UMW S9013

SOT-23 Plastic-Encapsulate Transistors

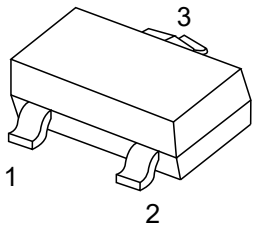
1.Features

- High Collector Current.
- Complementary to S9012
- Excellent h_{FE} Linearity
- S9013 TRANSISTOR (NPN)

2.Pinning Information

Pin	Symbol	Description
1	B	BASE
2	E	EMITTER
3	C	COLLECTOR

SOT-23



3.Absolute Maximum Ratings T_A= 25°C

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

4.Electrical Characteristics T_A= 25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Units
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			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=0.1mA, I_C=0	5			V
Collector cut-off current	I_{CBO}	V_{CB}=40V, I_E=0			0.1	μA
Collector cut-off current	I_{CEO}	V_{CB}=20V, I_B=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=5V, I_C=0			0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE}=1V, I_C=50mA	120		400	
	$h_{FE(2)}$	V_{CE}=1V, I_C=500mA	40			
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	V
Base-emitter voltage	V_{BE}	V_{CB}=0V, I_C=10mA			0.7	V
Transition frequency	f_T	V_{CE}=6V, I_C=20mA, f=30MHz	150			MHz
Collector Output Capacitance	C_{ob}	V_{CB}=6V, I_E=0, f=1MHz			8	pf

5.Classification of h_{FE}

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

6.1Typical Characterisitics

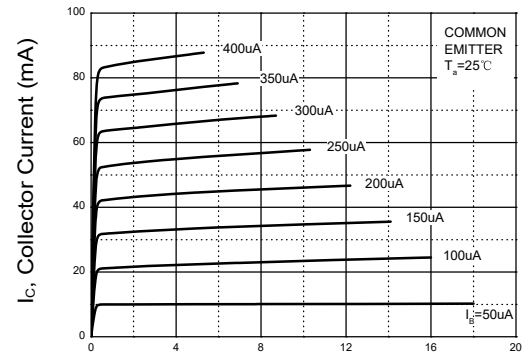


Figure 1: Static Characteristic

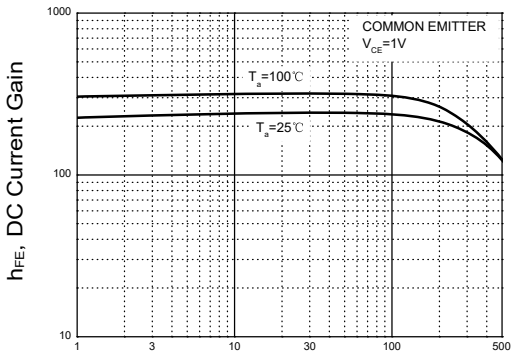


Figure 2: h_{FE} —— I_C

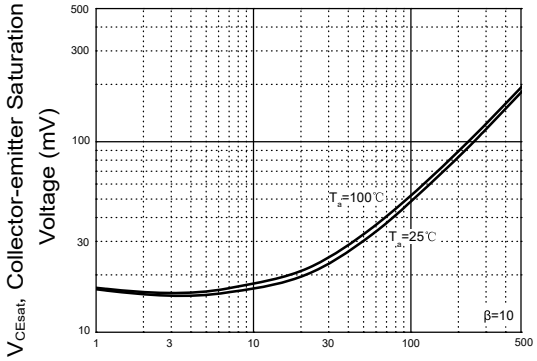


Figure 3: V_{CEsat} —— I_C

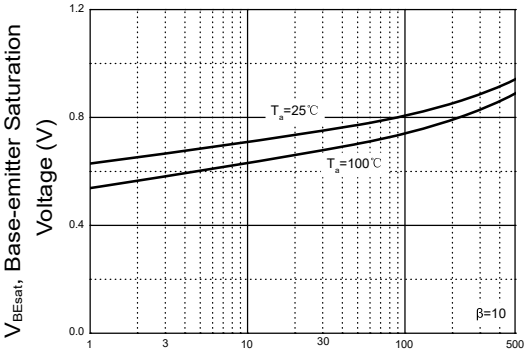


Figure 4: V_{BEsat} —— I_C

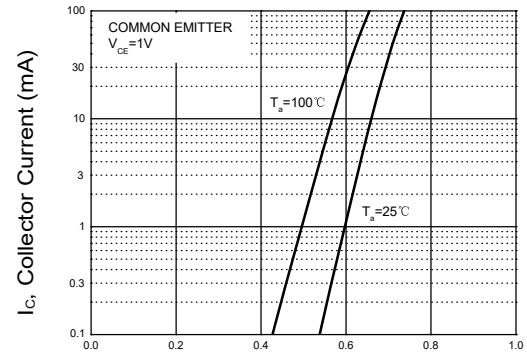


Figure 5: I_C —— V_{BE}

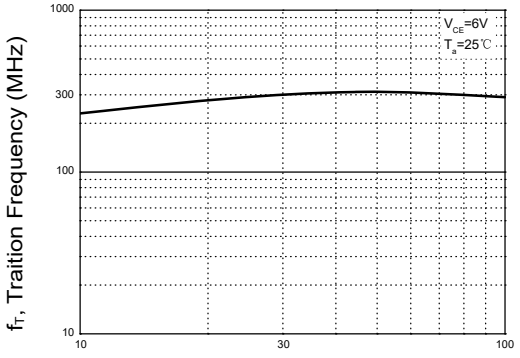


Figure 6: f_T —— I_C

6.2Typical Characterisitics

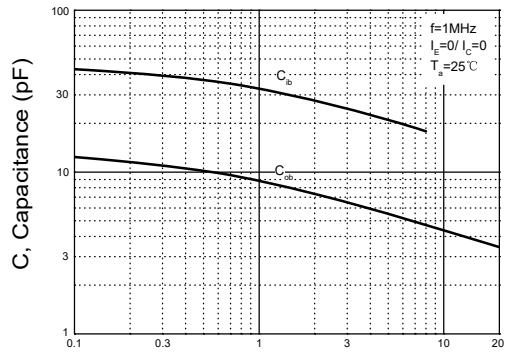


Figure 7: C_{ob}/C_{ib} —— V_{CB}/V_{EB}

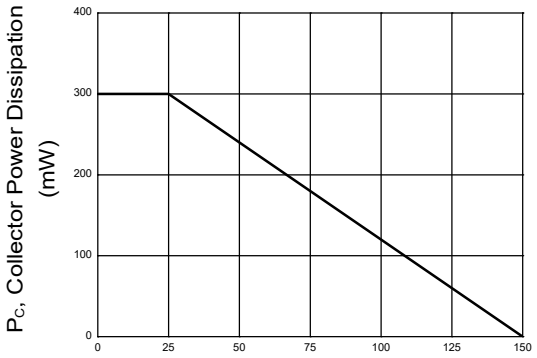
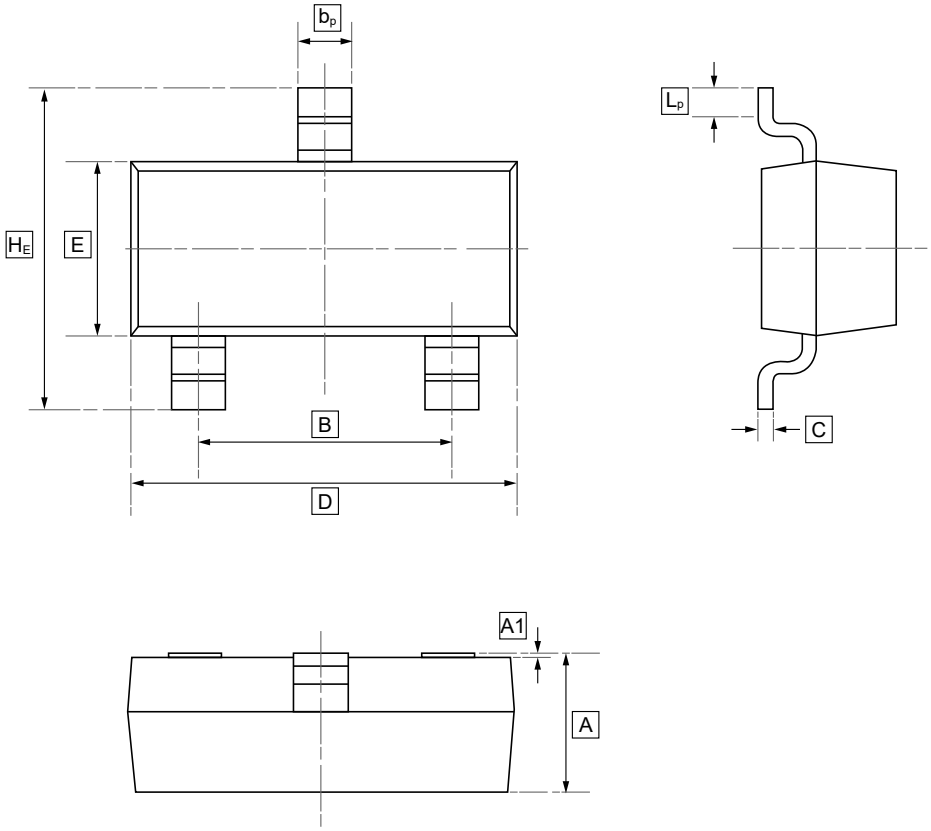


Figure 8: P_C —— T_A

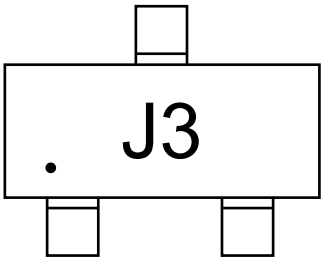
7.SOT-23 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	b_p	C	D	E	H_E	A1	L_p
Min	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20
Max	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50

8.Ordering information



Order Code	Package	Base QTY	Delivery Mode
UMW S9013	SOT-23	3000	Tape and reel

9.Disclaimer

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