NPN diffused silicon planar transistor

BSV 95

High-voltage, high-current switch

The BSV95 is an NPN silicon planar epitaxial transistor suitable for high voltage, high current switching applications. The V_{CEO} (sust) of 50 V, V_{CE} (sat) of 0.95V at 1A together with an high speed at high current, make the BSV95 ideal for use in fast high current memory applications.

ELECTRICAL CHARACTERISTICS
(T_A = 25°C unless otherwise noted)

Symbol	Characteristic and test conditions		Min.	Typ.	Max.	Unit
h_{FE}	DC Current Gain (5)					
	I_C = 10mA	V_{CE} = 1V	20	40		
	I_C = 100mA	V_{CE} = 1V	40	80	150	
	I_C = 300mA	V_{CE} = 1V	30	65		
	I_C = 500mA	V_{CE} = 1V	20	50		
	I_C = 800mA	V_{CE} = 2V	15	40		
$V_{BE\ sat}$	Base Saturation Voltage (5)					
	I_C = 300mA	I_B = 30mA		0.9	1.1	V
	I_C = 500mA	I_B = 50mA	0.8	1	1.2	V
	I_C = 1A	I_B = 0.1A		1.2	1.5	V
$V_{CE\ sat}$	Collector Saturation Voltage (5)					
	I_C = 300mA	I_B = 30mA		0.35	0.40	V
	I_C = 500mA	I_B = 50mA		0.45	0.60	V
	I_C = 1A	I_B = 0.1A		0.65	0.95	V
I_{CBO}	Collector Reverse Current					
	V_{CB} = 60V	I_E = 0		0.1	1.5	nA
	V_{CB} = 60V	I_E = 0 100°C		20	100	μA
BV_{CES}	Collector to Emitter Breakdown Voltage					
	I_C = 10 μA	V_{EB} = 0	80			V
BV_{EBO}	Emitter to Base Breakdown Voltage					
	I_E = 10 μA	I_C = 0	6			V
$L.V_{CEO}$	Collector to Emitter Sustaining Voltage (4 and 5)					
	I_C = 10mA	I_B = 0	50			V
h_{fe}	High Freq. Current Gain					
	I_C = 50mA V_{CE} = 10V f = 100MHz		2.5	4		
C_{TE}	Emitter Transition Capacitance					
	I_C = 0	V_{EB} = 0.5V		40	55	pF
C_{obo}	Base-Collector Capacitance					
	I_E = 0	V_{CB} = 10 V		4.8	10	pF
t_{on}	Turn On Time					
	I_C = 500mA	I_{B1} = 50mA		15	35	ns
t_{off}	Turn Off Time					
	I_C = 500mA I_{B1} = 50mA I_{B2} = 50mA			40	60	ns

NOTES:

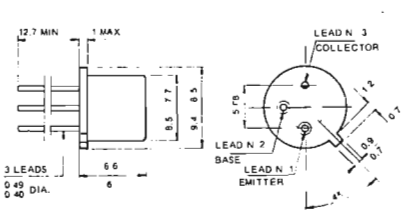
(1) These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
(2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
(3) These ratings give a maximum junction temperature of 200°C and junction-to-case thermal resistance of 50°C/W (derating factor of 20mW/°C); junction-to-ambient thermal resistance of 219°C/W (derating factor of 4.56mW/°C).
(4) These ratings refer to a high-current point where collector-to-emitter voltage is lowest. For more information send for SGS-ARS.
(5) Measured under pulse conditions; pulse length = 300 μsec; duty cycle = 1%

ABSOLUTE MAXIMUM RATINGS (1)
(T_A = 25°C unless otherwise noted)

Voltages and Current		
Collector to Emitter (4)	V_{CEO}	50V
Collector to Emitter	V_{CES}	80V
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