

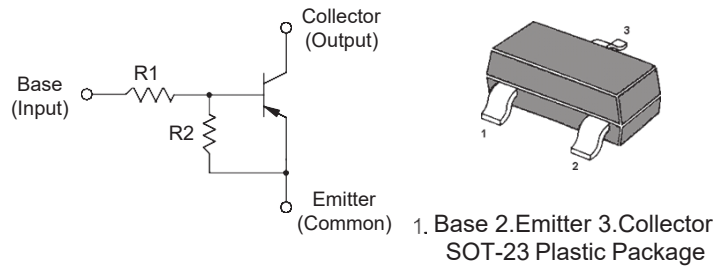
MMBTRA221SS...MMBTRA226SS

PNP Silicon Epitaxial Planar Transistor

for high current switching, interface circuit
and driver circuit application.

Feature

- With built-in bias resistor
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process



Resistor Values And Mark

Type	R1 (K Ω)	R2 (K Ω)	Marking Code
MMBTRA221SS	1	1	P.Q
MMBTRA222SS	2.2	2.2	P.R
MMBTRA223SS	4.7	4.7	P.S
MMBTRA224SS	10	10	P.T
MMBTRA225SS	1	10	P.U
MMBTRA226SS	2.2	10	P.V

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

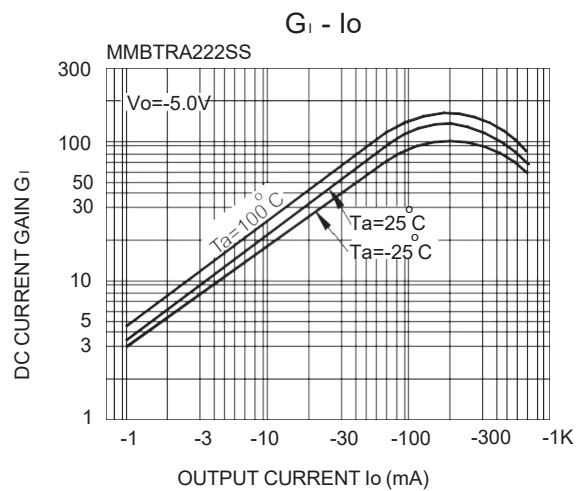
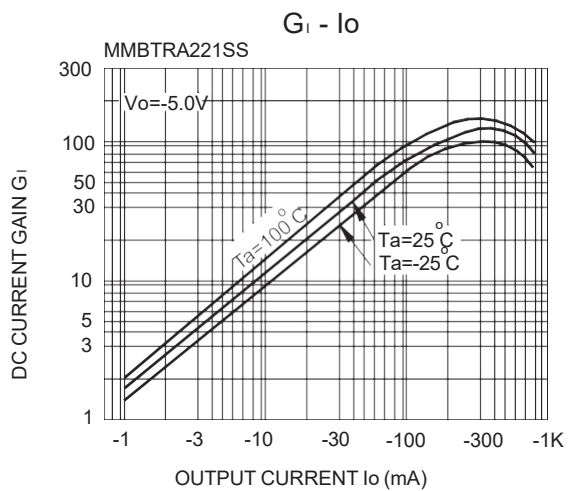
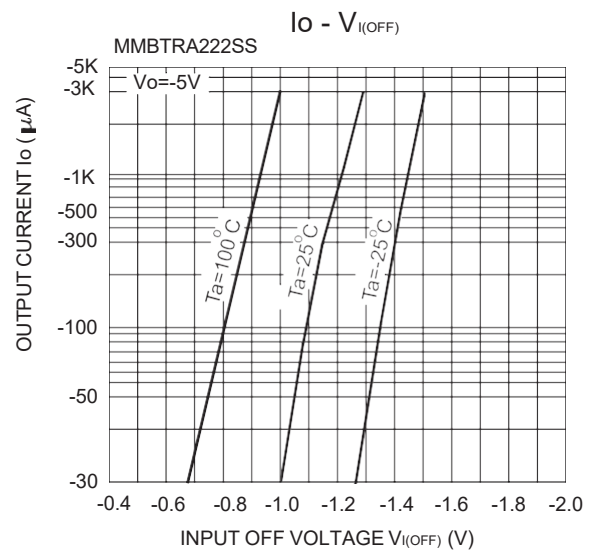
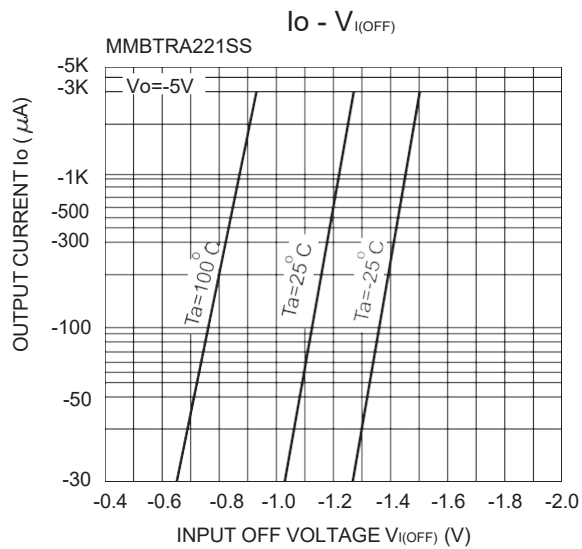
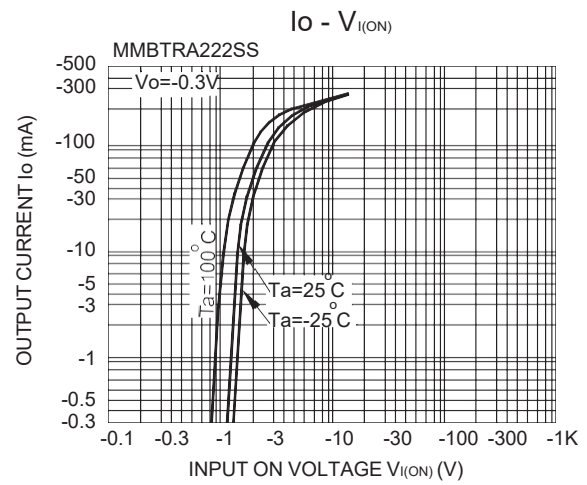
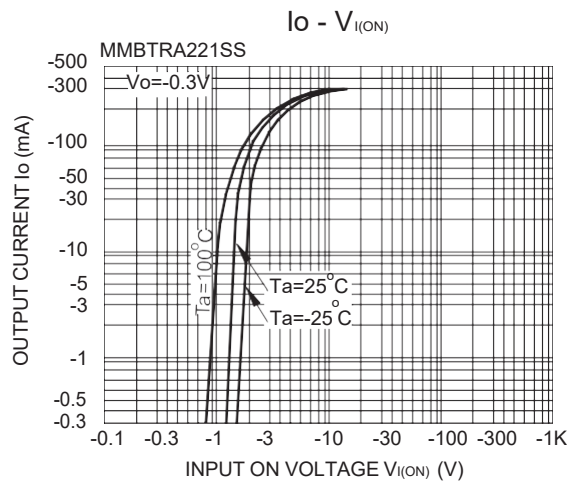
Parameter		Symbol	Value	Unit
Output Voltage		$-V_O$	50	V
Input Voltage	MMBTRA221SS	$-V_I$	10, -10	V
	MMBTRA222SS		12, -10	
	MMBTRA223SS		20, -10	
	MMBTRA224SS		30, -10	
	MMBTRA225SS		10, -5	
	MMBTRA226SS		12, -6	
Output Current		$-I_O$	300	mA
Total Power Dissipation		P_{tot}	200	mW
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	- 55 to + 150	$^\circ\text{C}$

Characteristics at $T_a = 25^\circ\text{C}$

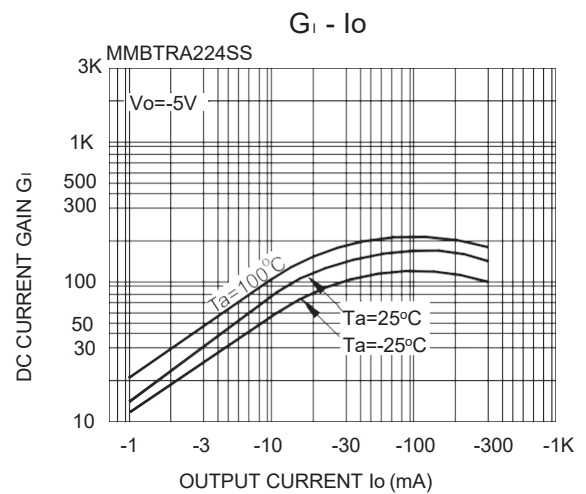
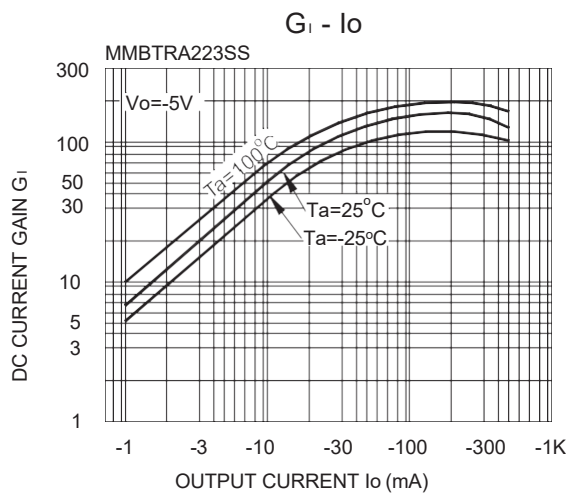
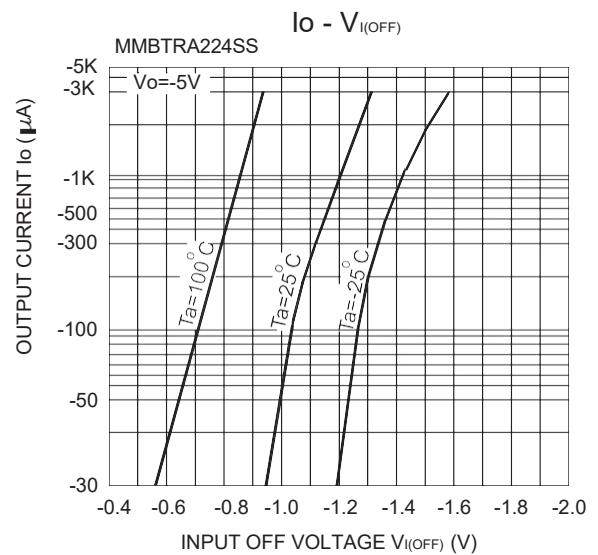
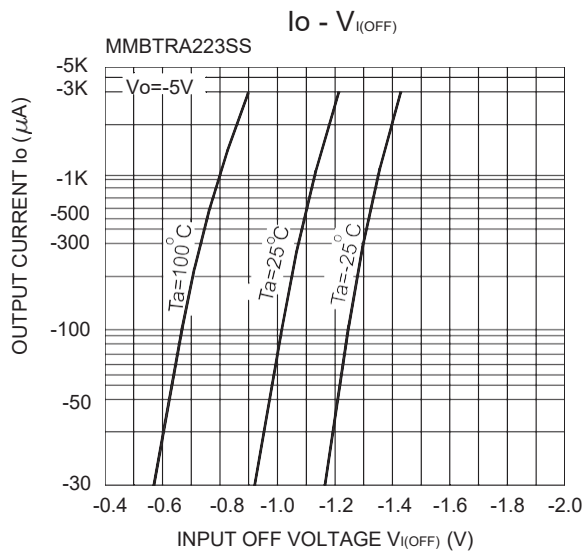
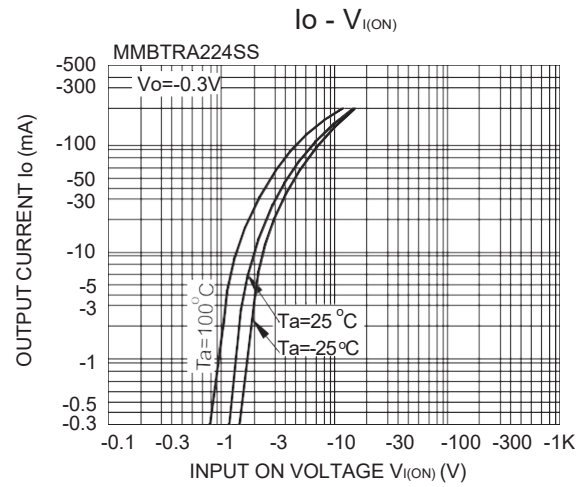
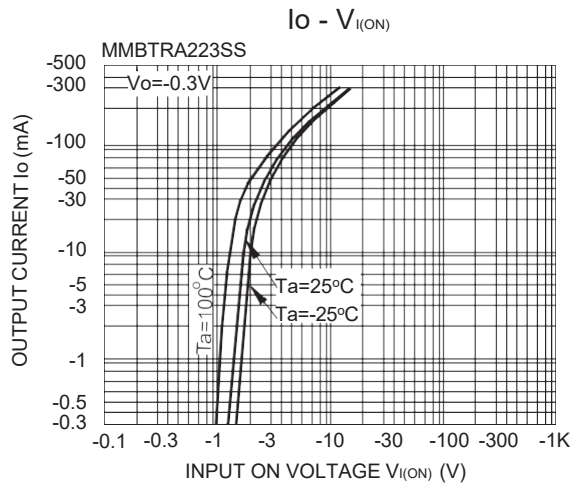
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_O = 5\text{ V}$, $-I_O = 50\text{ mA}$					
MMBTRA221SS	G_I	33	-	-	-
MMBTRA222SS		39	-	-	-
MMBTRA223SS		47	-	-	-
MMBTRA224SS		56	-	-	-
MMBTRA225SS		56	-	-	-
MMBTRA226SS		56	-	-	-
Output Cutoff Current at $-V_O = 30\text{ V}$	$-I_{O(\text{OFF})}$	-	-	10	μA
Input Current at $-V_I = 5\text{ V}$					
MMBTRA221SS	$-I_I$	-	-	7.2	mA
MMBTRA222SS		-	-	3.8	
MMBTRA223SS		-	-	1.8	
MMBTRA224SS		-	-	0.88	
MMBTRA225SS		-	-	7.2	
MMBTRA226SS		-	-	3.6	
Output Voltage at $-I_O = 10\text{ mA}$, $-I_I = 0.5\text{ mA}$	$-V_{O(\text{ON})}$	-	-	0.6	V
Input Voltage (ON) at $-V_O = 0.3\text{ V}$, $-I_O = 20\text{ mA}$					
MMBTRA221SS	$-V_{I(\text{ON})}$	-	-	3	V
MMBTRA222SS		-	-	3	
MMBTRA223SS		-	-	3	
MMBTRA224SS		-	-	3	
MMBTRA225SS		-	-	3	
MMBTRA226SS		-	-	2	
Input Voltage (OFF) at $-V_O = 5\text{ V}$, $-I_O = 0.1\text{ mA}$					
MMBTRA221SS~224SS	$-V_{I(\text{OFF})}$	0.5	-	-	V
MMBTRA225SS~226SS		0.3	-	-	
Transition Frequency at $-V_O = 10\text{ V}$, $-I_O = 5\text{ mA}$, $f = 100\text{ MHz}$	$f_T^{1)}$	-	200	-	MHz

1) Characteristic of transistor only.

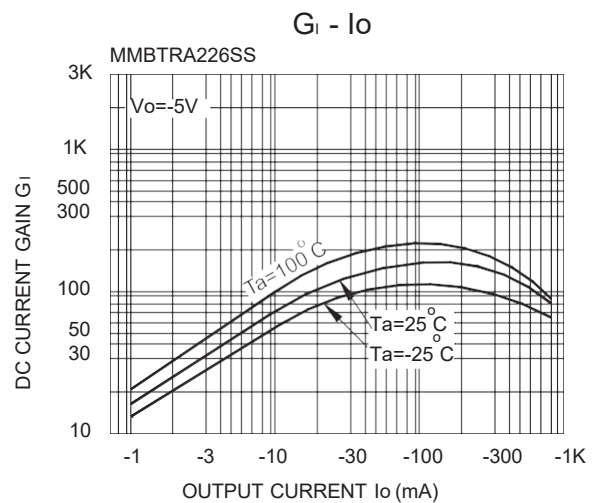
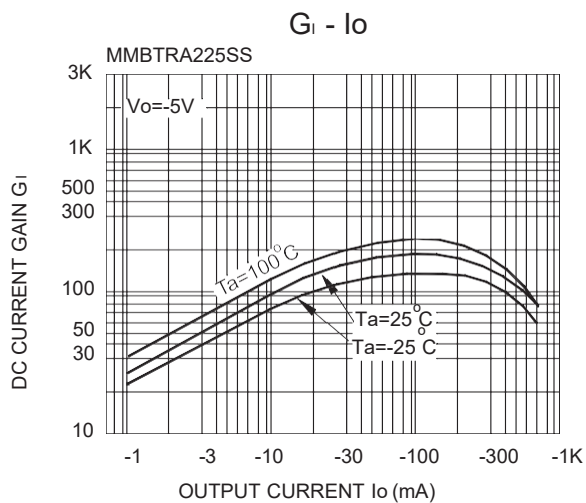
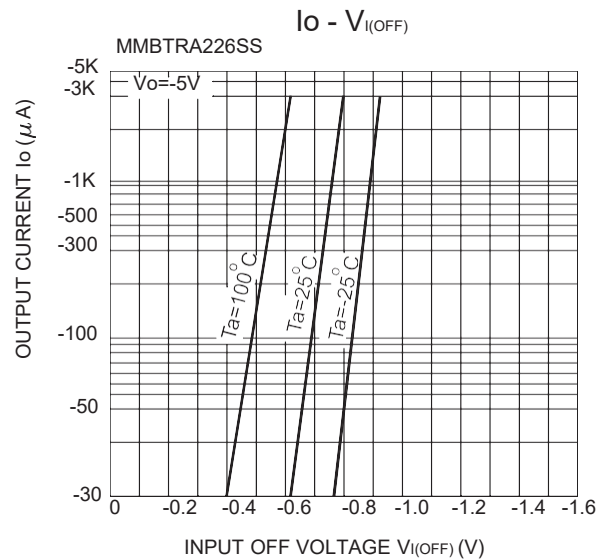
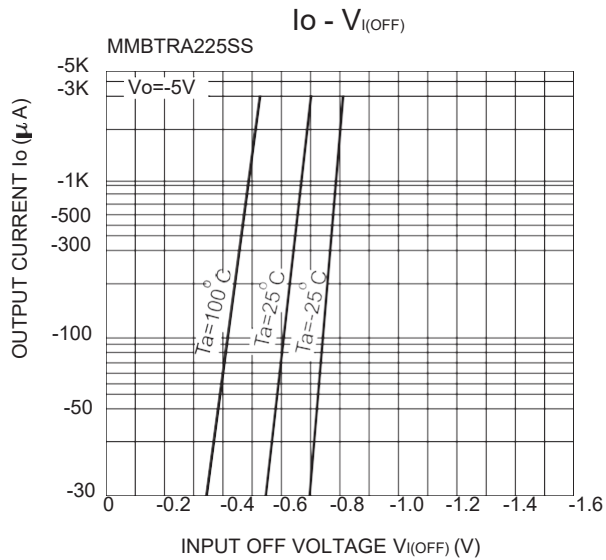
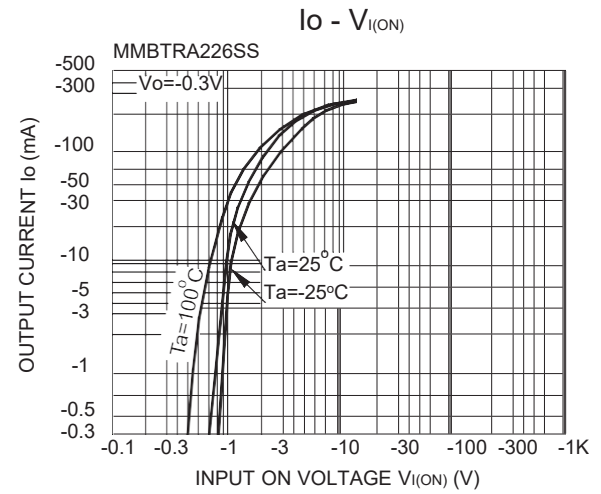
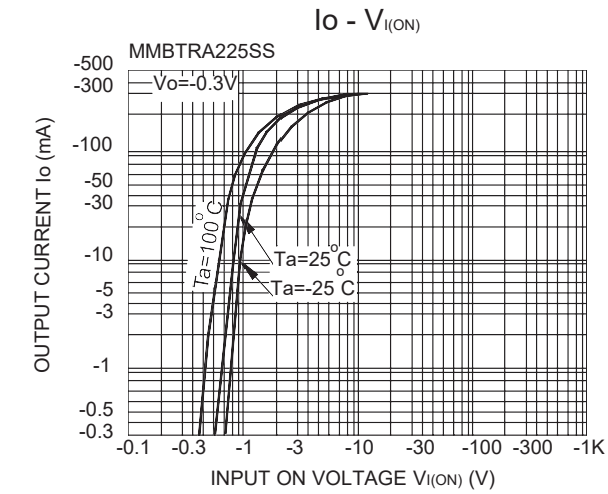
Typical Characteristics



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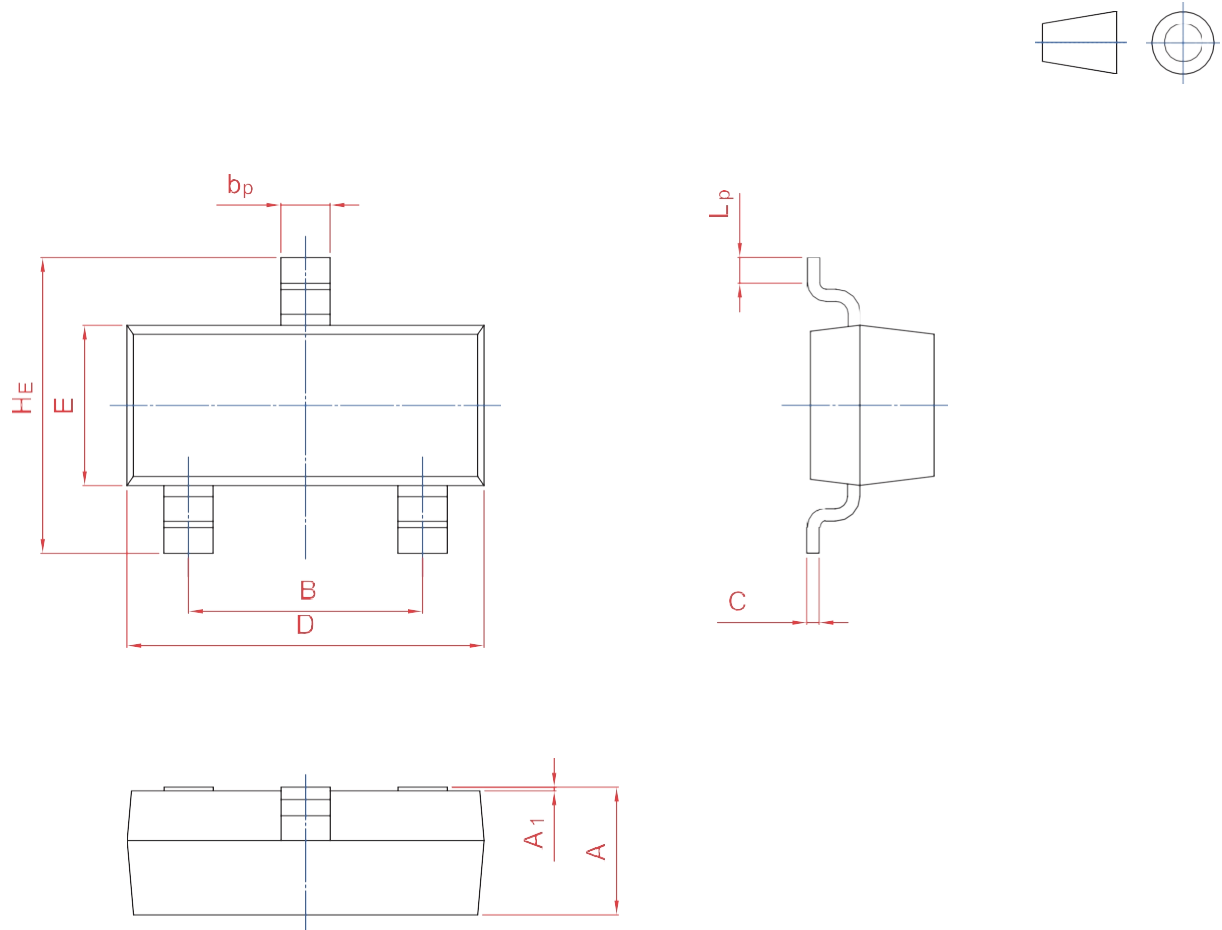
Typical Characteristics



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	b_p	C	D	E	H_E	A_1	L_p
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20