



SSCN3904GN1

NPN Switching Transistor

➤ Features

VCB	VCE	VBE	IC
60V	40V	6V	200mA

➤ Description

The NPN Transistor is designed for use in linear and switching applications. The device is housed in the DFN1006-3L package, which is designed for telephony and professional communication equipment.

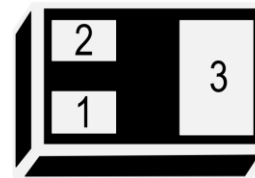
➤ Applications

- General purpose switching and amplification
- Telephony and professional communication equipment

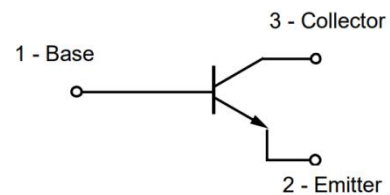
➤ Ordering Information

Device	Package	Shipping
SSCN3904GN1	DFN1006-3L	10000/Reel

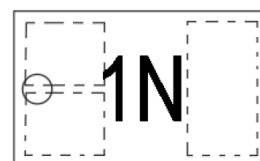
➤ Pin configuration



DFN1006-3L (Bottom View)



Circuit Diagram



Marking (Top View)



➤ **Absolute Maximum Ratings**($T_A=25^{\circ}\text{C}$ unless otherwise noted)

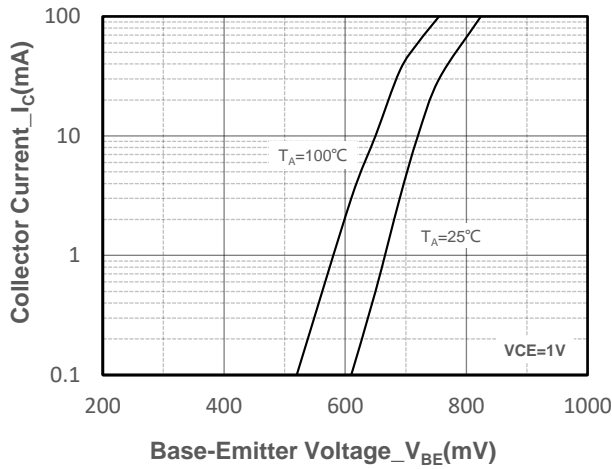
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector- Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current-Continuous	I_C	200	mA
Collector Power Dissipation	P_C	100	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	1250	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^{\circ}\text{C}$

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

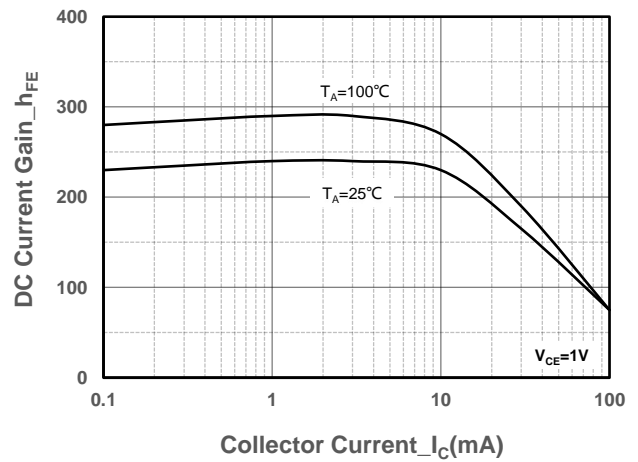
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C=10\mu\text{A}, I_E=0$	60			V
Collector-emitter Breakdown Voltage	BV_{CEO}	$I_C=1\text{mA}, I_B=0$	40			V
Emitter -Base Breakdown Voltage	BV_{EBO}	$I_E=10\mu\text{A}, I_C=0$	6			V
Collector Cutoff Current	I_{CEX}	$V_{CE}=30\text{V}, V_{EB}=3\text{V}$			50	nA
Collector Cutoff Current	I_{CBO}	$V_{CB}=30\text{V}, I_E=0$			100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=3\text{V}, I_C=0$			100	nA
DC Current Gain	h_{FE}	$V_{CE}=1\text{V}, I_C=10\text{mA}$	100		300	
		$V_{CE}=1\text{V}, I_C=0.1\text{mA}$	40			
		$V_{CE}=1\text{V}, I_C=100\text{mA}$	30			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$			0.3	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$			0.95	V
Transition frequency	f_T	$V_{CE}=20\text{V}, I_C=10\text{mA}$ $f=100\text{MHz}$	250			MHz
Delay Time	t_d	$V_{CC}=3\text{V}, V_{BE(off)}=-0.5\text{V}$ $I_C=10\text{mA}, I_{B1}=1\text{mA}$			35	ns
Rise Time	t_r	$V_{CC}=3\text{V}, V_{BE(off)}=-0.5\text{V}$ $I_C=10\text{mA}, I_{B1}=1\text{mA}$			35	ns
Storage Time	t_s	$V_{CC}=3\text{V}, I_C=10\text{mA}$ $I_{B1}=I_{B2}=1\text{mA}$			200	ns
Fall Time	t_f	$V_{CC}=3\text{V}, I_C=10\text{mA}$ $I_{B1}=I_{B2}=1\text{mA}$			50	ns



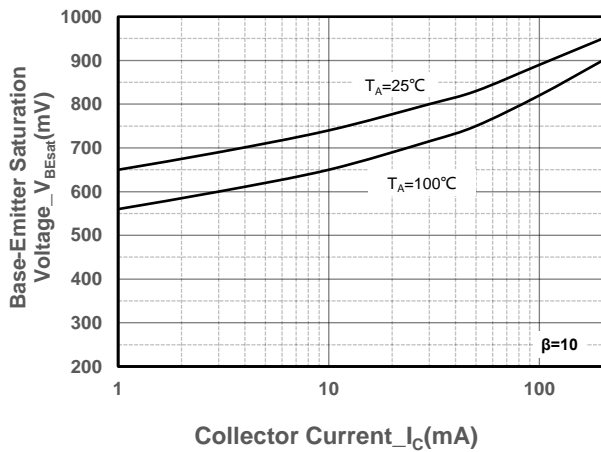
➤ **Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)**



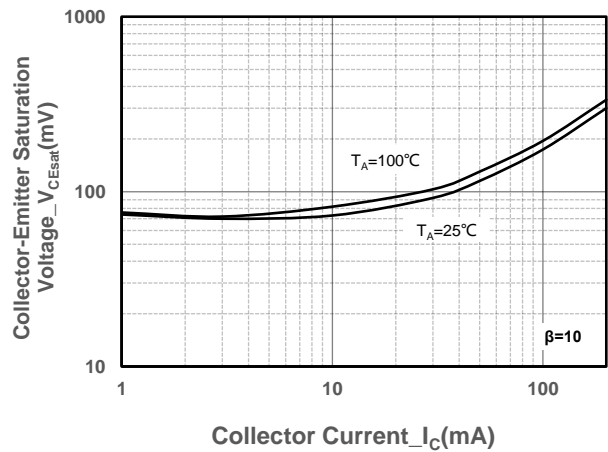
Collector Current vs. Base-Emitter Voltage



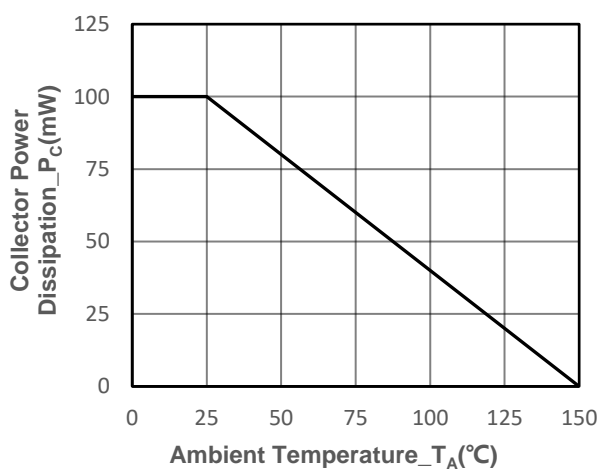
DC Current Gain vs. Collector Current



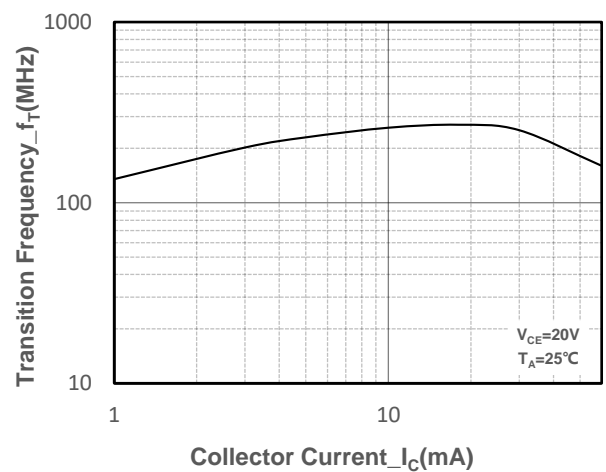
$V_{BE(sat)}$ vs. Collector Current



$V_{CE(sat)}$ vs. Collector Current



Power derating vs. Ambient temperature



Transition Frequency vs. Collector Current

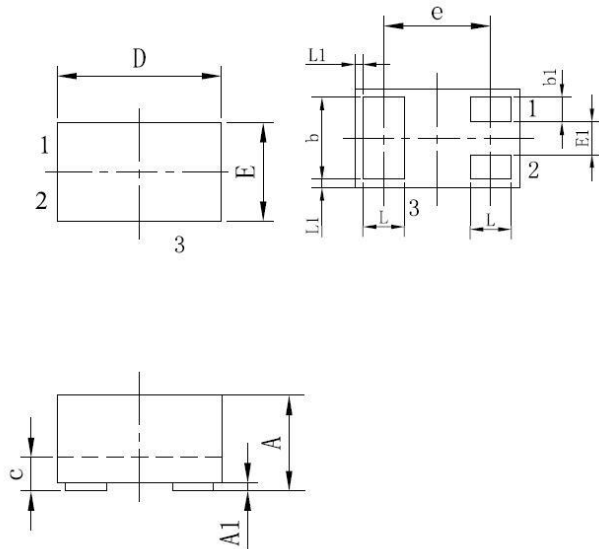


➤ Package Information

Mechanical Data

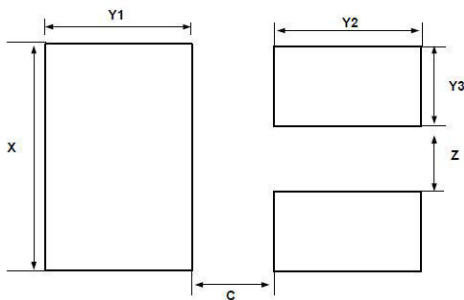
Case: DFN1006-3L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters		
	Min	Nom	Max
A	0.45	0.50	0.55
A1	0.00	0.02	0.05
b	0.45	0.50	0.55
b1	0.10	0.15	0.20
c	0.12	0.15	0.18
D	0.95	1.00	1.05
e	0.65 BSC		
E	0.55	0.60	0.65
E1	0.15	0.20	0.25
L	0.20	0.25	0.30
L1	0.05REF		

Suggested Pad Layout



DIM	Millimeters
C	0.25
X	0.65
Y1	0.50
Y2	0.50
Y3	0.25
Z	0.20



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