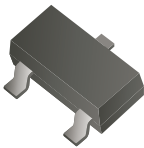


ADTC143TCA-HF (NPN)

RoHS Device
Halogen Free

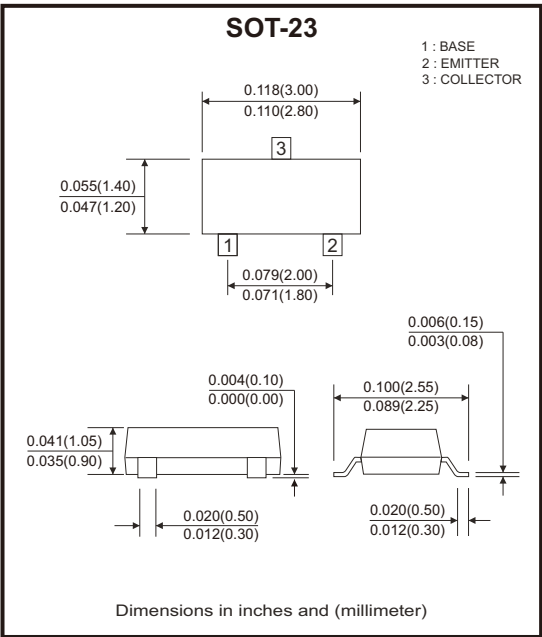


Features

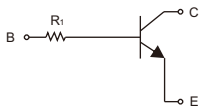
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- AEC-Q101 Qualified.

Mechanical data

- Case: SOT-23, molded plastic.
- Mounting position: Any.



Circuit Diagram



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

Parameter	Symbol	Value	Unit
Collector-base voltage	V _{CB0}	50	V
Collector-emitter voltage	V _{CE0}	50	V
Emitter-base voltage	V _{EB0}	5	V
Collector current	I _c	100	mA
Power dissipation	P _D	200	mW
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (at $T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 50\mu\text{A}$, $I_E = 0\text{A}$	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}$, $I_B = 0\text{A}$	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 50\mu\text{A}$, $I_C = 0\text{A}$	5			V
Collector cut-off current	I_{CBO}	$V_{CB} = 50\text{V}$, $I_E = 0\text{A}$			0.5	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 4\text{V}$, $I_C = 0\text{A}$			0.5	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 5\text{mA}$, $I_B = 0.25\text{mA}$			0.3	V
DC current gain	h_{FE}	$V_{CE} = 5\text{V}$, $I_C = 1\text{mA}$	100		600	
Input Resistor	R_1		3.29	4.7	6.11	$\text{k}\Omega$
Transition frequency	f_T	$V_{CE} = 10\text{V}$, $I_E = 5\text{mA}$, $f = 100\text{MHz}$		250		MHz

Typical Rating and Characteristic Curves (ADTC143TCA-HF)

Fig.1 - Static Characteristic

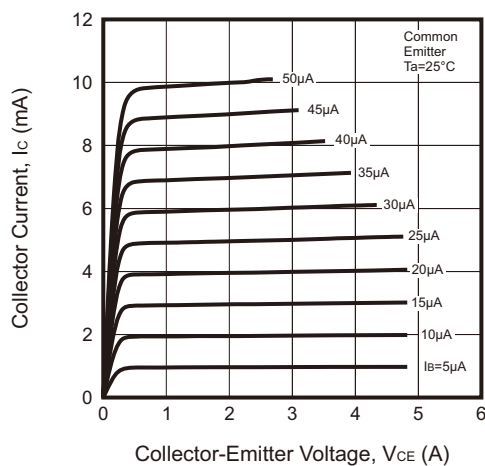
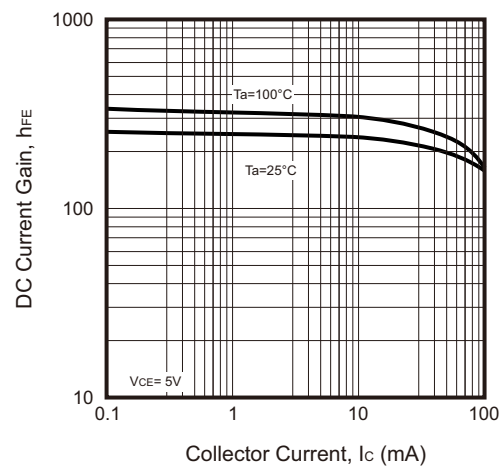


Fig.2 - $h_{FE} - I_C$



Typical Rating and Characteristic Curves (ADTC143TCA-HF)

Fig.3 - $V_{BE(sat)}$ — I_c

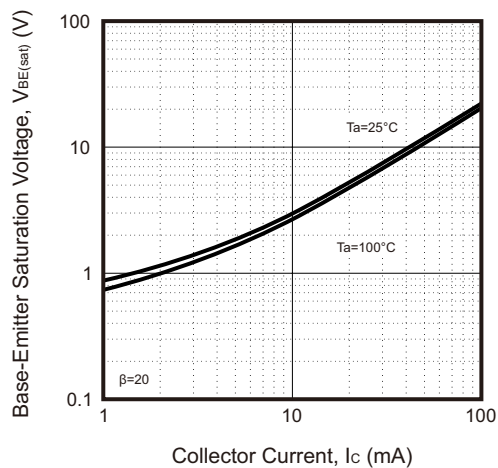


Fig.4 - $V_{CE(sat)}$ — I_c

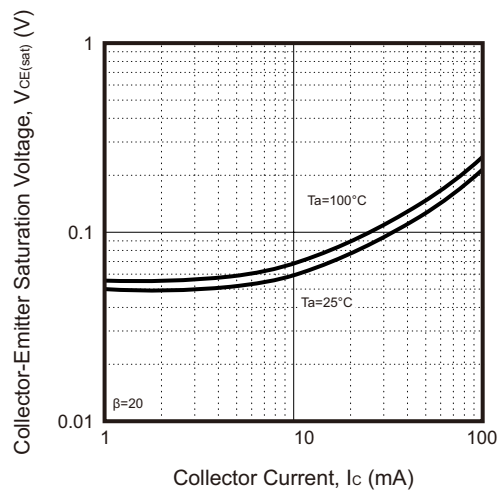


Fig.5 - I_c — V_{BE}

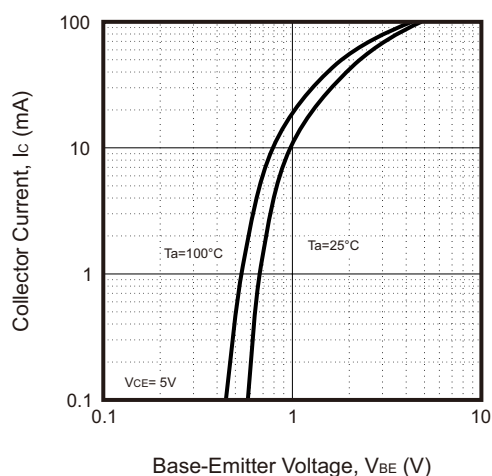


Fig.6 - C_{ob}/C_{ib} — V_{CB}/V_{EB}

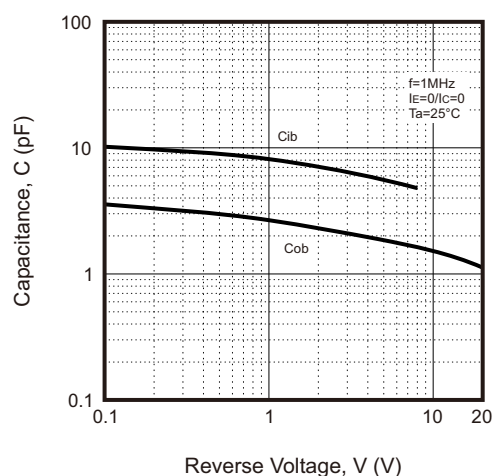
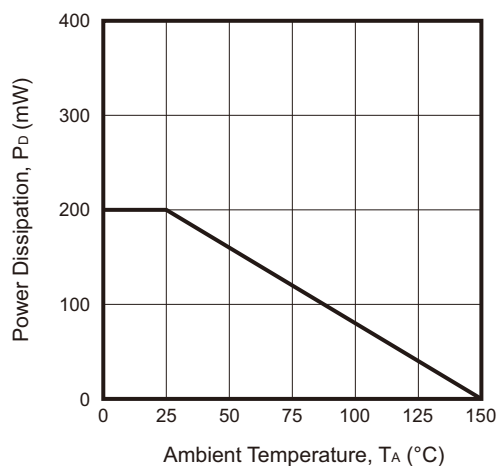
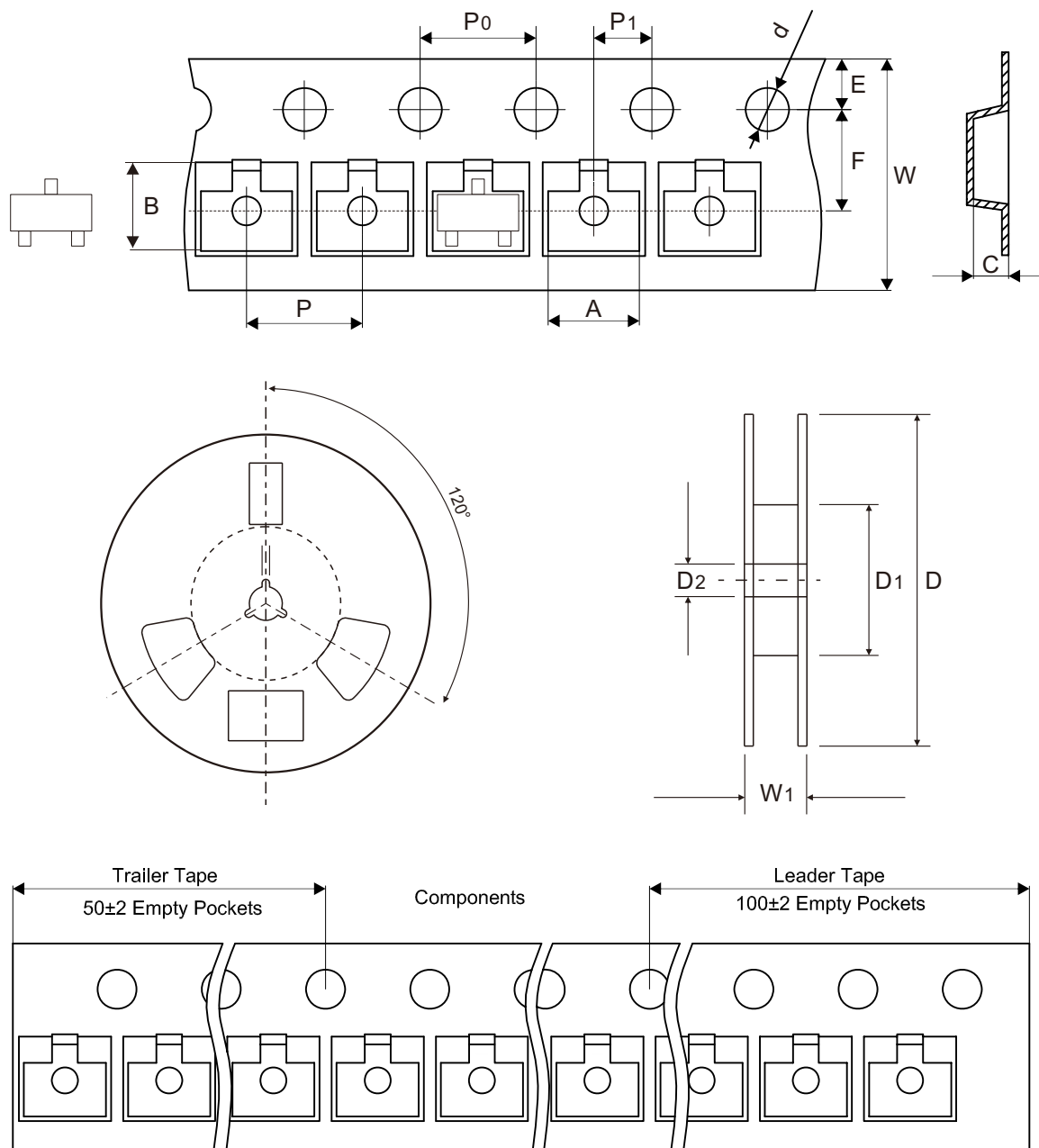


Fig.7 - P_D — T_A



Reel Taping Specification

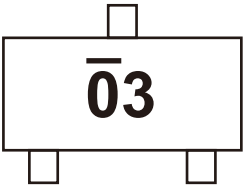


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 1.00	54.40 ± 0.40	13.00 ± 0.20
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.039	2.142 ± 0.016	0.512 ± 0.008

SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 ± 0.30 -0.10	12.10 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 ± 0.012 -0.004	0.476 ± 0.039

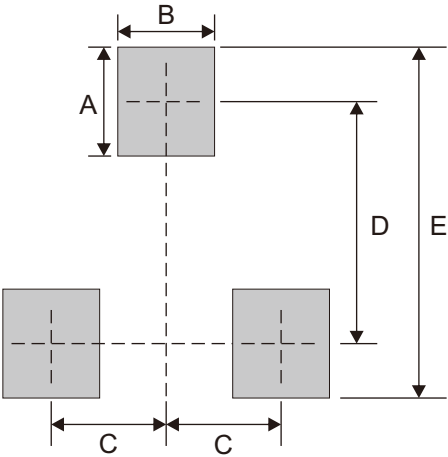
Marking Code

Part Number	Marking Code
ADTC143TCA-HF	03



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