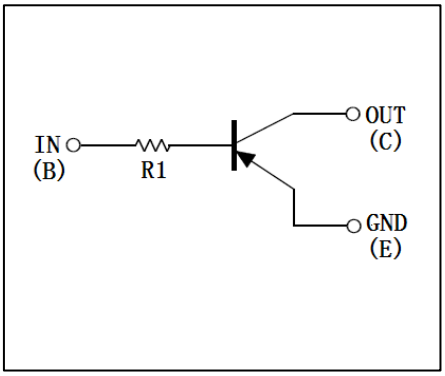
Digital Transistors (Built-in Resistors)

DTA114TE/DTA114TUA/DTA114TKA/DTA114TCA

DIGITAL TRANSISTOR (PNP)

• **Equivalent Circuit**

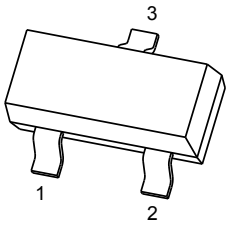


FEATURES

- 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 positive biasing of the input.They also have the advantage of almost completely eliminating parasitic effects
- Only the on/off conditions need to be set for operation, making device design easy

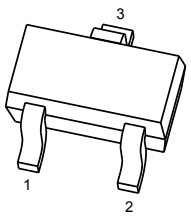
PIN CONNENCTIONS and MARKING

DTA114TCA — **SOT-23**



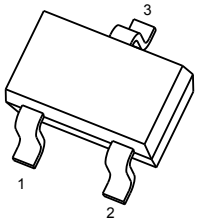
1. IN
2. GND
3. OUT

DTA114TE — **SOT-523**



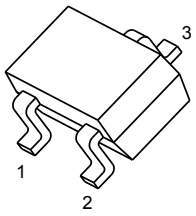
1. IN
2. GND
3. OUT

DTA114TUA — **SOT-323**



1. IN
2. GND
3. OUT

DTA114TKA — **SOT-23-3L**



1. IN
2. GND
3. OUT

ORDERING INFORMATION

Part Number	MARKING	Package	Packing Method	Pack Quantity
DTA114TE	**94**	SOT-523	Reel	3000pcs/Reel
DTA114TUA	**94**	SOT-323	Reel	3000pcs/Reel
DTA114TKA	**94**	SOT-23-3L	Reel	3000pcs/Reel
DTA114TCA	**94**	SOT-23	Reel	3000pcs/Reel

MAXIMUM RATINGS(Ta=25℃ unless otherwise noted)

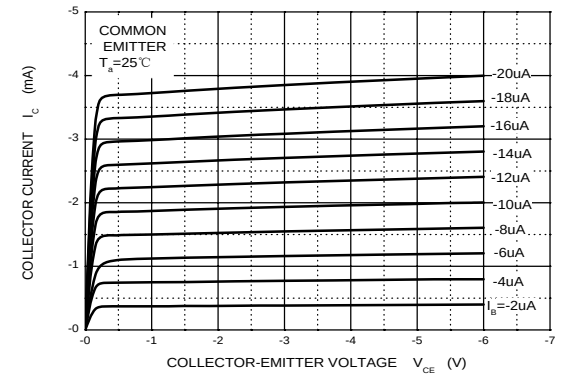
Symbol	Parameter	Limits(DTA114T□)						Unit
			E	UA	KA	CA		
V_{CBO}	Collector-Base Voltage	-50						V
V_{CEO}	Collector-Emitter Voltage	-50						V
V_{EBO}	Emitter-Base Voltage	-5						V
I_C	Collector Current	-100						mA
P_D	Power Dissipation		150	200	200	200		mW
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55～+150						℃

ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

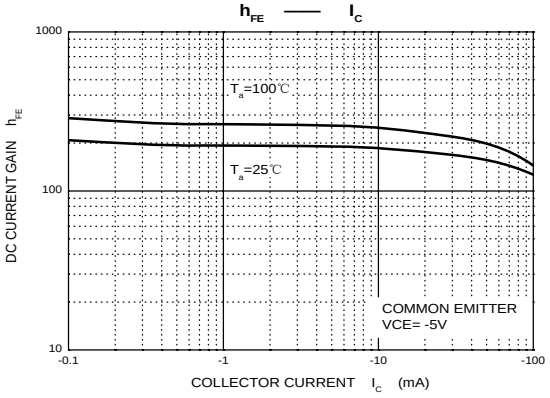
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	Ic=-50μA,I_E=0	-50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	Ic=-1mA,I_B=0	-50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=-50μA,I_C=0	-5			V
Collector cut-off current	I_{CBO}	V_{CB}=-50V,I_E=0			-0.5	μA
Emitter cut-off current	I_{EBO}	V_{EB}=-4V,I_C=0			-0.5	μA
DC current gain	h_{FE}	V_{CE}=-5V,I_C=-1mA	100	250	600	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-10mA,I_B=-1mA			-0.3	V
Transition frequency	f_T	V_{CE}=-10V,I_E=5mA, f=100MHz		250		MHz
Input resistor	R_1		7	10	13	kΩ

Typical Characteristics

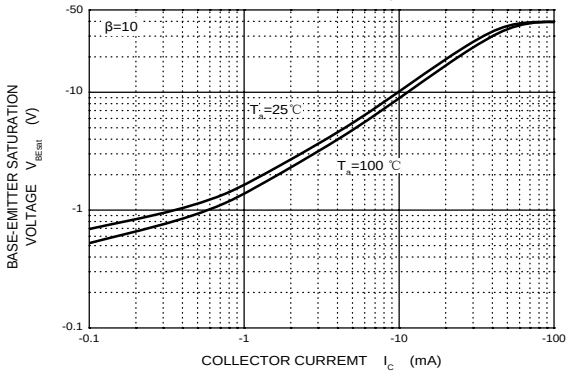
Static Characteristic



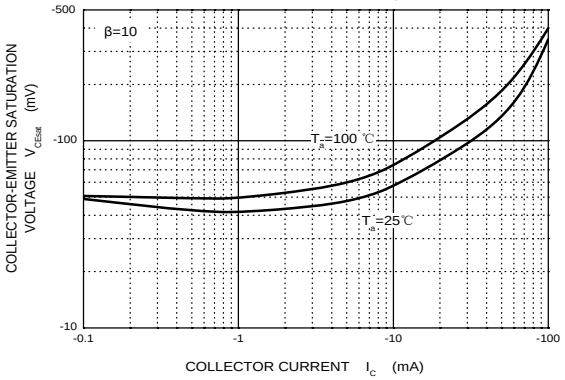
hFE —— IC



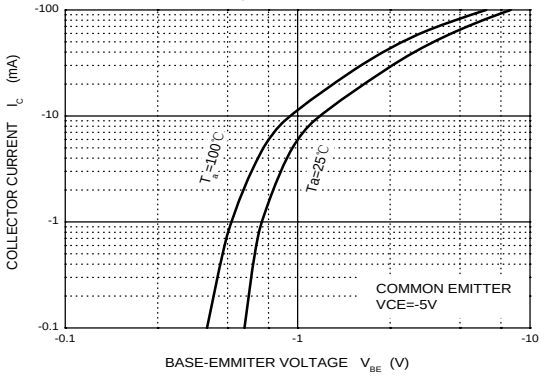
VBEsat —— IC



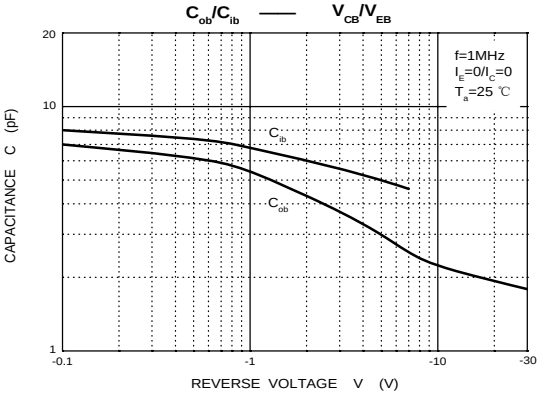
VCEsat —— IC



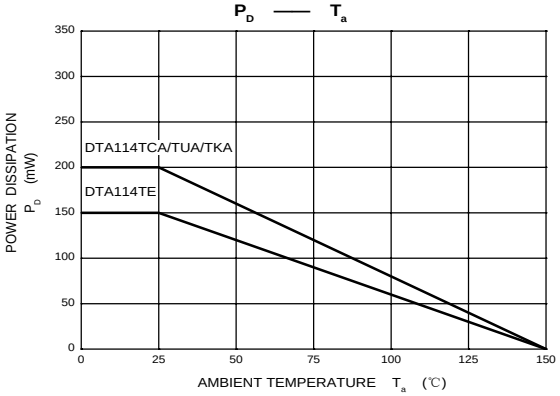
IC —— VBE



Cob/Cib —— VCB/VEB

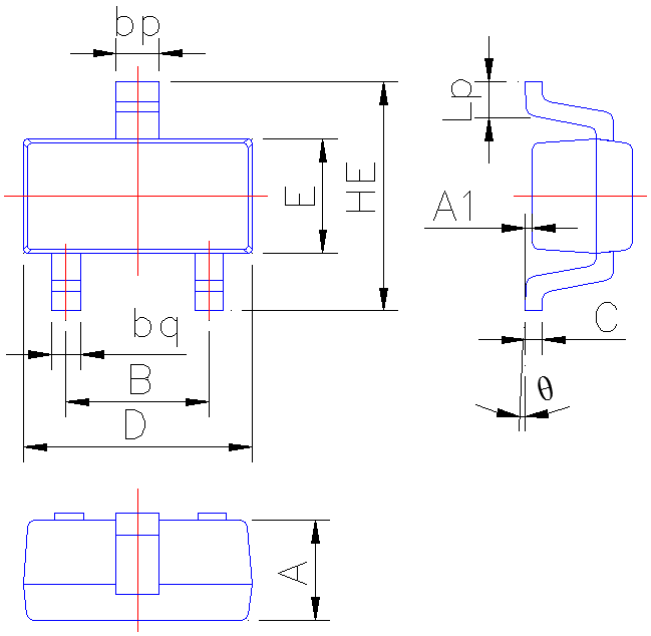


PD —— Ta



PACKAGE OUTLINE

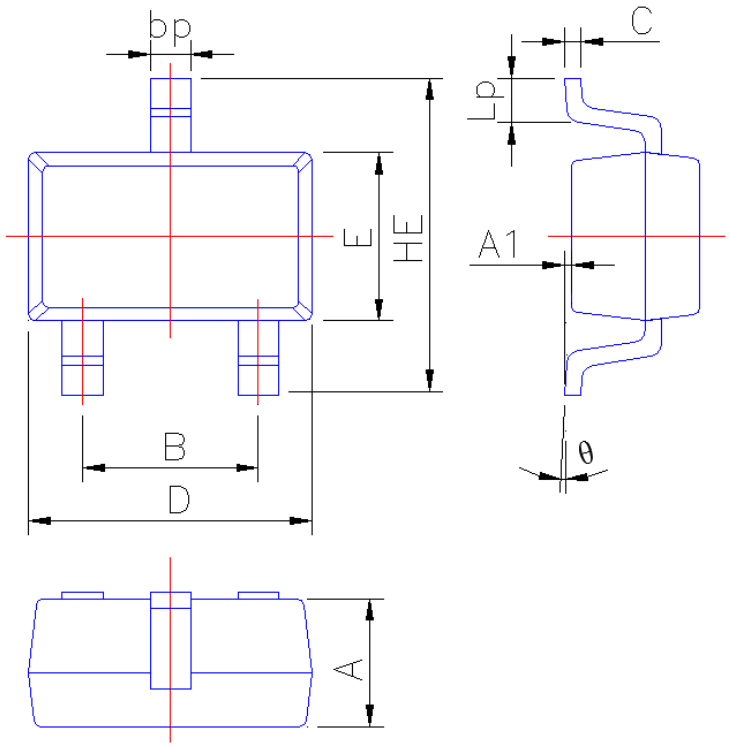
Plastic surface mounted package; 3 leads **SOT-523**



Symbol	Dimension in Millimeters	
	Min	Max
A	0.60	0.80
A1	0.010	0.100
B	0.95	1.05
bp	0.26	0.40
bq	0.16	0.30
C	0.09	0.15
D	1.50	1.70
E	0.70	0.85
HE	1.45	1.75
Lp	0.16	0.36
θ	0°	5°

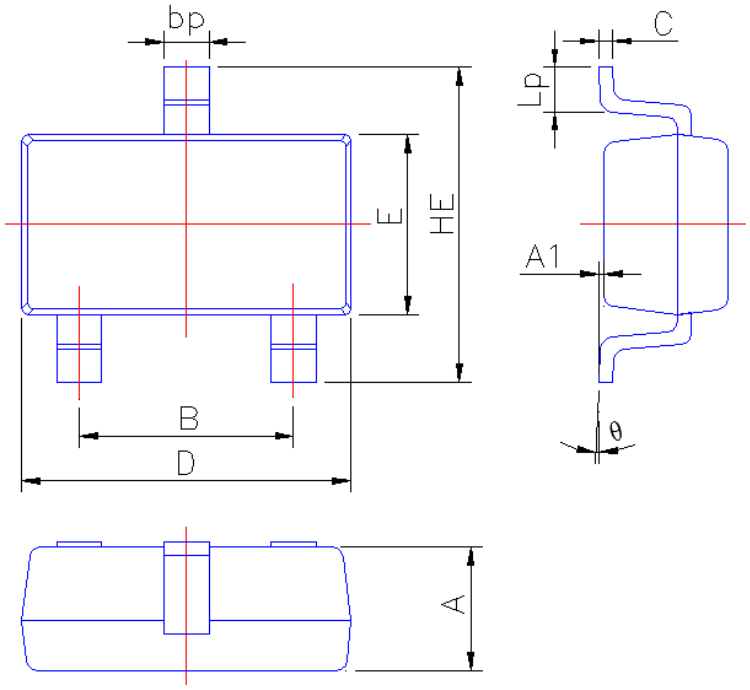
PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT-323**



Symbol	Dimension in Millimeters	
	Min	Max
A	0.90	1.00
A1	0.010	0.100
B	1.20	1.40
bp	0.25	0.45
C	0.09	0.15
D	2.00	2.20
E	1.15	1.35
HE	2.15	2.55
Lp	0.25	0.46
θ	0°	6°

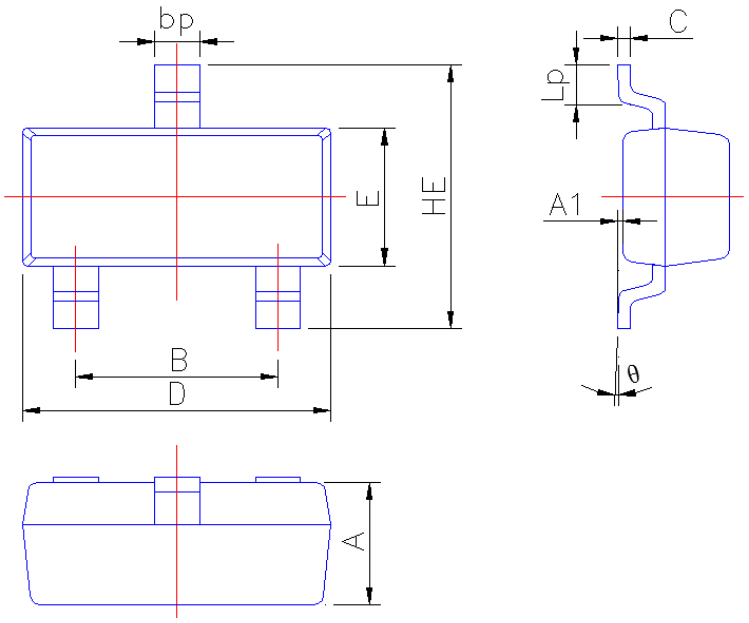
Package outline dimensions SOT23-3L



Symbol	Dimension in Millimeters	
	Min	Max
A	1.05	1.20
A1	0.010	0.100
B	1.80	2.00
bp	0.35	0.50
C	0.09	0.15
D	2.80	3.00
E	1.50	1.70
HE	2.60	3.00
Lp	0.25	0.55
θ	2°	6°

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT-23**



Symbol	Dimension in Millimeters	
	Min	Max
A	0.90	1.10
A1	0.013	0.100
B	1.80	2.00
bp	0.35	0.50
C	0.09	0.150
D	2.80	3.00
E	1.20	1.40
HE	2.20	2.80
Lp	0.20	0.50
θ	0°	5°