SEMICONDUCTOR

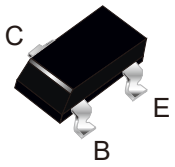
S9013

NPN General purpose Amplifier

FEATURES

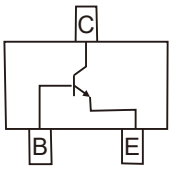
- Epoxy meets UL-94 V-0 flammability rating
- Complementary to S9012
- Power Dissipation of 300mW
- High Stability and High Reliability

SOT-23



MECHANICAL DATA

- Case:SOT-23(TO-236)
- Terminals:Plated solderable per MIL-STD-750,method 2026
- Mounting Position: Any
- Marking:J3



MAXIMUM RATINGS(T_A=25°C Unless otherwise specified)

Parameter	Symbol	Unit	Value
Collector-Emitter Voltage	V_{CEO}	V	25
Collector-Base Voltage	V_{CBO}	V	40
Emitter-Base Voltage	V_{EBO}	V	5
Collector Current, Continuous	I_C	A	0.5
Power Dissipation	P_D	mW	300
Operation Junction Temperature	T_J	℃	-55 to +150
Storage Temperature	T_{STG}	℃	-55 to +150
Thermal resistance From junction to ambient	$R_{\theta JA}$	℃/W	416

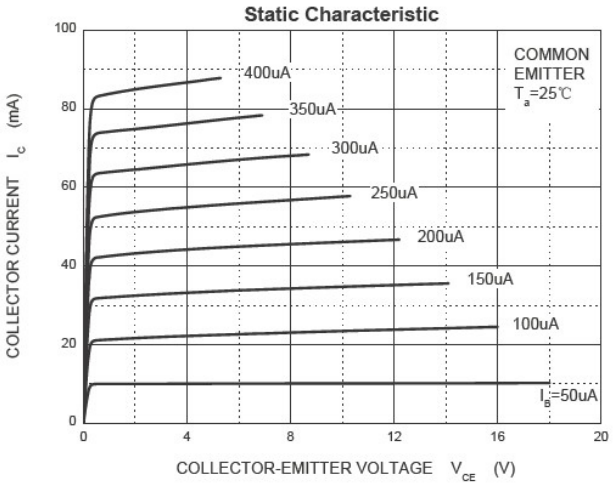
ELECTRICAL CHARACTERISTICS(T_A=25°C Unless otherwise specified)

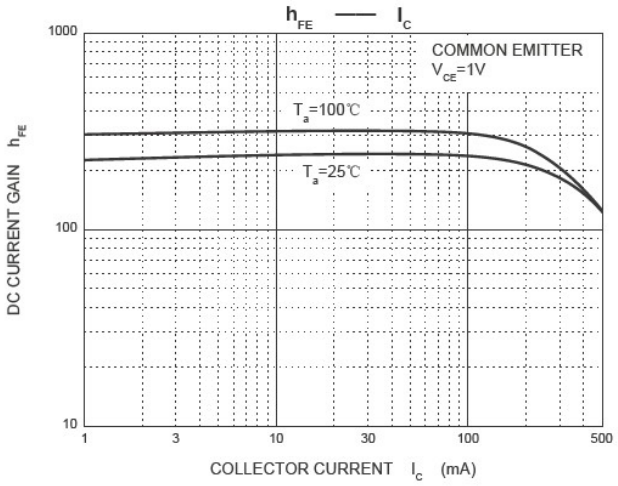
Parameter	Symbol	Unit	Conditions	Min	Max
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	V	I_C=1.0mA,I_B=0	25	---
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	I_C=100μA,I_E=0	40	---
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	V	I_E=100μA,I_C=0	5.0	---
Collector cut-off Current	I_{CBO}	nA	V_{CB}=40V,I_E=0	---	100
Collector cut-off Current	I_{CEO}	nA	V_{CE}=20V,I_B=0	---	100
Emitter cut-off Current	I_{EBO}	nA	V_{EB}=5V,Ic=0	---	100
DC Current Gain			I_C=1mA,V_{CE}=1.0V	---	---
	$h_{FE(1)}$		I_C=50mA,V_{CE}=1.0V	120	400
	$h_{FE(2)}$		I_C=500mA,V_{CE}=1.0V	40	---
Collector-Emitter Saturation Voltage	VCE(set)	V	I_C=10mA,I_B=1.0mA	---	---
			I_C=500mA,I_B=50mA	---	0.6
Base-Emitter Saturation Voltage	VBE(set)	V	I_C=10mA,I_B=1.0mA	---	---
			I_C=500mA,I_B=50mA	---	1.2
Output Capacitance	Cobo	pF	V_{CB}=6V,f=1.0MHZ,I_E=0	---	8.0
Input Capacitance	Cibo	pF	V_{EB}=0.5V,f=1.0MHZ,I_C=0	---	---
Current Gain-Bandwidth Product	f_T	MHZ	I_C=20mA,V_{CE}=6V f=30MHZ	150	---
Noise Figure	NF	dB	V_{CE}=5.0V,f=1.0kHZ, I_C=100μA, R_S=1. 0K	---	---

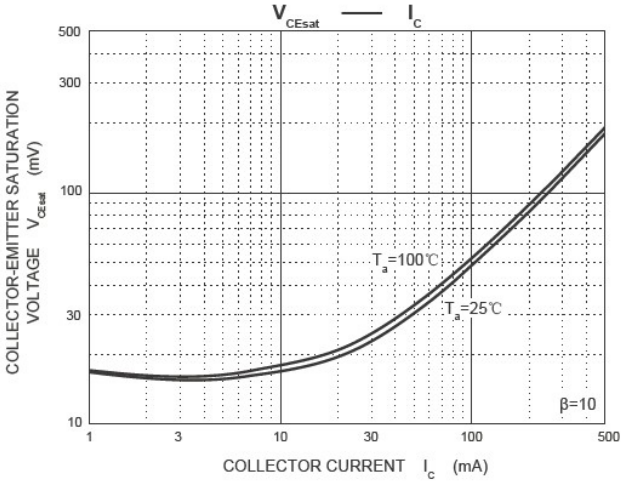
CLASSIFICATION OF $h_{FE(1)}$

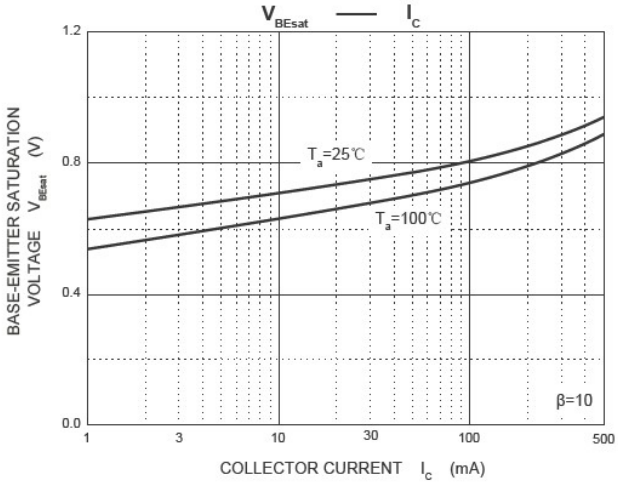
Rank	L	H	J
Range	120–200	200–350	300–400

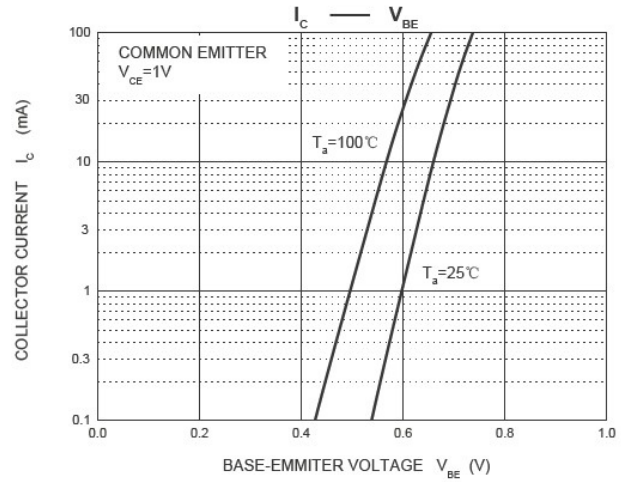
Characteristics(Typical)

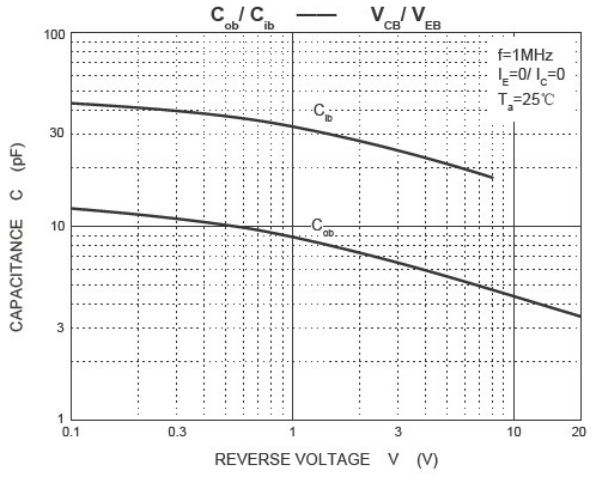






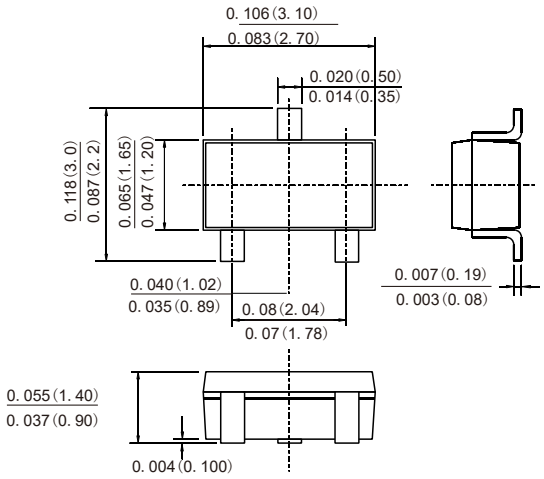






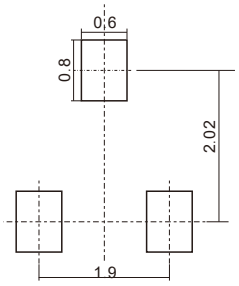
Outline Dimensions

SOT-23



Dimensions in inches and (millimetrers)

Suggested pad layout



Dimensions in millimetrers

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