

# High voltage high current switch

The BSS 26 is an NPN silicon planar epitaxial transistor suitable for high voltage, high current switching 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)				
	$I_C = 10\text{mA}$ $V_{CE} = 1\text{V}$	25	55		
	$I_C = 100\text{mA}$ $V_{CE} = 1\text{V}$	40	75		
	$I_C = 500\text{mA}$ $V_{CE} = 1\text{V}$	25	45		
$V_{BEsat}$	Base Saturation Voltage (5)				
	$I_C = 100\text{mA}$ $I_B = 10\text{mA}$	0.8	0.9		V
	$I_C = 500\text{mA}$ $I_B = 50\text{mA}$	0.8	0.95	1.2	V
$V_{CEsat}$	Collector Saturation Voltage (5)				
	$I_C = 1\text{A}$ $I_B = 0.1\text{A}$		1.05	1.7	V
	$I_C = 100\text{mA}$ $I_B = 10\text{mA}$		0.17	0.3	V
$I_{CBO}$	Collector Reverse Current				
	$V_{CB} = 40\text{V}$ $I_E = 0$		0.1	1.7	$\mu\text{A}$
	$V_{CB} = 40\text{V}$ $I_E = 0$ $T_A = 100^\circ\text{C}$		20	120	$\mu\text{A}$
$BV_{CBO}$	Collector to Base Breakdown Voltage				
$BV_{CES}$	Collector to Emitter Breakdown Voltage				
$BV_{EBO}$	Emitter to Base Breakdown Voltage				
$LV_{CEO}$	Collector to Emitter Sustaining Voltage (4 and 5)				
$h_{fe}$	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				
$C_{obo}$	Base-Collector Capacitance				
	$I_C = 0$ $V_{EB} = 0.5\text{V}$	40	55		pF
$t_{on}$	Turn On Time (6)				
	$I_C = 500\text{mA}$ $I_{B1} = 50\text{mA}$	15	35		ns
$t_{off}$	Turn Off Time (6)				
	$I_C = 500\text{mA}$ $I_{B1} = 50\text{mA}$ $I_{B2} = 50\text{mA}$	40	60		ns

**ABSOLUTE MAXIMUM RATINGS (1)**  
( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Voltages and Currents**

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

**Temperatures**

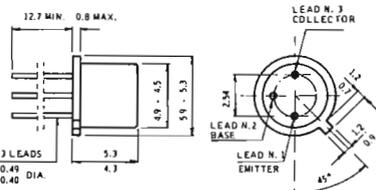
Storage Temperature Range $T_{STG}$	$-55^\circ\text{C}$ to $200^\circ\text{C}$
Operating Junction Temperature $T_J$	$200^\circ\text{C}$
Lead Temperature (Soldering, 10 sec. time limit) $T_L$	$260^\circ\text{C}$

**Power (2 and 3)**

Dissipation at $25^\circ\text{C}$ Case Temperature	$P_D$	1.2 W
Dissipation at $25^\circ\text{C}$ Ambient Temperature	$P_D$	0.36 W

**PHYSICAL DIMENSIONS**

in accordance with  
JEDEC TO-18 outline

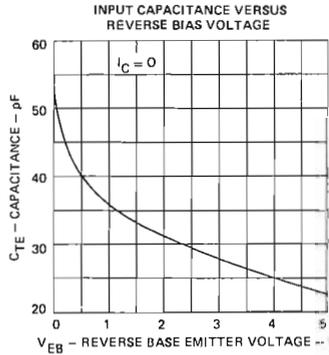
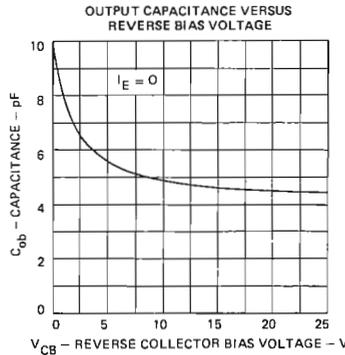
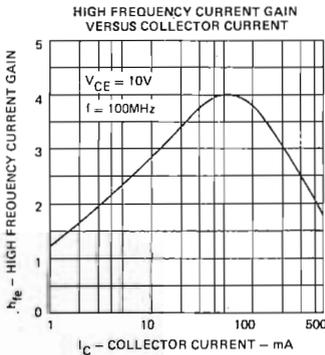
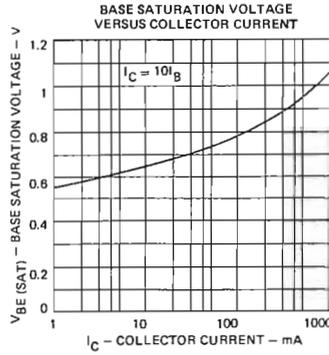
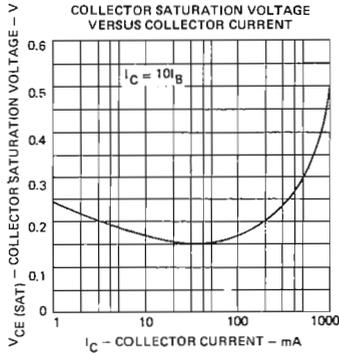
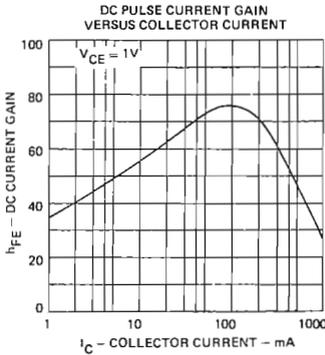
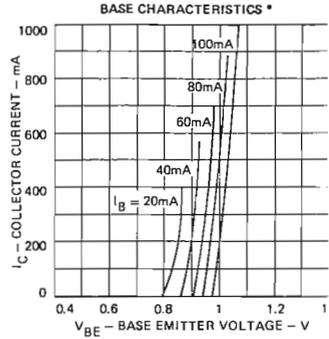
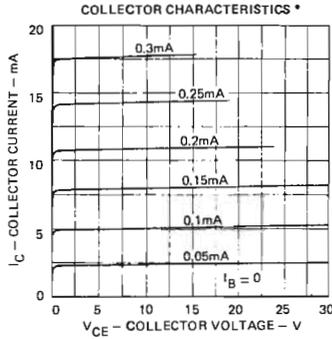
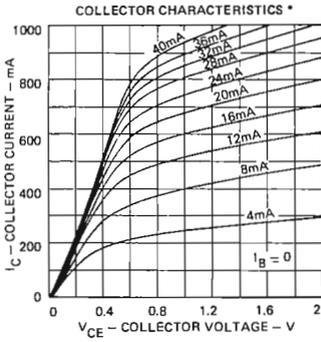


NOTES : All dimensions in mm.

**NOTES :**

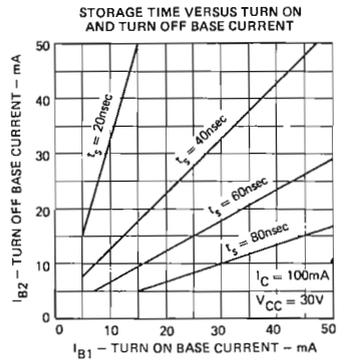
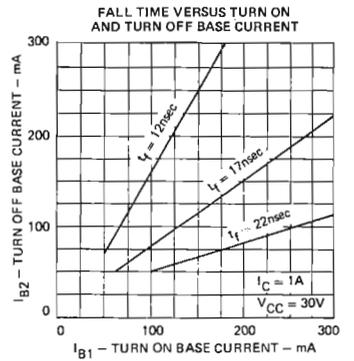
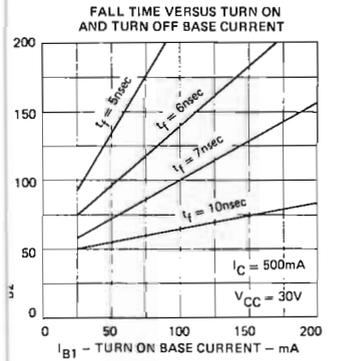
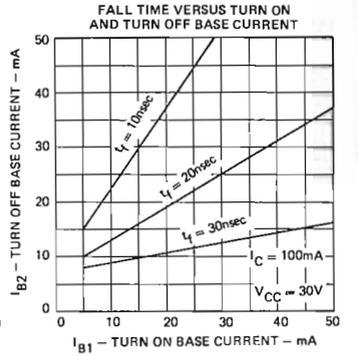
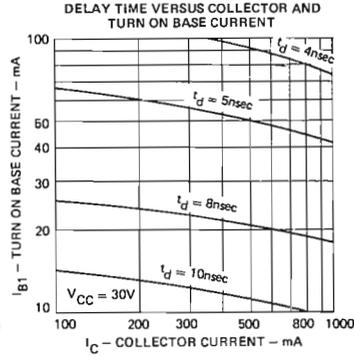
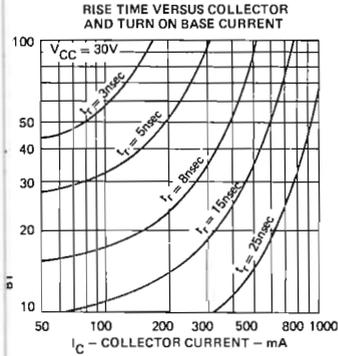
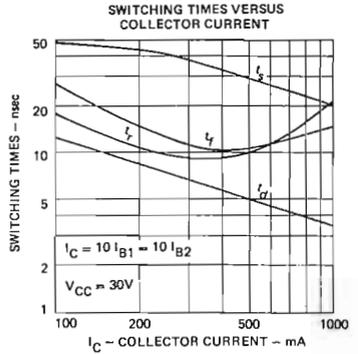
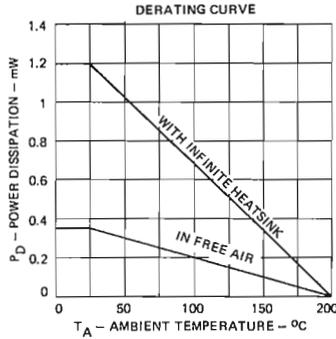
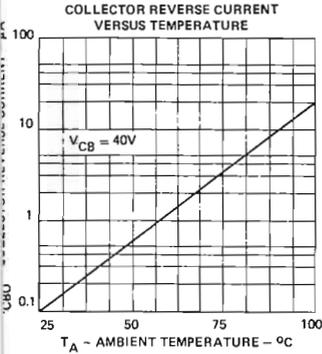
- These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
- These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
- These ratings give a maximum junction temperature of  $200^\circ\text{C}$  and junction-to-case thermal resistance of  $146^\circ\text{C}/\text{W}$  (derating factor of  $6.86\text{ mW}/^\circ\text{C}$ ); junction-to-ambient thermal resistance of  $486^\circ\text{C}/\text{W}$  (derating factor of  $2.06\text{ mW}/^\circ\text{C}$ ).
- 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 =  $300\ \mu\text{sec}$ ; duty cycle = 1%.
- See switching circuits for exact values of  $I_C$ ,  $I_{B1}$  and  $I_{B2}$ .

## TYPICAL ELECTRICAL CHARACTERISTICS (25°C free air temperature unless otherwise noted)

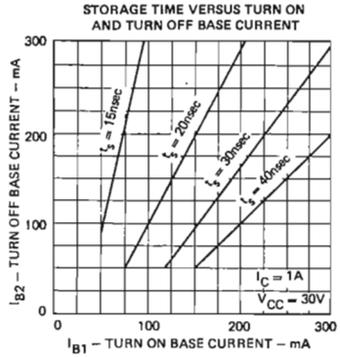
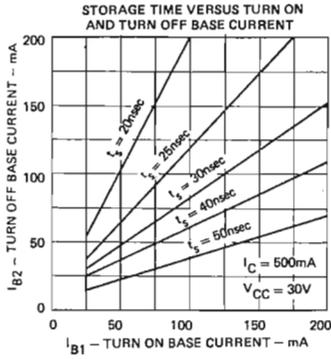


\* Single family characteristics on Transistor Curve Tracer

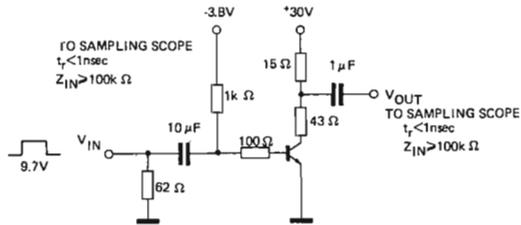
TYPICAL ELECTRICAL CHARACTERISTICS (25° C free air temperature unless otherwise noted)



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## SWITCHING TIMES TEST CIRCUIT



## PULSE GENERATOR

$t_r$  &  $t_f < 1\text{nsec}$   
 $PW = 1\mu\text{sec}$   
 $Z_{OUT} = 50\Omega$   
 DUTY CYCLE ~ 2%

$I_C \approx 500\text{mA}$ ,  $I_{B1} \approx 50\text{mA}$ ,  $I_{B2} \approx 50\text{mA}$