

FEATURES

- | High Collector Current

- | Complementary To S9013

- | Excellent h_{FE} Linearity

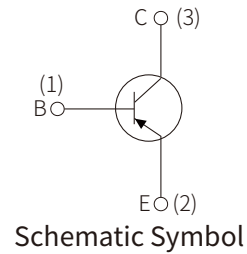
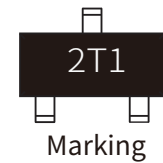


MECHANICAL DATA

- | SOT-23 small outline plastic package

- | Epoxy UL: 94V-0

- | Mounting position: Any



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 Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-25	
Emitter-Base Voltage	V_{EBO}	-5	
Collector Current	I_C	-500	mA
Collector Power Dissipation	P_C	300	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	416	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	-55~+150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS (T_A=25°C)

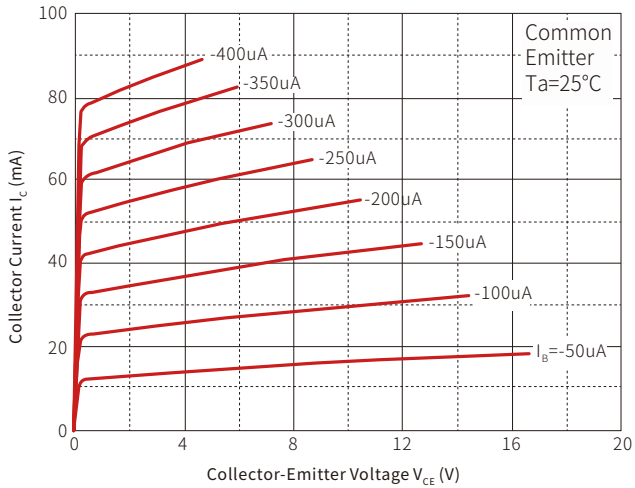
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =-0.1mA, I _E =0	-40			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =-1mA, I _B =0	-25			
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =-0.1mA, I _C =0	-5			
Collector cut-off current	I _{CEO}	V _{CE} =-20V, I _B =0			-0.1	uA
Emitter cut-off current	I _{CBO}	V _{CB} =-40V, I _E =0			-0.1	
Emitter cut-off current	I _{EBO}	V _{EB} =-5V, I _C =0			-0.1	
DC current gain	h _{FE}	V _{CE} =-1V, I _C =-50mA	120		400	
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =-500mA, I _B =-50mA			-0.6	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C =-500mA, I _B =-50mA			-1.2	
Transition frequency	f _T	V _{CE} =-6V, I _C =-20mA, f=30MHz	150			MHz
Collector output capacitance	C _{ob}	V _{CB} =-10V, I _E =0, f=1MHz			5	pF

CLASSIFICATION OF H_{FE(1)}

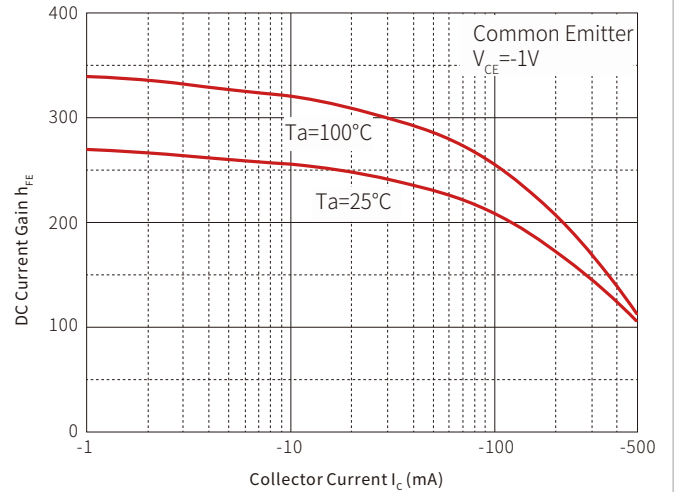
Rank	L	H	J
Range	120-200	200-350	300-400

TYPICAL CHARACTERISTICS

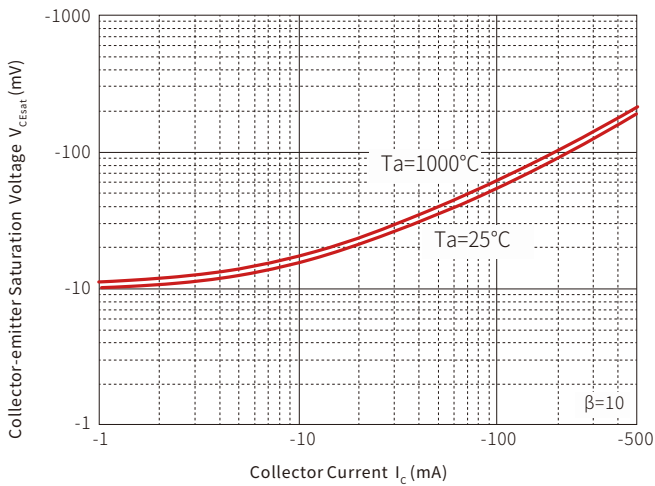
Static Characteristic



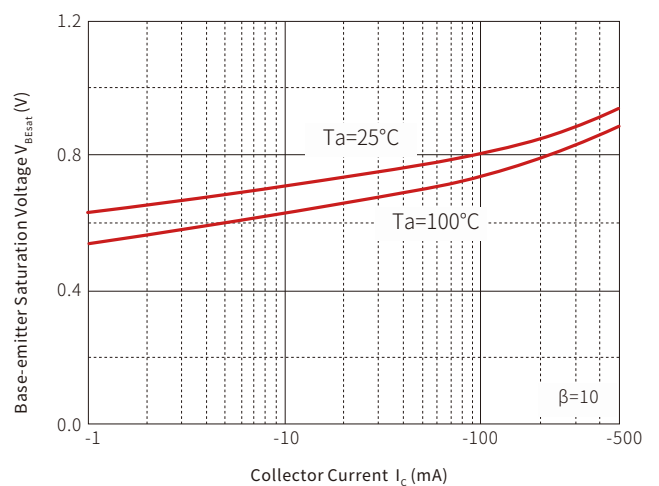
$h_{FE} \text{ — } I_c$

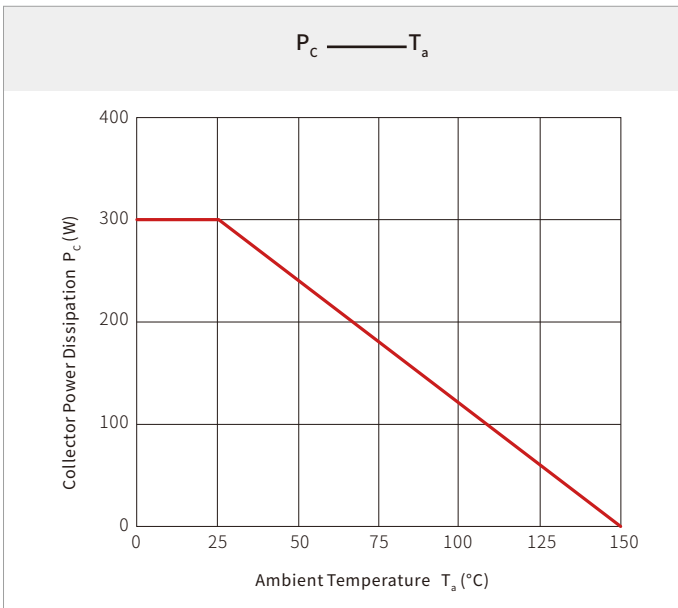
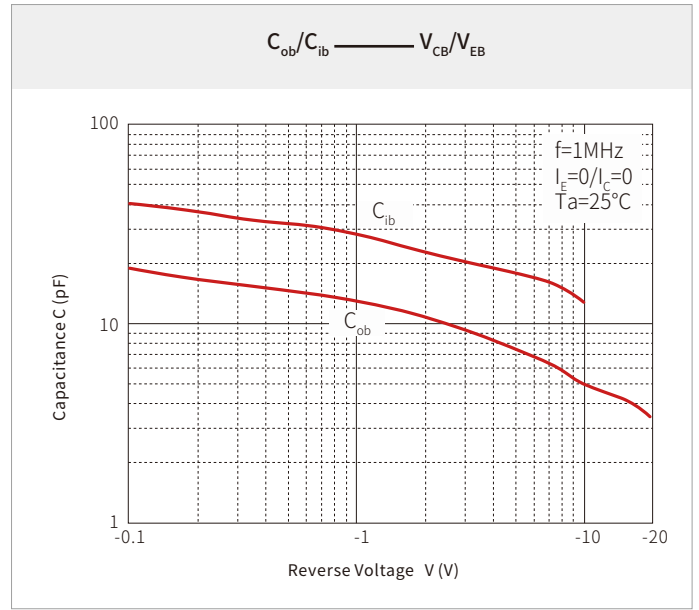
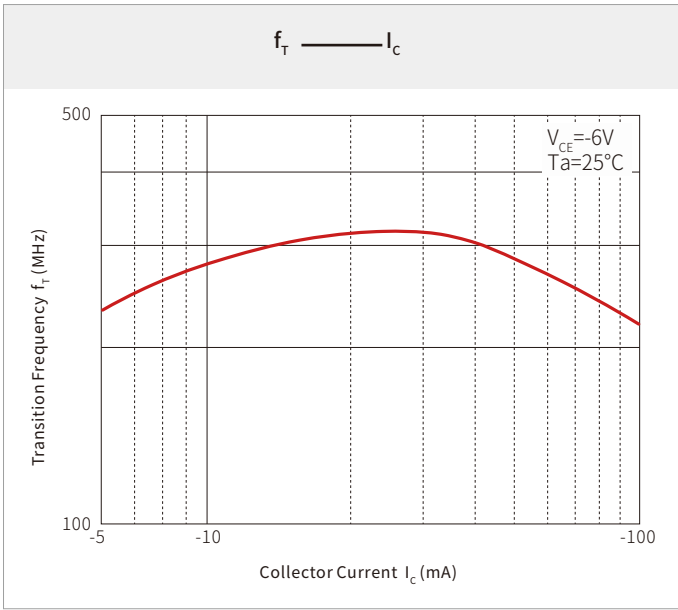


$V_{CEsat} \text{ — } I_c$



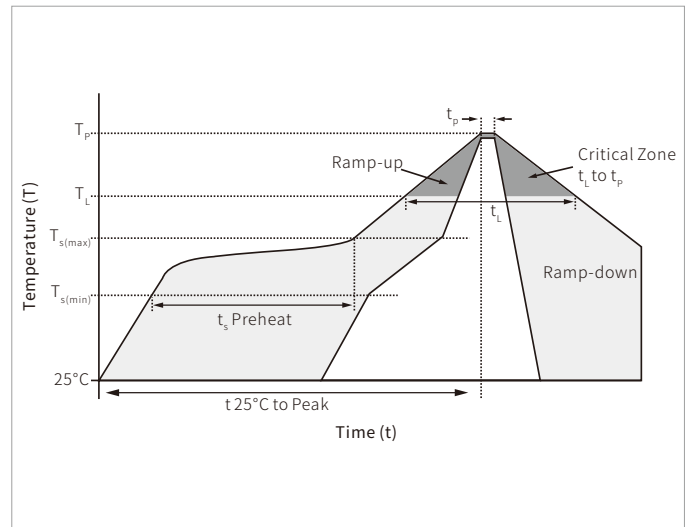
$V_{BEsat} \text{ — } I_c$



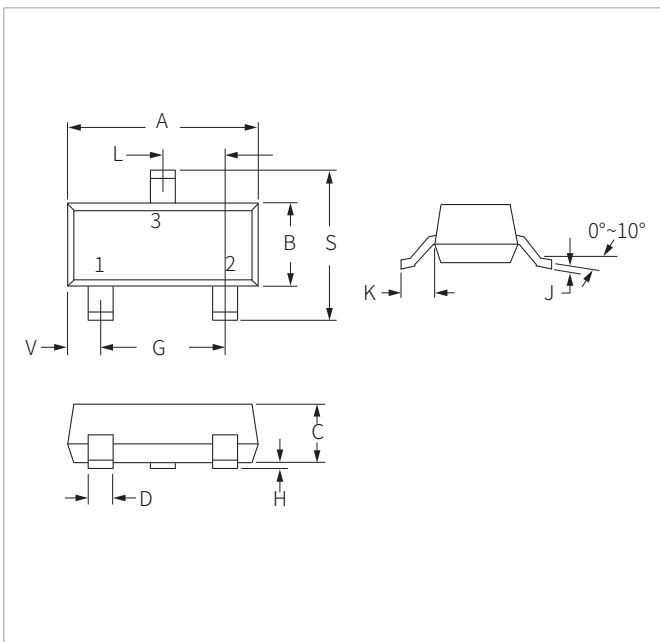


SOLDERING PARAMETERS

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_i) (Liquidus)	217°C
	Time (min to max) (t_i)	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

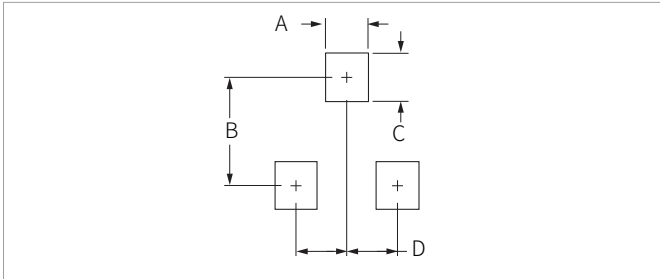


SOT-23 PACKAGE INFORMATION



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
S9012	SOT-23	3000PCS	7"

Headquarters

No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline

400-021-5756

Web

<https://www.semiware.com>

Sales Center

Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service

Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support

Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions

Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

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Website



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