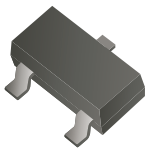
General Purpose Transistor

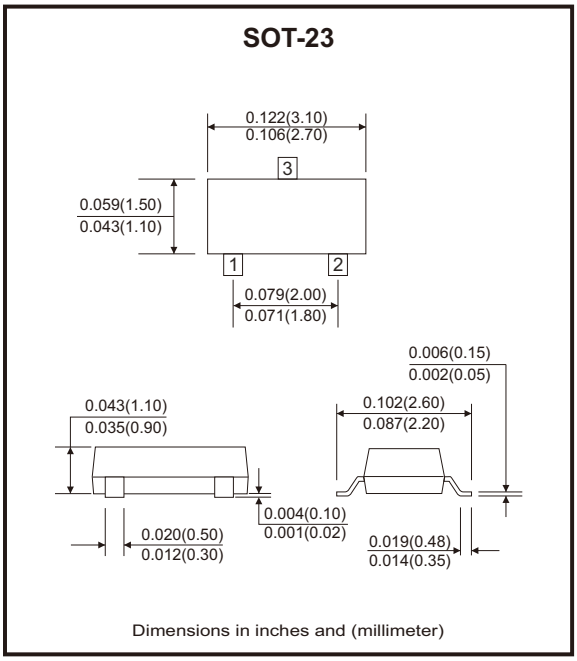
ABCW66F/G/H-HF (NPN)

RoHS Device
Halogen Free



Features

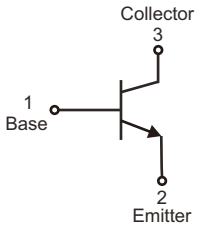
- High collector current.
- High current gain.
- Low collector-emitter saturation voltage.
- AEC-Q101 Qualified.



Mechanical data

- Case: SOT-23, molded plastic.
- Molding compound: UL flammability classification rating 94V-0.
- Terminals: Tin-plated; solderability per MIL-STD-202, method 208.

Circuit Diagram



Maximum Ratings (at T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-base breakdown voltage	V_{CBO}	75	V
Collector-emitter breakdown voltage	V_{CEO}	45	V
Emitter-base breakdown voltage	V_{EBO}	5	V
Continuous collector current	I_C	0.8	A
Peak collector current	I_{CM}	1	A
Power dissipation	P_D	330	mW
Thermal resistance from junction to air (Note 1)	$R_{\theta JA}$	395	°C/W
Thermal resistance from junction to case (Note 1)	$R_{\theta JC}$	218	°C/W
Thermal resistance from junction to lead (Note 1)	$R_{\theta JL}$	191	°C/W
Operating junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Notes: 1. The data tested by surface mounted on a 15mm x 15mm x 1mm FR4-epoxy P.C.B.

Electrical Characteristics (at T_A=25°C unless otherwise noted)

Parameter		Conditions	Symbol	Min	Typ	Max	Unit
Collector-base breakdown voltage		I_C = 10μA, I_E = 0	$V_{(BR)CBO}$	75			V
Collector-emitter breakdown voltage		I_C = 10mA, I_B = 0	$V_{(BR)CEO}$	45			V
Emitter-base breakdown voltage		I_E = 10μA, I_C = 0	$V_{(BR)EBO}$	5			V
Collector cut-off current		V_{CB} = 45V, I_E = 0	I_{CBO}			20	nA
Emitter cut-off current		V_{EB} = 4V, I_C = 0	I_{EBO}			20	nA
DC current gain	ABCW66F-HF	V_{CE} = 10V, I_C = 0.1mA	$h_{FE(1)}$	35			
	ABCW66G-HF			50			
	ABCW66H-HF			80			
	ABCW66F-HF	V_{CE} = 1V, I_C = 10mA	$h_{FE(2)}$	75			
	ABCW66G-HF			110			
	ABCW66H-HF			180			
	ABCW66F-HF	V_{CE} = 1V, I_C = 100mA	$h_{FE(3)}$	100		250	
	ABCW66G-HF			160		400	
	ABCW66H-HF			250		630	
Collector-emitter saturation voltage		I_C = 100mA, I_B = 10mA	$V_{CE(sat)}$			0.3	V
		I_C = 500mA, I_B = 50mA	$V_{CE(sat)}$			0.7	
Base-emitter saturation voltage		I_C = 100mA, I_B = 10mA	$V_{BE(sat)}$			1.25	V
		I_C = 500mA, I_B = 50mA	$V_{BE(sat)}$			2	
Transition frequency		I_C = 50mA, V_{CE} = 5V, f = 20MHz	f_T	170			MHz

Rating and Characteristic Curves (ABCW66F/G/H-HF)

Fig.1 - h_{FE} — I_C (ABCW66F)

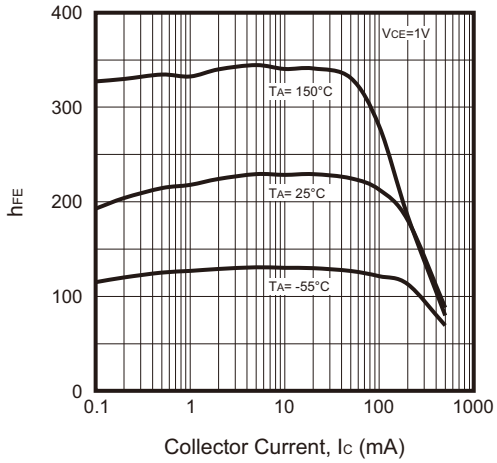


Fig.2 - h_{FE} — I_C (ABCW66G)

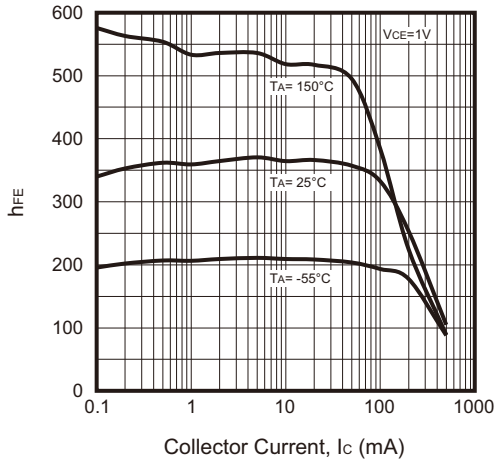


Fig.3 - h_{FE} — I_C (ABCW66H)

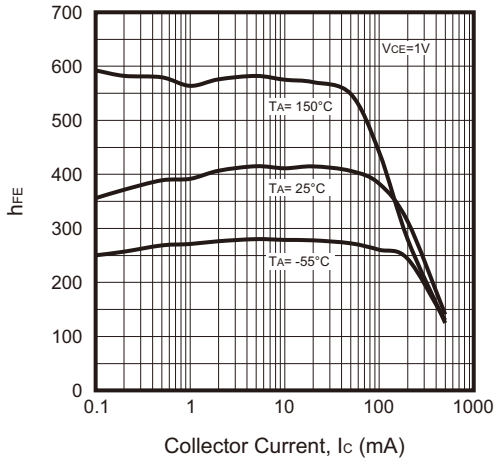


Fig.4 - $V_{BE(ON)}$ — I_C

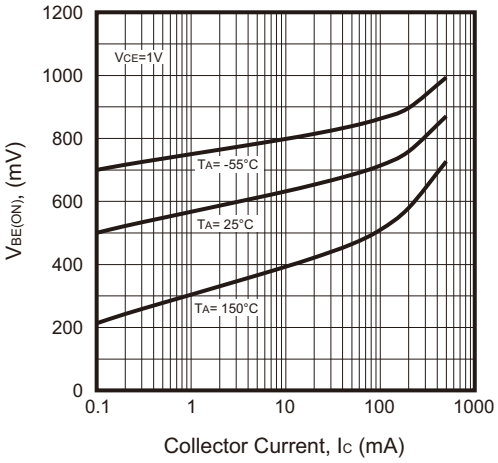


Fig.5 - $V_{CE(sat)}$ — I_C

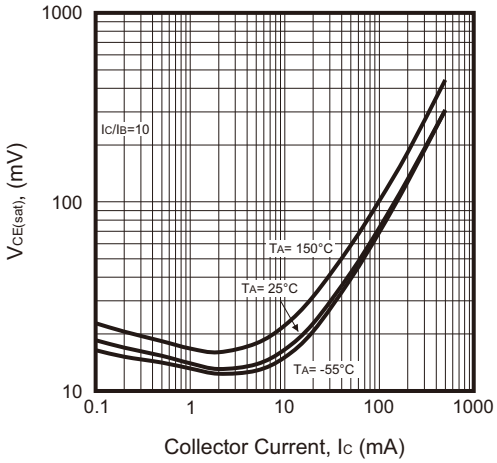
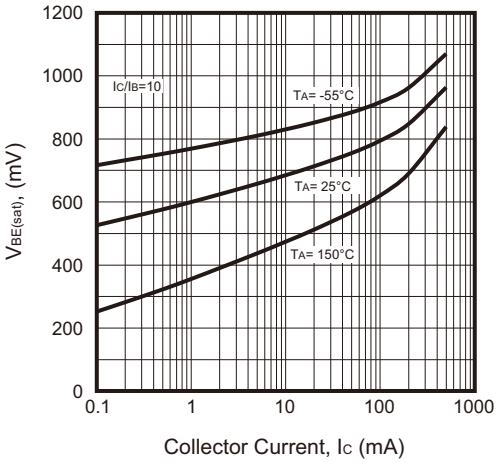
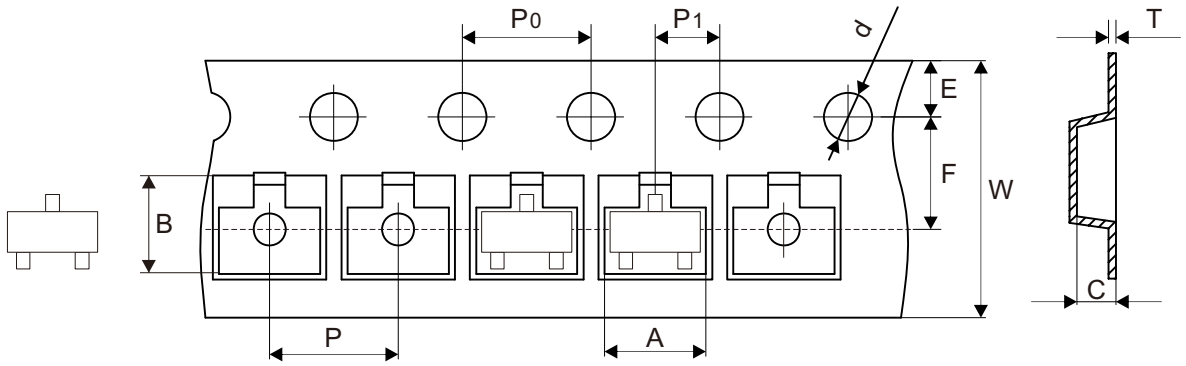
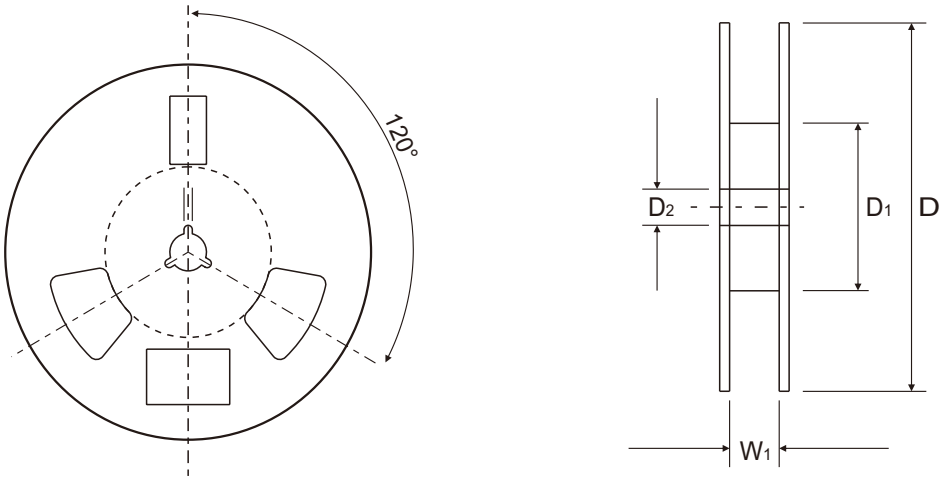


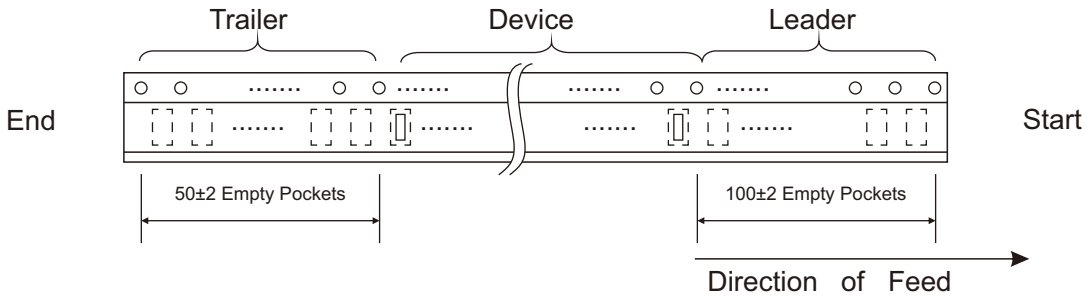
Fig.6 - $V_{BE(sat)}$ — I_C



Reel Taping Specification





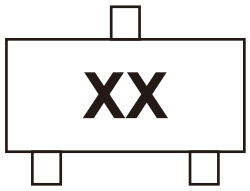


	SYMBOL	A	B	C	d	D	D_1	D_2
SOT-23	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 1.00	54.00 ± 0.50	13.00 ± 0.50
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.039	2.126 ± 0.020	0.512 ± 0.020

	SYMBOL	E	F	P	P_0	P_1	T	W	W_1
SOT-23	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.02	8.00 ± 0.30	9.50 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.001	0.315 ± 0.012	0.374 ± 0.039

Marking Code

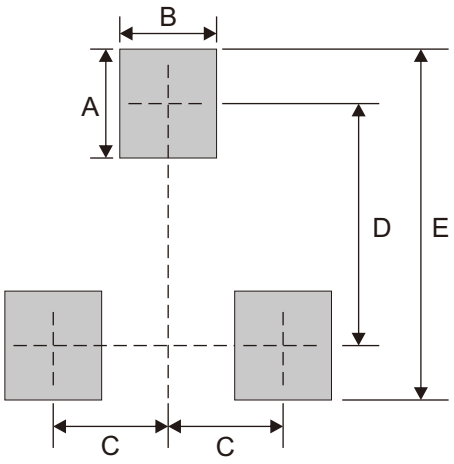
Part Number	Marking Code
ABCW66F-HF	EF
ABCW66G-HF	EG
ABCW66H-HF	EH



xx = Product type marking code

Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	0.95	0.037
D	2.00	0.079
E	2.90	0.114



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7