



SSCN3904GSG

Dual 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 SOT-363 package, which is designed for telephony and professional communication equipment.

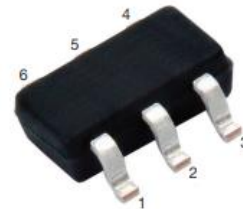
➤ Applications

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

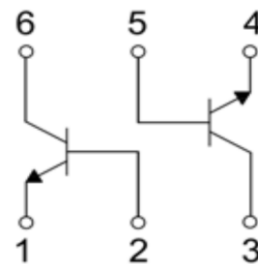
➤ Ordering Information

Device	Package	Shipping
SSCN3904GSG	SOT-363	3000/Reel

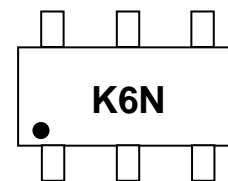
➤ Pin configuration



SOT-363



Circuit Diagram



Marking (Top View)



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

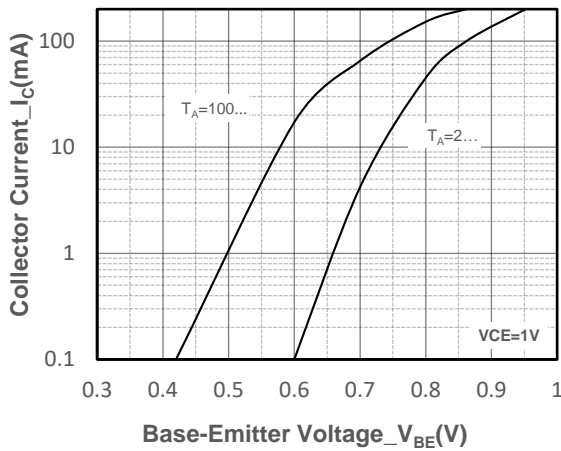
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	60	V
Collector- Emitter Voltage	V_{CE0}	40	V
Emitter-Base Voltage	V_{EB0}	6	V
Collector Current-Continuous	I_C	200	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^{\circ}\text{C}$

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

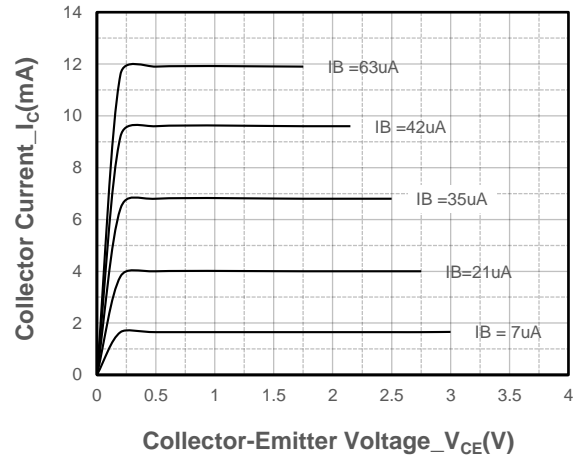
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	BV_{CB0}	$I_C=10\mu\text{A}, I_E=0$	60			V
Collector-emitter Breakdown Voltage	BV_{CE0}	$I_C=1\text{mA}, I_B=0$	40			V
Emitter -Base Breakdown Voltage	BV_{EB0}	$I_E=10\mu\text{A}, I_C=0$	6			V
Collector Cutoff Current	I_{CEX}	$V_{CE}=30\text{V}, V_{EB}=3\text{V}$			0.05	μA
Collector Cutoff Current	I_{CBO}	$V_{CB}=30\text{V}, I_E=0$			0.05	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=3\text{V}, I_C=0$			0.05	μA
DC Current Gain	h_{FE}	$V_{CE}=1\text{V}, I_C=0.1\text{mA}$	40			
		$V_{CE}=1\text{V}, I_C=1\text{mA}$	70			
		$V_{CE}=1\text{V}, I_C=10\text{mA}$	100		300	
		$V_{CE}=1\text{V}, I_C=50\text{mA}$	60			
		$V_{CE}=1\text{V}, I_C=100\text{mA}$	30			
Collector-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=10\text{mA}, I_B=1\text{mA}$			0.2	V
	$V_{CE(sat)2}$	$I_C=50\text{mA}, I_B=5\text{mA}$			0.3	V
Base-Emitter Saturation Voltage	$V_{BE(sat)1}$	$I_C=10\text{mA}, I_B=1\text{mA}$	0.65		0.85	V
	$V_{BE(sat)2}$	$I_C=50\text{mA}, I_B=5\text{mA}$			0.95	V
Transition frequency	f_T	$V_{CE}=20\text{V}, I_C=10\text{mA}$ $f=100\text{MHz}$	300			MHz
Collector output capacitance	C_{ob}	$V_{CB}=5\text{V}, I_E=0, f=1\text{MHz}$			4	pF
Noise figure	NF	$V_{CE}=5\text{V}, I_C=0.1\text{mA},$ $f=1\text{kHz}, R_S=1\text{K}\Omega$			5	dB
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



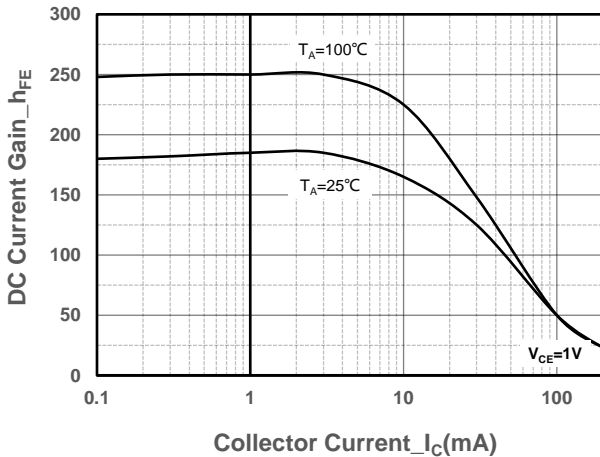
➤ Typical Performance Characteristics (TA=25°C unless otherwise noted)



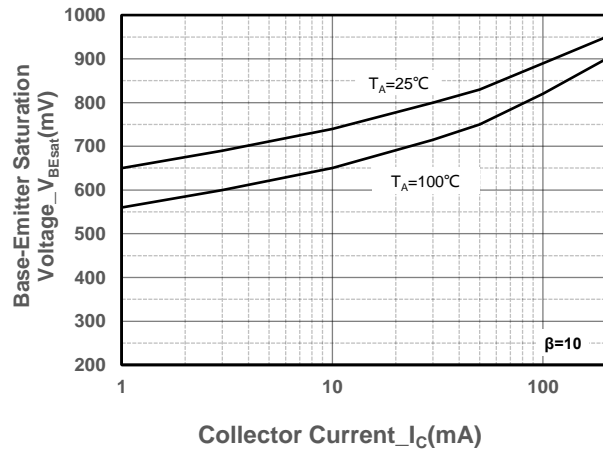
Collector Current vs. Base-Emitter Voltage



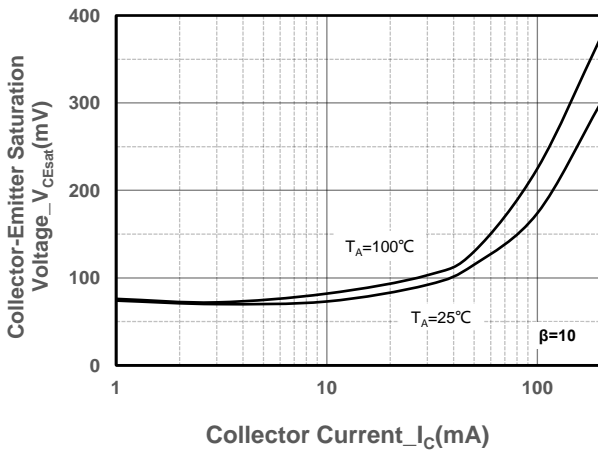
Collector Current vs. Collector-Emitter Voltage



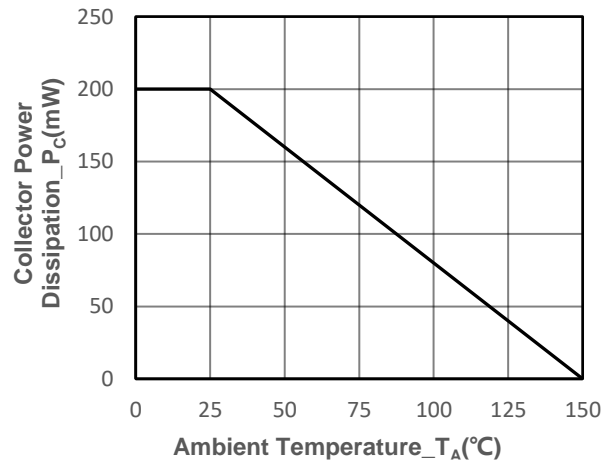
DC Current Gain vs. Collector Current



VBE(sat) vs. Collector Current



VCE(sat) vs. Collector Current

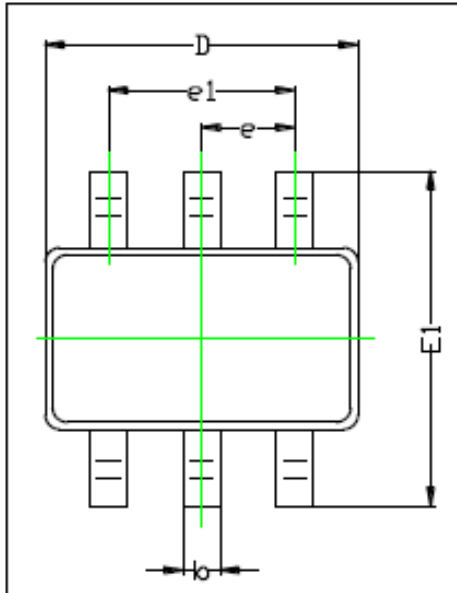


Power derating vs. Ambient temperature

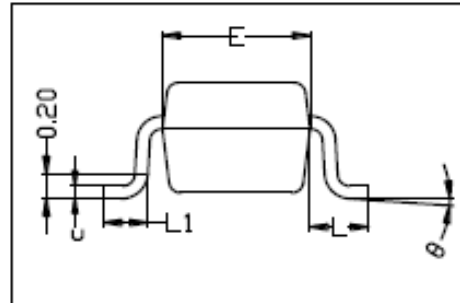
➤ Package Information

SOT-363

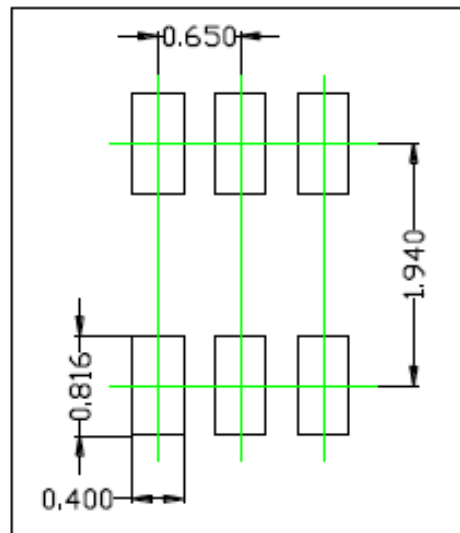
TOP VIEW



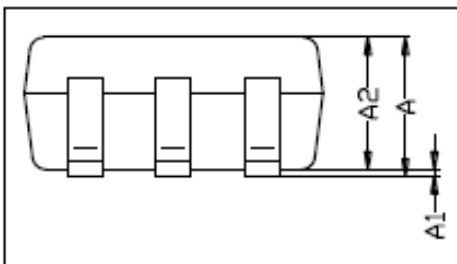
SIDE VIEW



SOLDING PATTERN



FRONT VIEW



SYMBOL	DIMENSIONS IN MILLIMETER	
	MIN	MAX
A	0.900	1.000
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.300
c	0.100	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.400
e	0.650 TYP.	
e1	1.200	1.400
L	0.525 REF.	
L1	0.260	0.450
θ	0°	8°



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