
	$V_{CB} = 40\text{V}$ $I_E = 0$ $T = 75^\circ\text{C}$		20	120	μA
BV_{CES}	Collector to Emitter Breakdown Voltage $I_C = 10\text{mA}$ $V_{BE} = 0$	60			V
BV_{EBO}	Emitter to Base Breakdown Voltage $I_E = 10\text{mA}$ $I_C = 0$	6			V
V_{CEO}	Collector to Emitter Sustaining Voltage (4 and 5)				
	$I_C = 10\text{mA}$ $I_B = 0$	40			V
h_{fe}	High Freq. Current Gain $I_C = 50\text{mA}$ $V_{CE} = 10\text{V}$ $f = 100\text{MHz}$	2.5	4		
C_{TE}	Emitter Transition Capacitance $I_C = 0$ $V_{EB} = 0.5\text{V}$	40	55		pF
C_{cb0}	Base-Collector Capacitance $I_E = 0$ $V_{CB} = 10\text{V}$	4.8	12		pF
t_{on}	Turn On Time $I_C = 500\text{mA}$ $I_B1 = 50\text{mA}$	15	35		ns
t_{off}	Turn Off Time $I_C = 500\text{mA}$ $I_B1 = 50\text{mA}$ $I_B2 = 50\text{mA}$	40	60		ns

NOTES:

- These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
- These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
- These ratings give a maximum junction temperature of 200°C and junction-to-case thermal resistance of 50°C/W (derating factor of $20\text{ mW}/^\circ\text{C}$); junction-to-ambient thermal resistance of 219°C/W (derating factor of $4.5\text{ mW}/^\circ\text{C}$).
- These ratings refer to a high-current point where collector-to-emitter voltage is lowest. For more information send for SGS-AR 5.
- Measured under pulse conditions; pulse length = $300\text{ }\mu\text{sec}$; duty cycle = 1%.

ABSOLUTE MAXIMUM RATINGS (1)

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Voltagess and Current

Collector to Emitter (4)	V_{CEO}	40V
Collector to Emitter	V_{CES}	60V
Emitter to Base	V_{EBO}	6V
DC Collector Current	I_C	1A

Temperatures

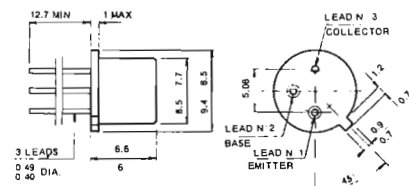
Storage Temperature	T_{STG}	-55°C to 200°C
Operating Junction Temperature	T_J	200°C
Lead Temperature (Soldering, 10 sec.)	T_L	260°C

Power (2-3)

Dissipation at 25°C Case Temperature	P_D	3.5W
Dissipation at 25°C Ambient Temperature	P_D	0.8W

PHYSICAL DIMENSIONS

in accordance with
JEDEC TO-39 outline



NOTES: All dimensions in mm.
Collector internally connected to case.