

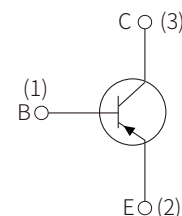
FEATURES

- Complementary to S9014
- Power Dissipation of 200mW
- High Stability and High Reliability



MECHANICAL DATA

- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	-50	V
Collector-Emitter Breakdown Voltage	V_{CEO}	-45	
Emitter-Base Breakdown Voltage	V_{EBO}	-5	
Collector Current	I_C	-100	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}\text{C}$
Thermal resistance From junction to ambient	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

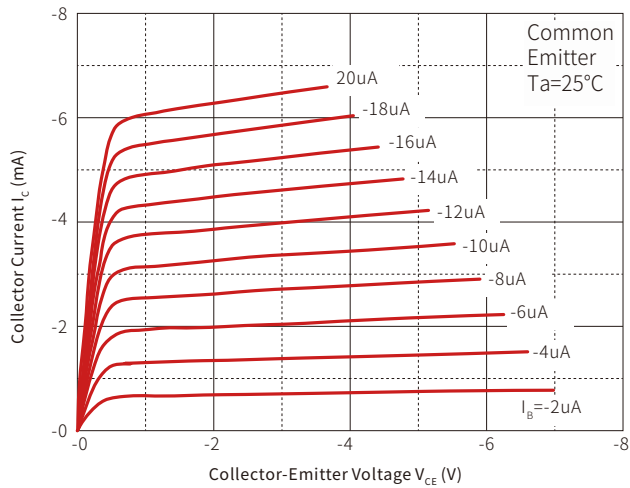
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	V_{CBO}	$I_C=-100\mu\text{A}, I_E=0$	-50			V
Collector-Emitter Breakdown Voltage	V_{CEO}	$I_C=-0.1\text{mA}, I_B=0$	-45			
Emitter-Base Breakdown Voltage	V_{EBO}	$I_E=-100\mu\text{A}, I_C=0$	-5			
Collector Cutoff Current	I_{CBO}	$V_{CB}=-50\text{V}, I_E=0$			-100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-5\text{V}, I_C=0$			-100	
DC Current Gain	h_{FE}	$V_{CE}=-5\text{V}, I_C=-1\text{mA}$	200		1000	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-100\text{mA}, I_B=-10\text{mA}$			-0.30	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-100\text{mA}, I_B=-10\text{mA}$			-1.00	
Transition frequency	f_T	$V_{CE}=-5\text{V}, I_C=-10\text{mA}, f=30\text{MHz}$	150			MHz

CLASSIFICATION OF $h_{FE(1)}$

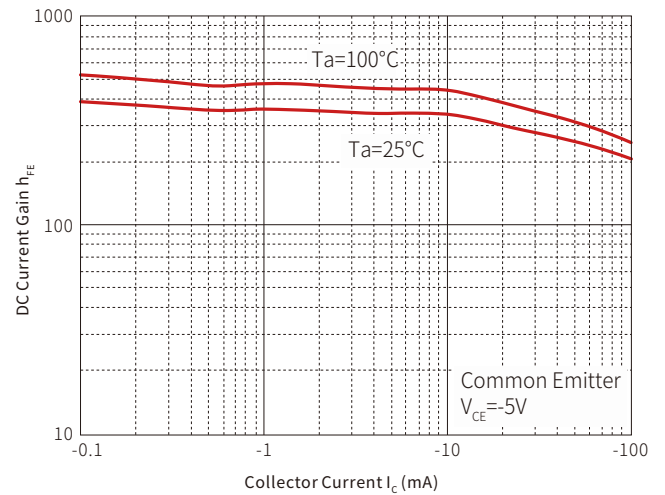
Rank	L	H
Range	200-450	450-1000

TYPICAL CHARACTERISTICS

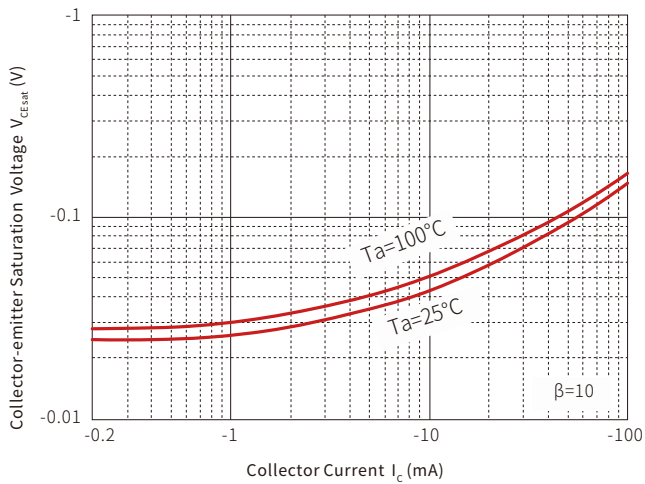
Static Characteristic



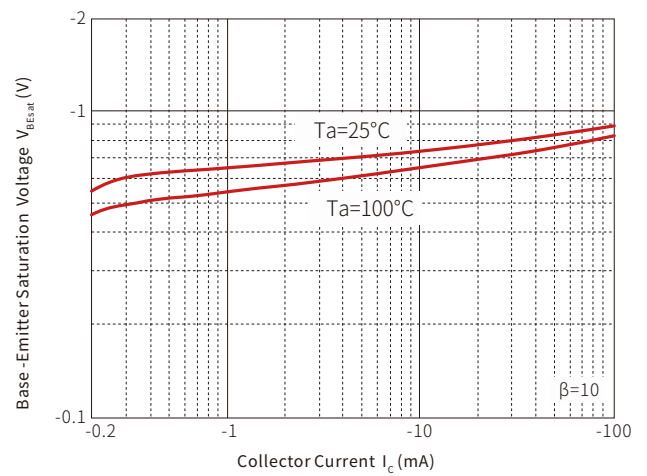
h_{FE} — I_C

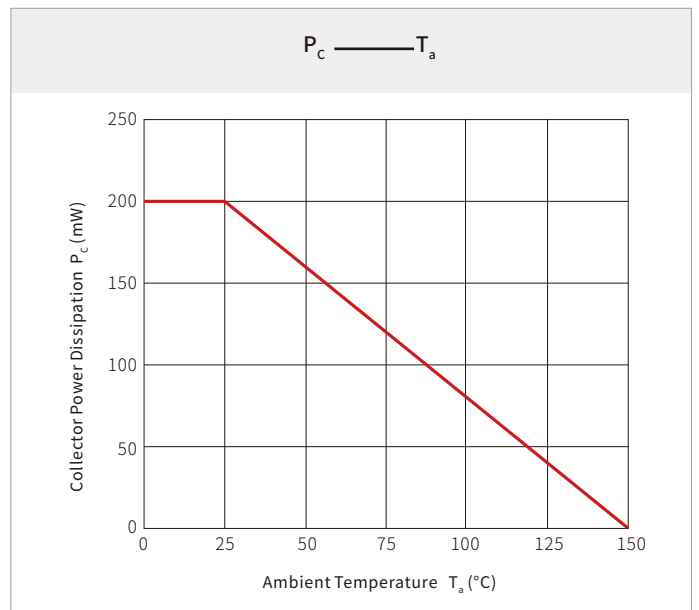
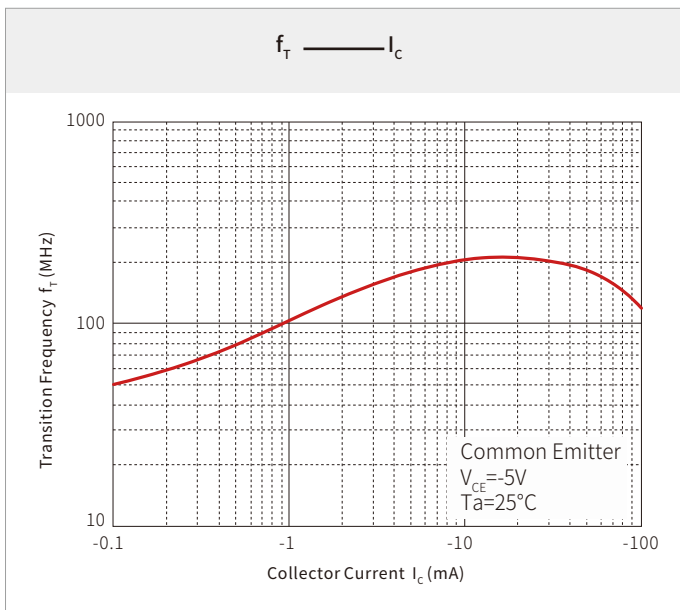
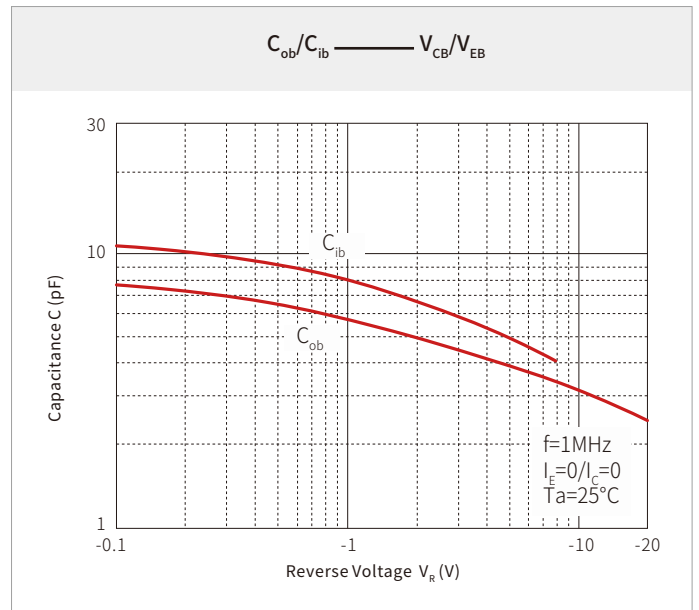
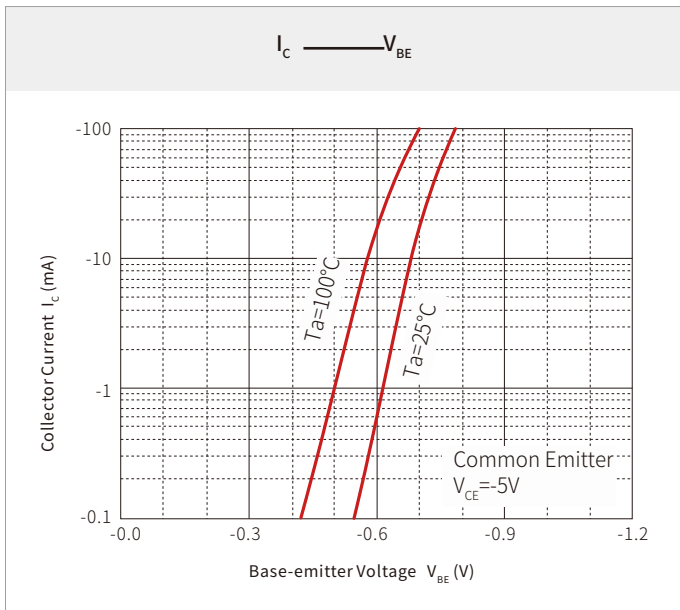


$V_{CE sat}$ — I_C



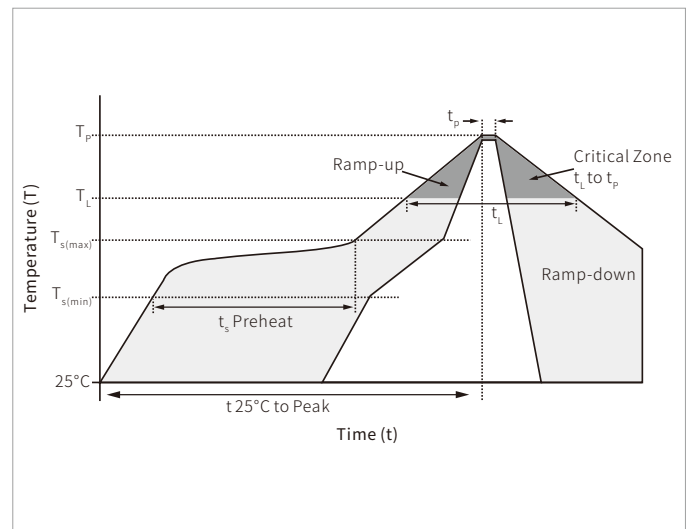
$V_{BE sat}$ — I_C



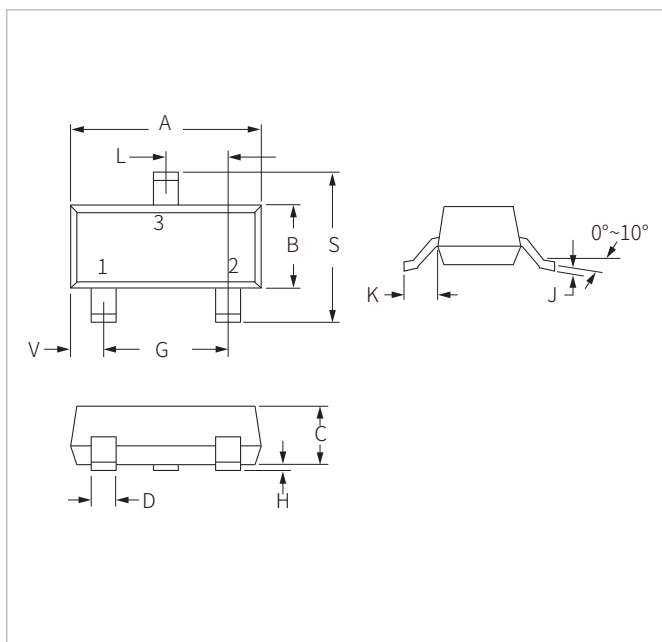


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C

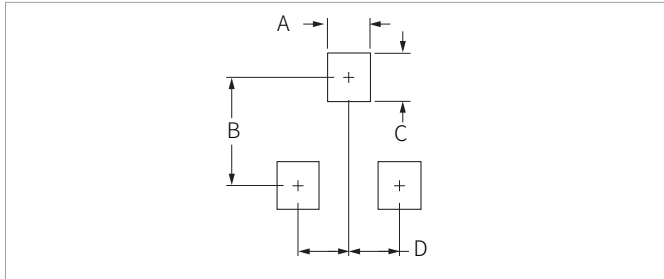


SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.05	0.110	0.120
B	1.20	1.40	0.047	0.055
C	0.90	1.15	0.035	0.045
D	0.37	0.50	0.015	0.020
G	1.75	2.05	0.069	0.081
H	0.01	0.100	0.001	0.004
J	0.085	0.180	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.10	2.65	0.083	0.104
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.71	0.97	0.028	0.038
B	1.88	2.13	0.074	0.084
C	0.71	0.97	0.028	0.038
D	0.81	1.07	0.032	0.042

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
S9015	SOT-23	3000PCS	7"

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