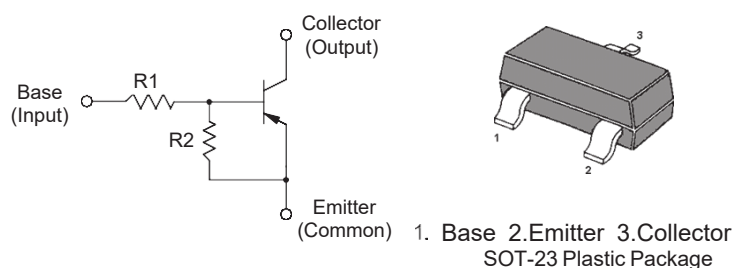


MMBTRA221S...MMBTRA226S PNP Silicon Epitaxial Planar Transistor

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
- High output current



Resistor Values And Mark

Type	R1 (K Ω)	R2 (K Ω)	Marking Code
MMBTRA221S	1	1	PQ
MMBTRA222S	2.2	2.2	PR
MMBTRA223S	4.7	4.7	PS
MMBTRA224S	10	10	PT
MMBTRA225S	1	10	PU
MMBTRA226S	2.2	10	PV

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

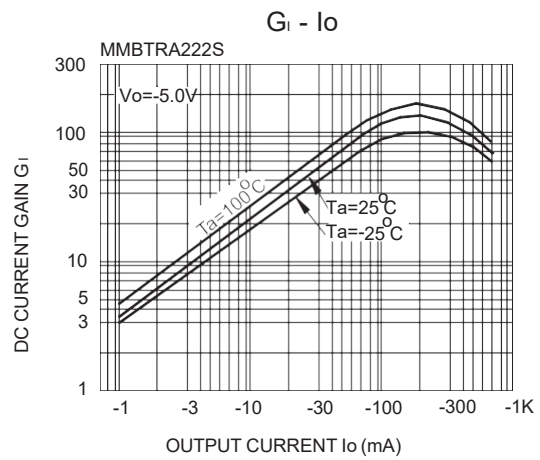
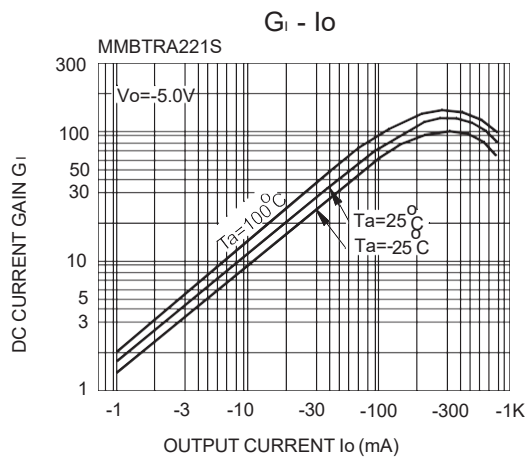
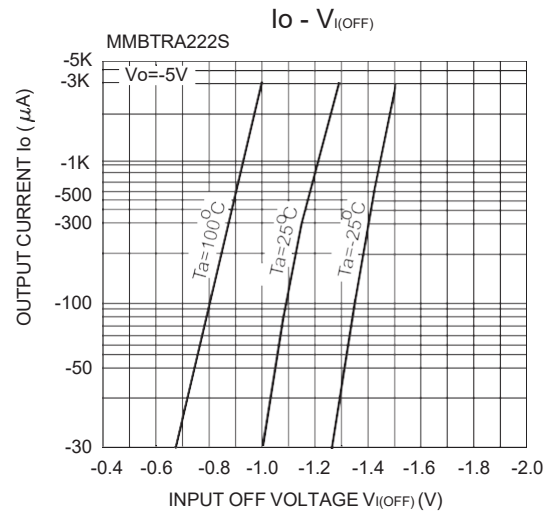
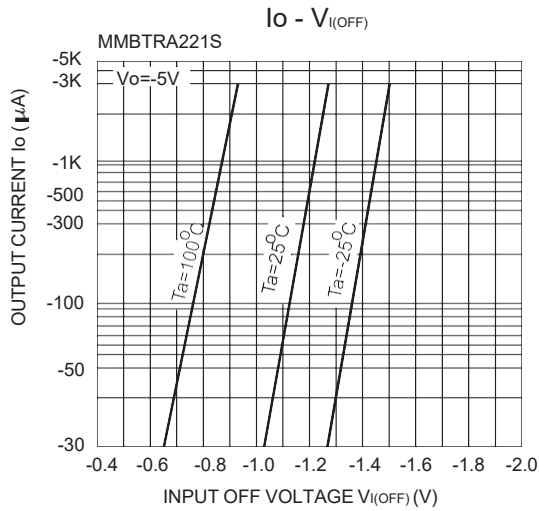
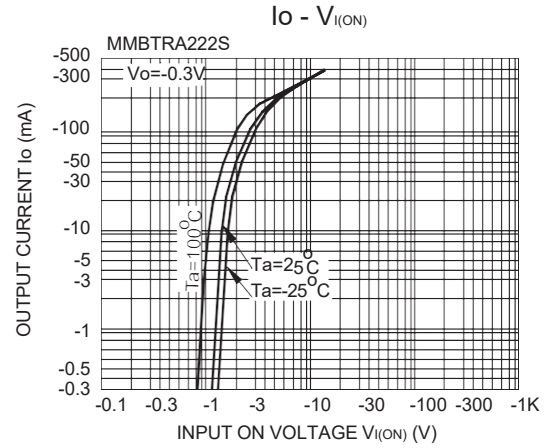
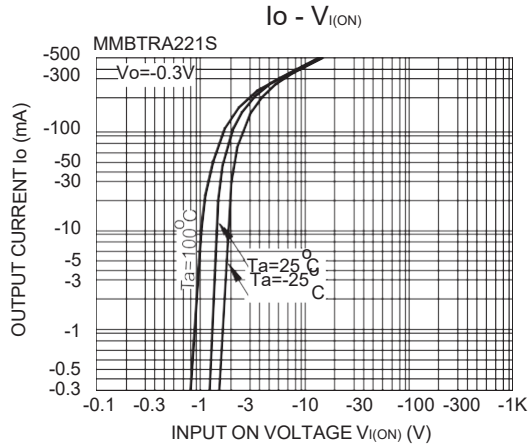
Parameter		Symbol	Value	Unit
Output Voltage		$-V_O$	50	V
Input Voltage	MMBTRA221S	$-V_I$	10, -10	V
	MMBTRA222S		12, -10	
	MMBTRA223S		20, -10	
	MMBTRA224S		30, -10	
	MMBTRA225S		10, -5	
	MMBTRA226S		12, -6	
Output Current		$-I_O$	800	mA
Total Power Dissipation		P_{tot}	200	mW
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	- 55 to + 150	$^\circ\text{C}$

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

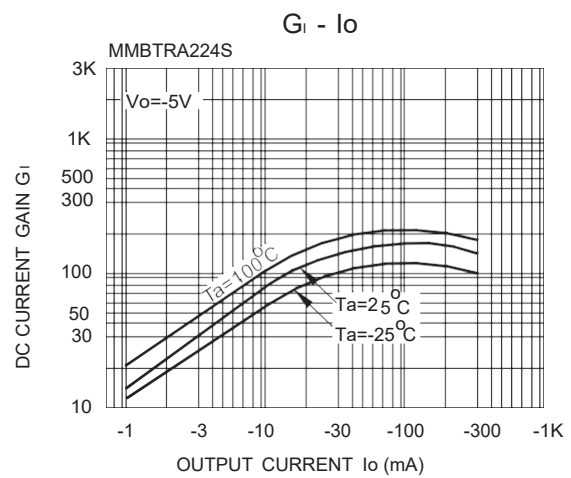
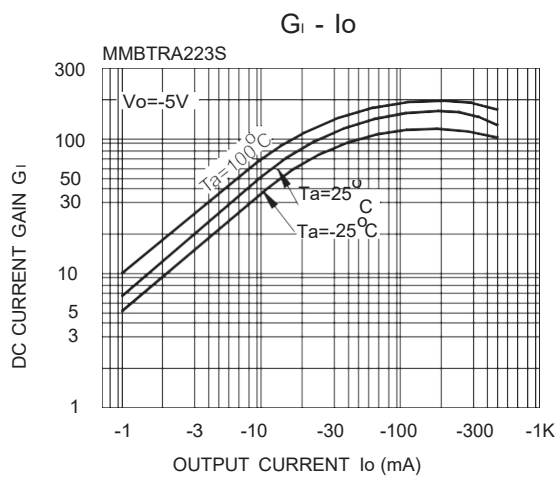
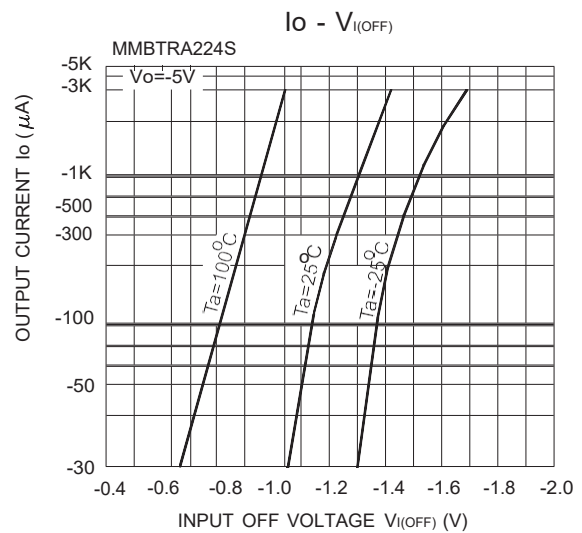
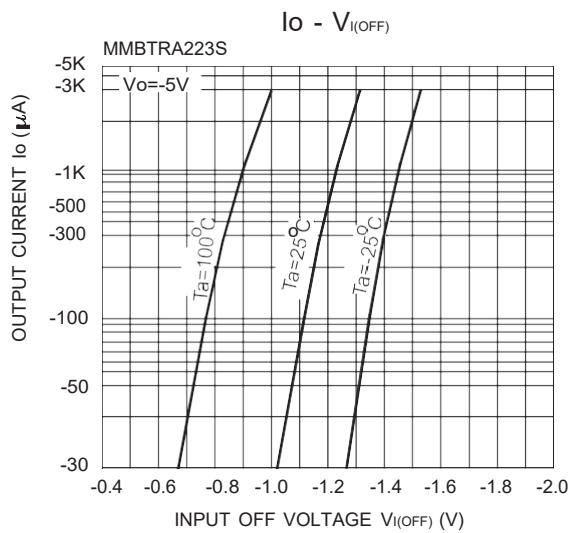
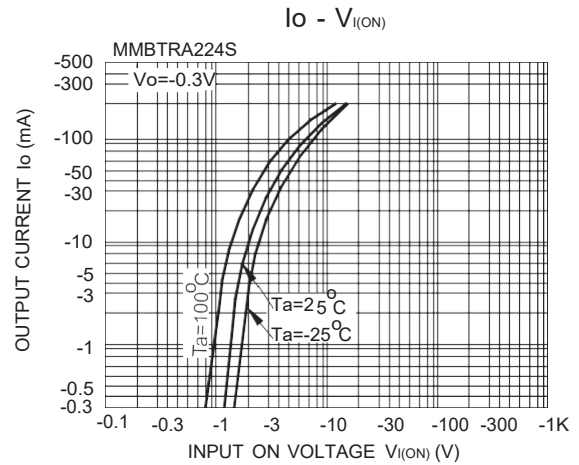
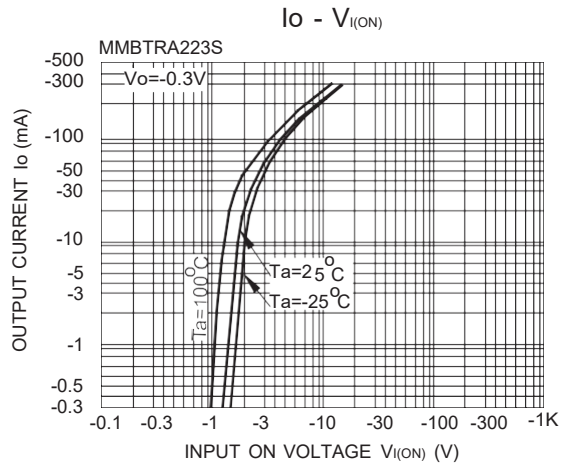
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_O = 5\text{ V}$, $-I_O = 50\text{ mA}$	MMBTRA221S MMBTRA222S MMBTRA223S MMBTRA224S MMBTRA225S MMBTRA226S	G_I	33 39 47 56 56 56	- - - - - -	- - - - - -
Output Cutoff Current at $-V_O = 30\text{ V}$	$-I_{O(\text{OFF})}$	-	-	10	μA
Input Current at $-V_I = 5\text{ V}$	MMBTRA221S MMBTRA222S MMBTRA223S MMBTRA224S MMBTRA225S MMBTRA226S	$-I_I$	- - - - - -	- - - - - -	7.2 3.8 1.8 0.88 7.2 3.6 mA
Output Voltage at $I_O = 50\text{ mA}$, $I_I = 2.5\text{ mA}$	$-V_{O(\text{ON})}$	-	-	0.3	V
Input Voltage (ON) at $-V_O = 0.3\text{ V}$, $-I_O = 20\text{ mA}$	MMBTRA221S MMBTRA222S MMBTRA223S MMBTRA224S MMBTRA225S MMBTRA226S	$-V_{I(\text{ON})}$	- - - - - -	- - - - - -	3 3 3 3 3 2 V
Input Voltage (OFF) at $-V_O = 5\text{ V}$, $-I_O = 0.1\text{ mA}$	MMBTRA221S~224S MMBTRA225S~226S	$-V_{I(\text{OFF})}$	0.5 0.3	- -	- - V
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.

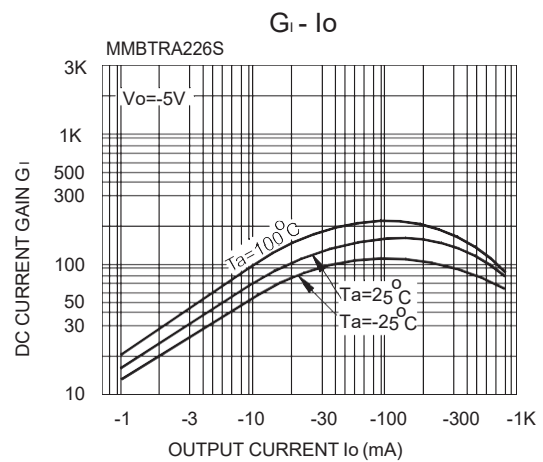
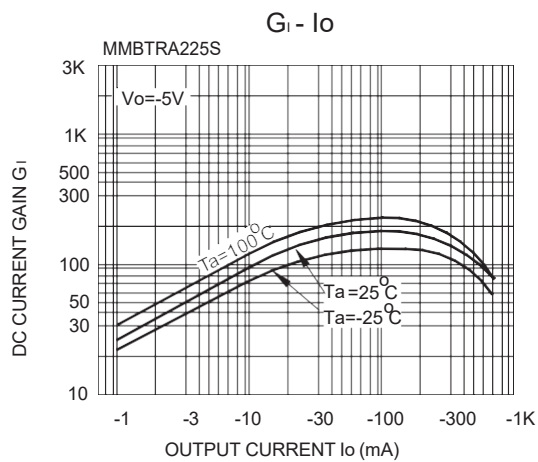
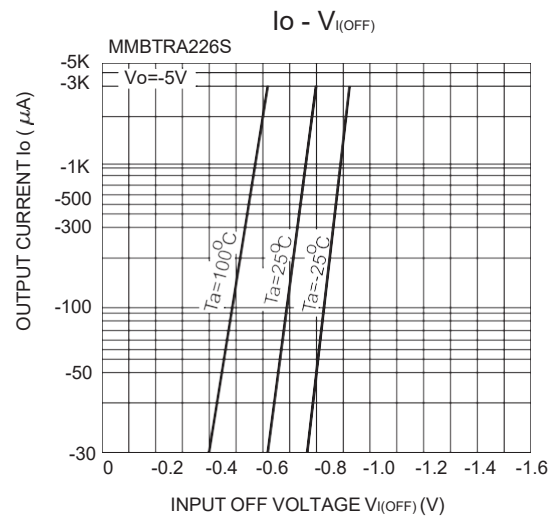
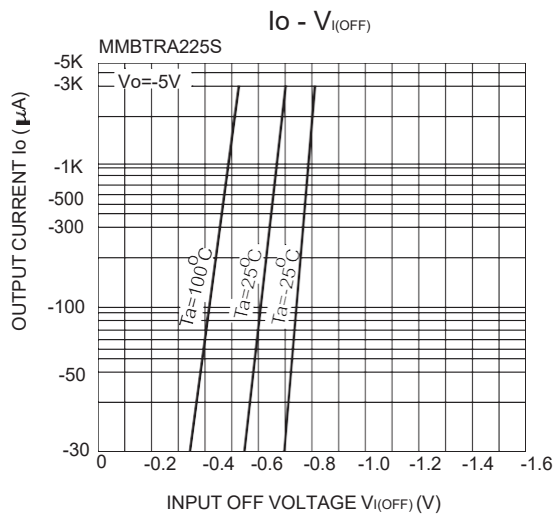
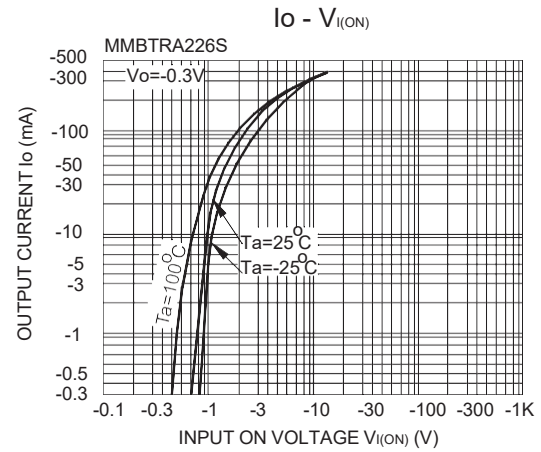
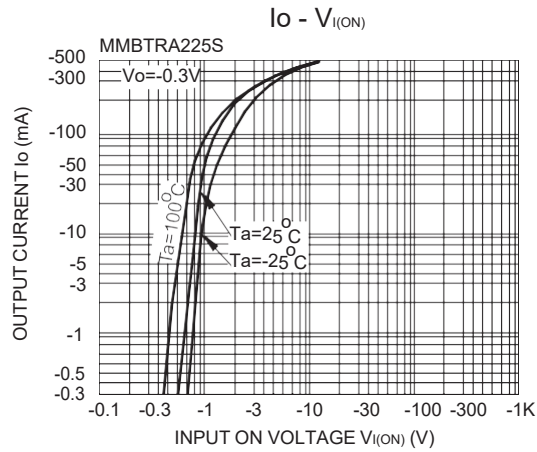
Typical Characteristics



Typical Characteristics



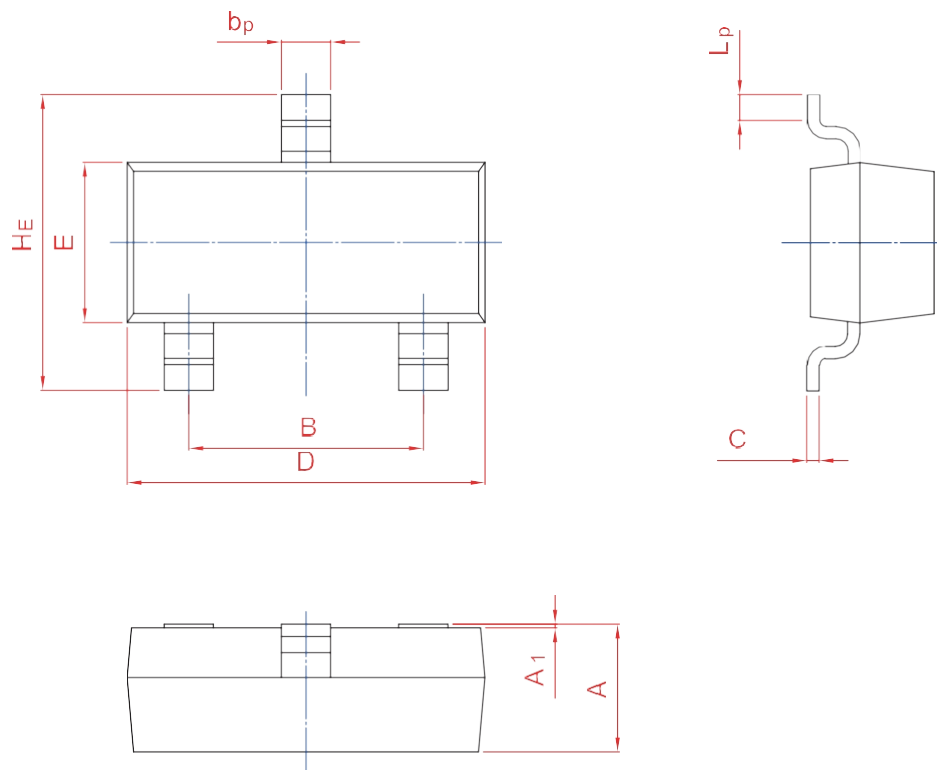
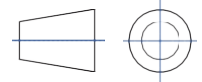
Typical Characteristics



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