



SSCN3904GS8

NPN Switching Transistor

➤ Features

VCB	VCE	VBE	VCESAT	IC
60	40V	6V	300mV	200mA

➤ Description

The NPN Transistor is designed for use in linear and switching applications. The device is housed in the SOT-523 package, which is designed for telephony and professional communication equipment.

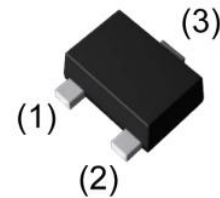
➤ Applications

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

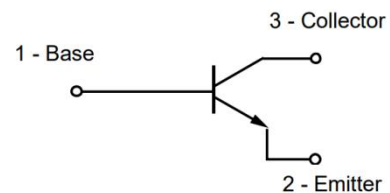
➤ Ordering Information

Device	Package	Shipping
SSCN3904GS8	SOT-523	3000/Reel

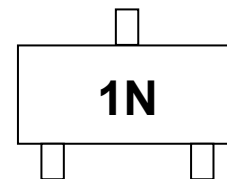
➤ Pin configuration



SOT-523



Circuit Diagram



Marking(Top View)

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

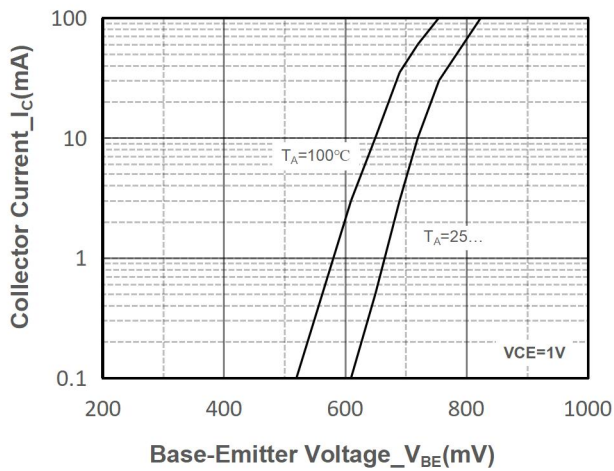
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector- Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current-Continuous	I_C	200	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^{\circ}\text{C}$

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

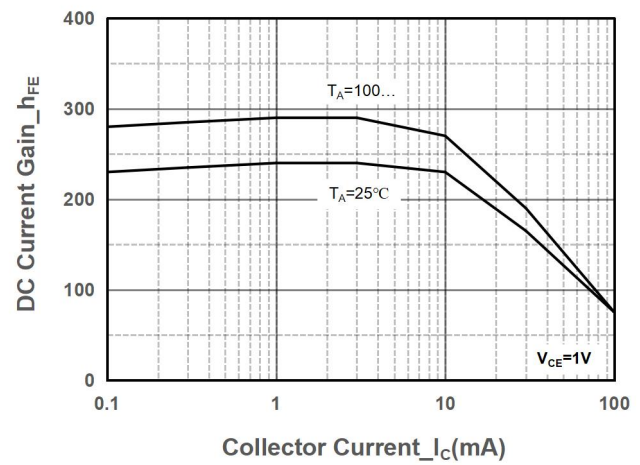
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C=10\mu\text{A}, I_E=0$	60			V
Collector-emitter Breakdown Voltage	BV_{CEO}	$I_C=1\text{mA}, I_B=0$	40			V
Emitter -Base Breakdown Voltage	BV_{EBO}	$I_E=10\mu\text{A}, I_C=0$	6			V
Collector Cutoff Current	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



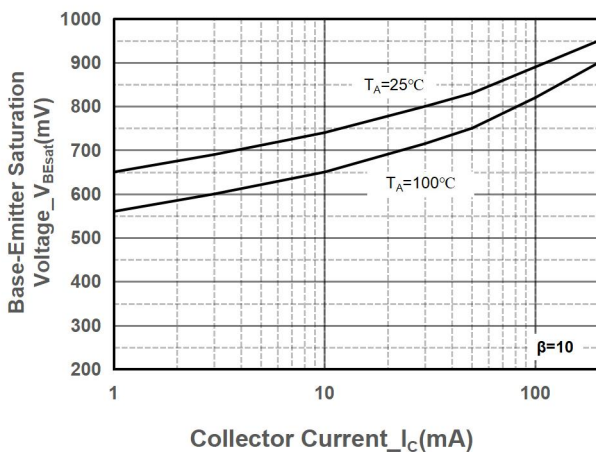
➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



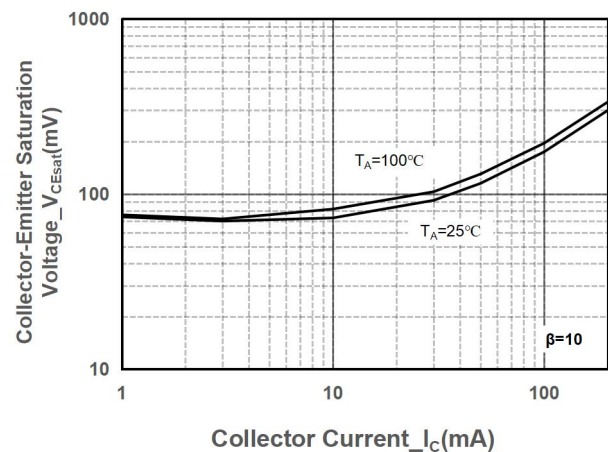
Collector Current vs. Base-Emitter Voltage



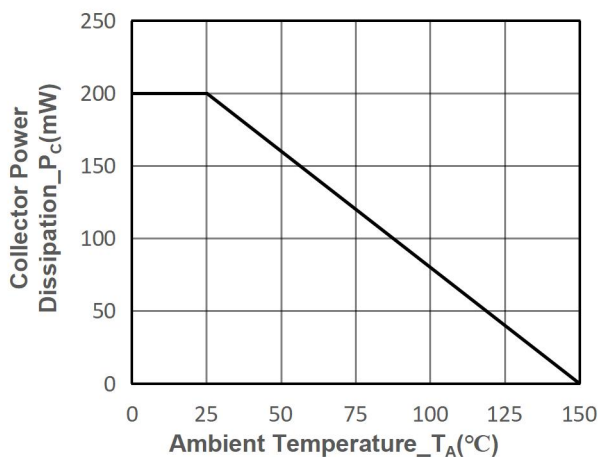
DC Current Gain vs. Collector Current



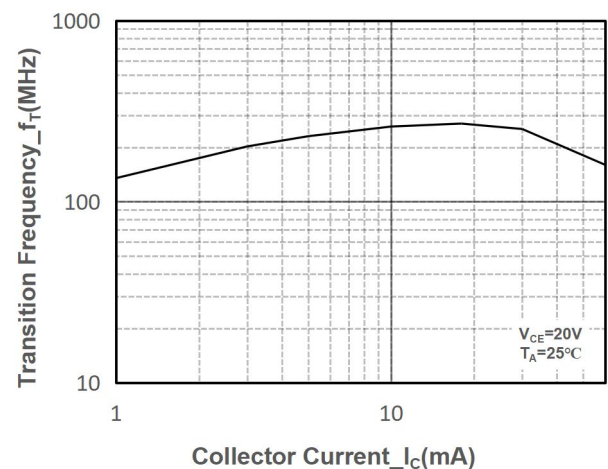
$V_{BE(sat)}$ vs. Collector Current



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



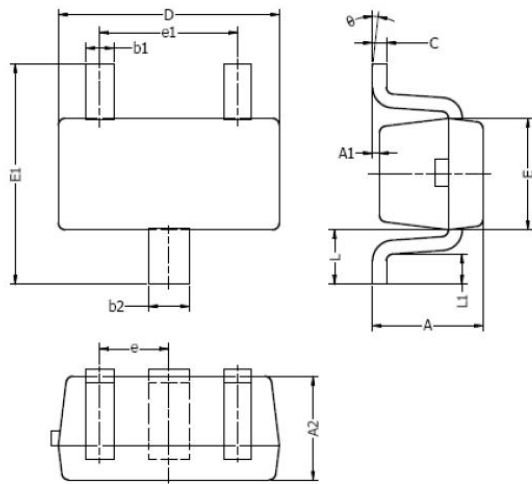
Power derating vs. Ambient temperature



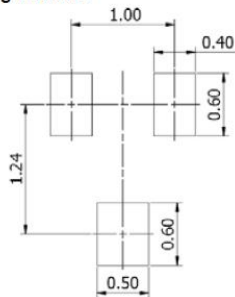
Transition Frequency vs. Collector Current



● Package Information



Typical Soldering Pattern:



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
A1	0.00	0.10	0.000	0.004
A2	0.70	0.80	0.028	0.031
b1	0.15	0.25	0.006	0.010
b2	0.25	0.35	0.010	0.014
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
E1	1.45	1.75	0.057	0.069
e	0.50 TYP.		0.020 TYP.	
e1	0.90	1.10	0.035	0.043
L	0.40 REF.		0.016 REF.	
L1	0.10	0.30	0.004	0.012
θ	0°	8°	0°	8°

NOTES:

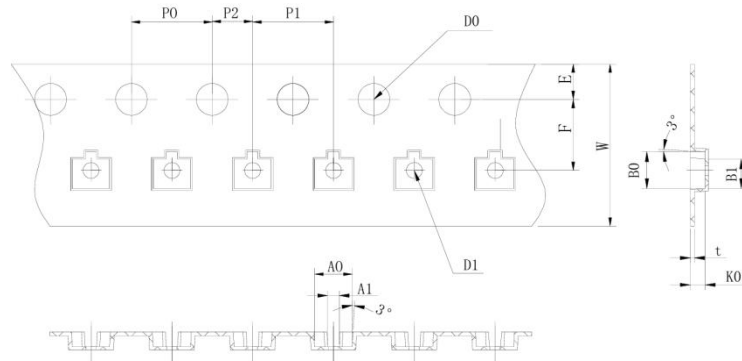
1. Above package outline conforms to JEITA EIAJ ED-7500A SC-75A.
2. Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

SOT-523



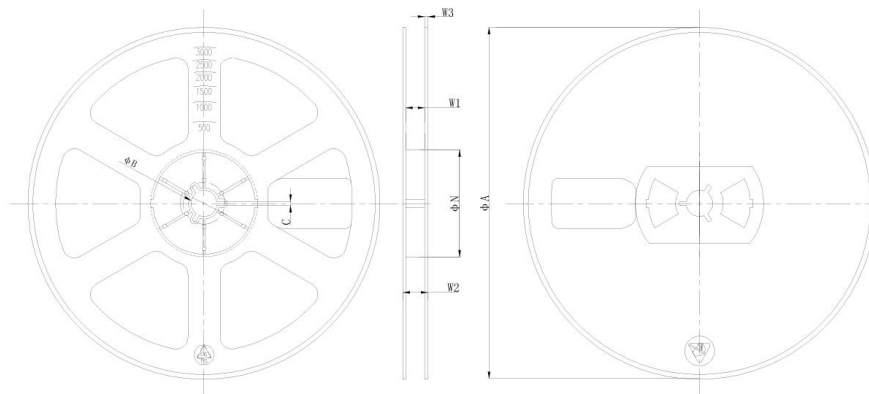
SOT-523 Tape and reel

SOT-523 Embossed Carrier Tape



Symbol	A0	A1	B0	B1	K0	D0	D1	P0
Spec	1.85 ± 0.10	0.65 ± 0.10	1.85 ± 0.10	1.45 ± 0.10	0.90 ± 0.10	1.55 ± 0.10	0.80 ± 0.10	4.00 ± 0.10
Symbol	P1	W	E	F	P2	t	t1	10*P0
Spec	4.00 ± 0.10	8.00 ± 0.10	1.75 ± 0.10	3.50 ± 0.10	2.00 ± 0.10	0.21 ± 0.02	0.05以上	40.0 ± 0.10

SOT-523 Reel



ΦA	ΦN	ΦB	C	W1	W2	W3
178 ± 2	54 ± 2	$13.2 + 0.3 / - 0.2$	2.2 ± 0.3	9.5 ± 1	13 _{MAX}	1.4 ± 0.4



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