

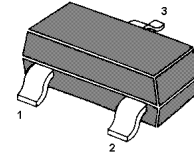
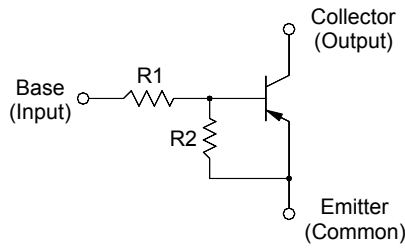
# MMBTRA101SS...MMBTRA106SS

## PNP Silicon Epitaxial Planar Transistor

for switching and interface circuit and drive circuit applications

### Features

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



1. Base 2. Emitter 3. Collector  
SOT-23 Plastic Package

### Resistor Values

Type	R1 (K $\Omega$ )	R2 (K $\Omega$ )
MMBTRA101SS	4.7	4.7
MMBTRA102SS	10	10
MMBTRA103SS	22	22
MMBTRA104SS	47	47
MMBTRA105SS	2.2	47
MMBTRA106SS	4.7	47

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

Parameter		Symbol	Value	Unit
Output Voltage		$-V_o$	50	V
Input Voltage	MMBTRA101SS	$-V_i$	20, -10	V
	MMBTRA102SS		30, -10	
	MMBTRA103SS		40, -10	
	MMBTRA104SS		40, -10	
	MMBTRA105SS		12, -5	
	MMBTRA106SS		20, -5	
Output Current		$-I_o$	100	mA
Total Power Dissipation		$P_{tot}$	200	mW
Junction Temperature		$T_j$	150	$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

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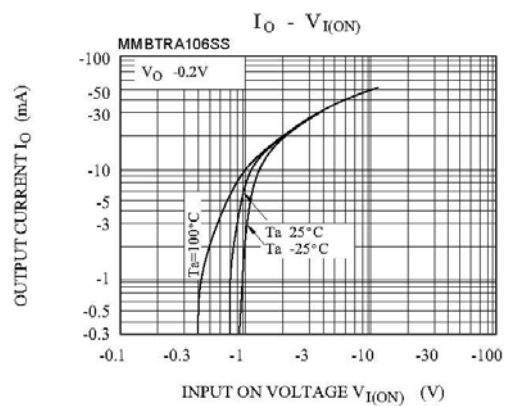
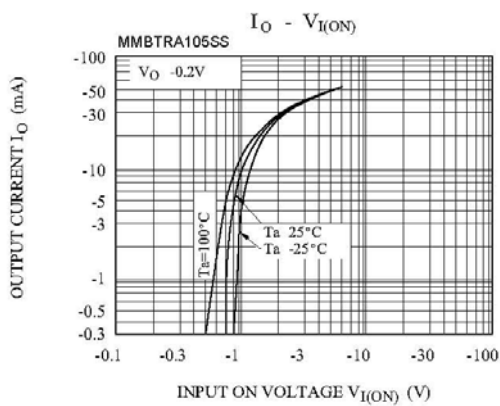
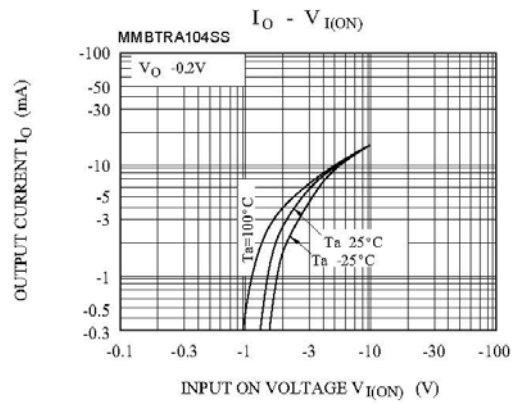
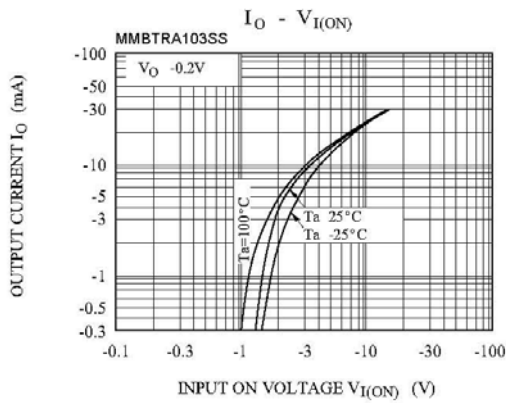
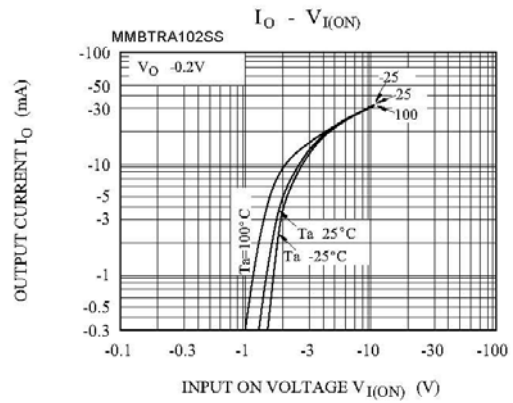
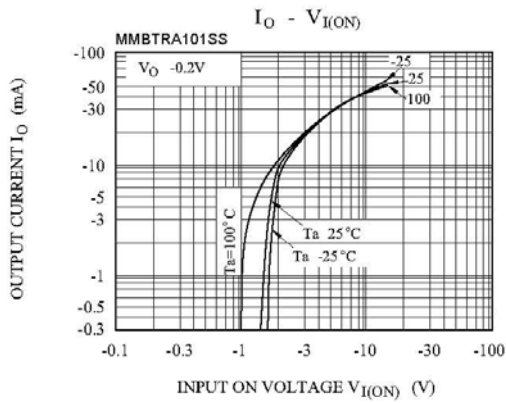
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## Characteristics at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_o = 5\text{ V}$ , $-I_o = 10\text{ mA}$					
MMBTRA101SS	G <sub>I</sub>	30	-	-	-
MMBTRA102SS		50	-	-	-
MMBTRA103SS		70	-	-	-
MMBTRA104SS		80	-	-	-
MMBTRA105SS		80	-	-	-
MMBTRA106SS		80	-	-	-
Output Cutoff Current at $-V_o = 50\text{ V}$	$-I_{O(OFF)}$	-	-	500	nA
Input Current at $-V_i = 5\text{ V}$					
MMBTRA101SS	-I <sub>I</sub>	-	-	1.8	mA
MMBTRA102SS		-	-	0.88	
MMBTRA103SS		-	-	0.36	
MMBTRA104SS		-	-	0.18	
MMBTRA105SS		-	-	3.6	
MMBTRA106SS		-	-	1.8	
Output Voltage at $-I_o = 10\text{ mA}$ , $-I_i = 0.5\text{ mA}$	$-V_{O(ON)}$	-	-	0.3	V
Input Voltage (ON) at $-V_o = 0.2\text{ V}$ , $-I_o = 5\text{ mA}$					
MMBTRA101SS	$-V_{I(ON)}$	-	-	2	V
MMBTRA102SS		-	-	2.4	
MMBTRA103SS		-	-	3	
MMBTRA104SS		-	-	5	
MMBTRA105SS		-	-	1.1	
MMBTRA106SS		-	-	1.3	
Input Voltage (OFF) at $-V_o = 5\text{ V}$ , $-I_o = 0.1\text{ mA}$					
MMBTRA101SS~104SS	$-V_{I(OFF)}$	1	-	-	V
MMBTRA105SS~106SS		0.5	-	-	
Transition Frequency at $-V_o = 10\text{ V}$ , $-I_o = 5\text{ mA}$	f <sub>T</sub> <sup>1)</sup>	-	200	-	MHz

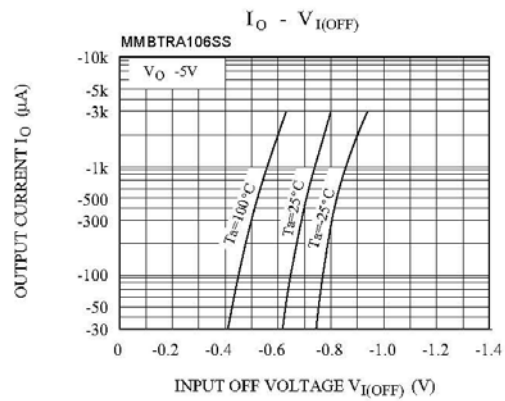
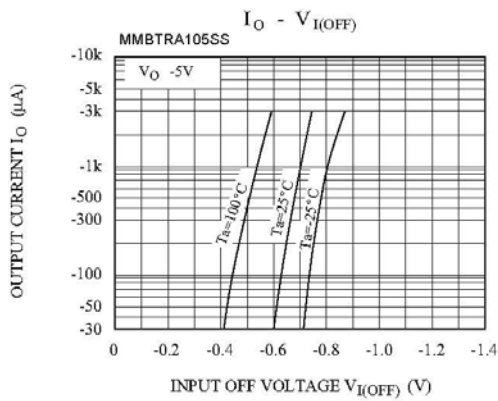
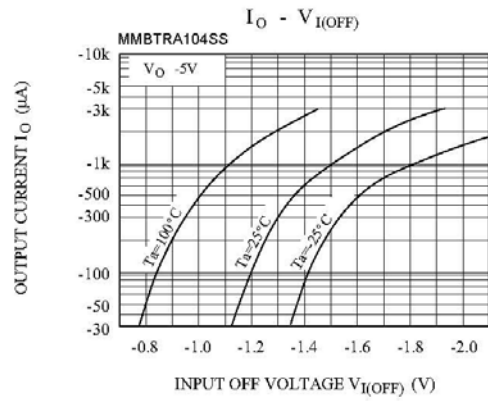
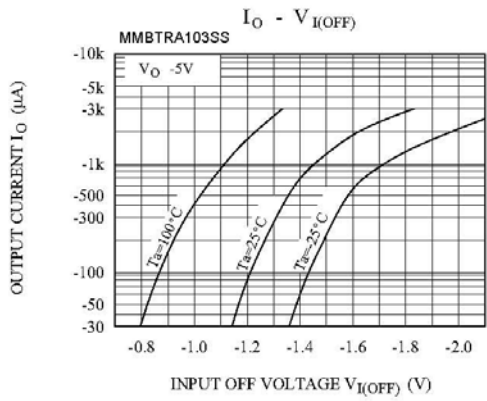
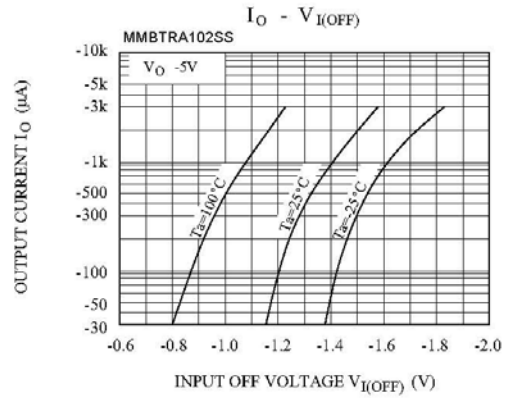
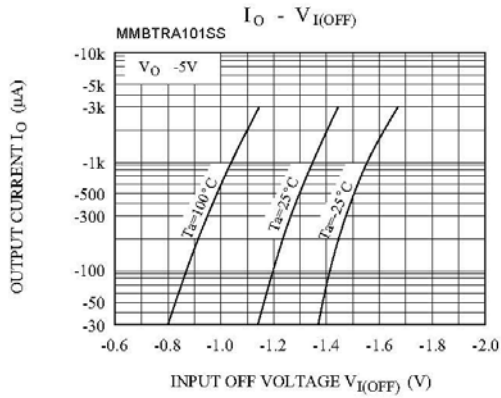
<sup>1)</sup> Characteristic of transistor only.

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