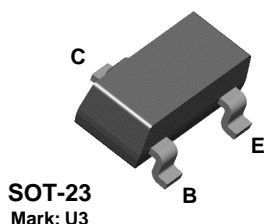


## BSS64



### NPN General Purpose Amplifier

This device is designed for general purpose high voltage amplifiers and gas discharge display driving. Sourced from Process 16.

#### Absolute Maximum Ratings\* TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	80	V
$V_{CBO}$	Collector-Base Voltage	120	V
$V_{EBO}$	Emitter-Base Voltage	5.0	V
$I_C$	Collector Current - Continuous	200	mA
$T_J, T_{stg}$	Operating and Storage Junction Temperature Range	-55 to +150	°C

\*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

**NOTES:**

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

#### Thermal Characteristics TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		*BSS64	
$P_D$	Total Device Dissipation Derate above 25°C	350	mW
		2.8	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W

\*Device mounted on FR-4 PCB 40 mm X 40 mm X 1.5 mm.

# NPN General Purpose Amplifier

(continued)

BSS64

## Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 4.0 \text{ mA}, I_B = 0$	80		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	120		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100 \mu\text{A}, I_C = 0$	5.0		V
$I_{CBO}$	Collector-Cutoff Current	$V_{CB} = 90 \text{ V}, I_E = 0$ $V_{CB} = 90 \text{ V}, I_E = 0, T_A = 150^\circ\text{C}$		0.1 50	$\mu\text{A}$ $\mu\text{A}$
$I_{EBO}$	Emitter-Cutoff Current	$V_{EB} = 5.0 \text{ V}, I_C = 0$		200	nA

### ON CHARACTERISTICS

$h_{FE}$	DC Current Gain	$I_C = 10 \text{ mA}, V_{CE} = 1.0 \text{ V}$	20		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 4.0 \text{ mA}, I_B = 400 \mu\text{A}$ $I_C = 50 \text{ mA}, I_B = 15 \text{ mA}$		0.15 0.2	V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 4.0 \text{ mA}, I_B = 400 \mu\text{A}$		1.2	V

### SMALL SIGNAL CHARACTERISTICS

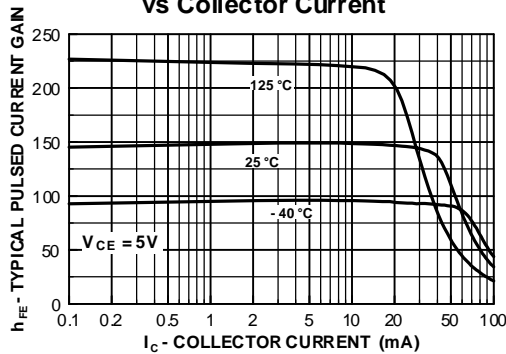
$f_T$	Current Gain - Bandwidth Product	$I_C = 4.0 \text{ mA}, V_{CE} = 10, f = 35 \text{ MHz}$	60		MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 10 \text{ V}, f = 1.0 \text{ MHz}$		5.0	pF

## Spice Model

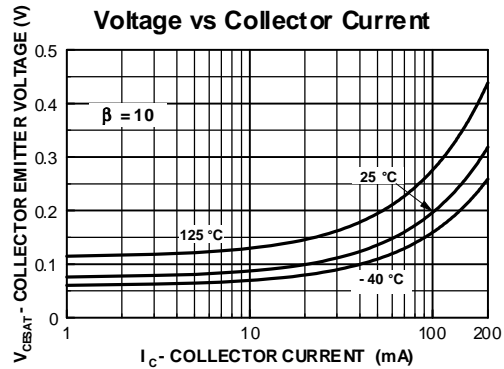
NPN (Is=2.511f Xti=3 Eg=1.11 Vaf=100 Bf=242.6 Ne=1.249 Ise=2.511f Ikf=.3458 Xtb=1.5 Br=3.197 Nc=2 Isc=0 lkr=0 Rc=1 Cjc=4.883p Mjc=.3047 Vjc=.75 Fc=.5 Cje=18.79p Mje=.3416 Vje=.75 Tr=1.202n Tf=560p ltf=50m Vtf=5 Xtf=8 Rb=10)

## Typical Characteristics

**Typical Pulsed Current Gain vs Collector Current**

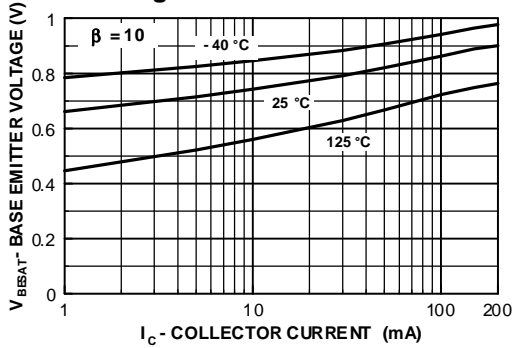


**Collector-Emitter Saturation Voltage vs Collector Current**

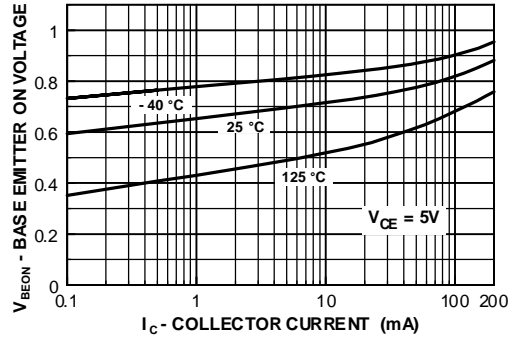


Typical Characteristics

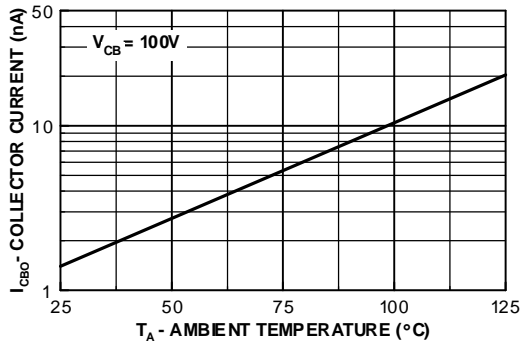
Base-Emitter Saturation Voltage vs Collector Current



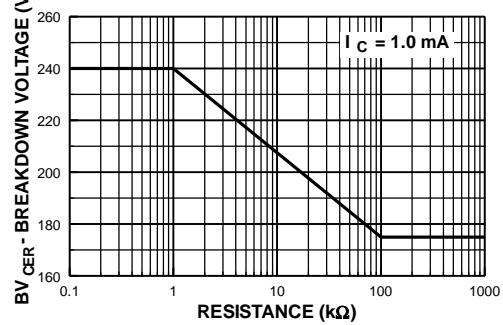
Base Emitter ON Voltage vs Collector Current



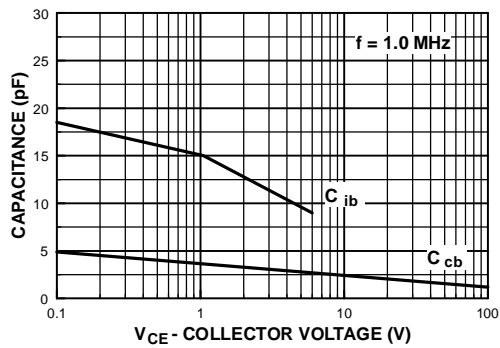
Collector-Cutoff Current vs. Ambient Temperature



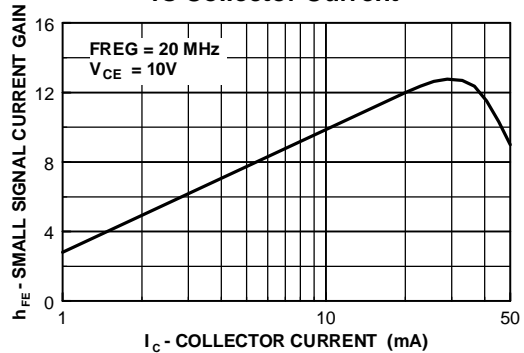
Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base



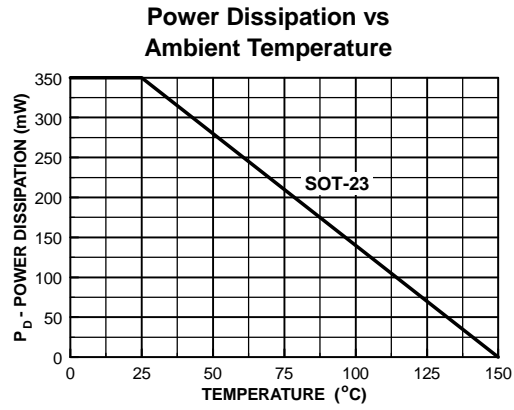
Input and Output Capacitance vs Reverse Voltage



Small Signal Current Gain vs Collector Current



Typical Characteristics (continued)



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