

MMBTRC101SS...MMBTRC106SS

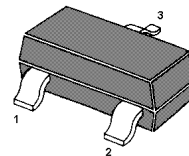
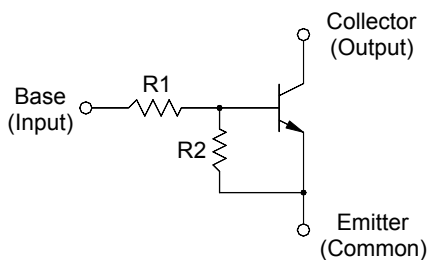
NPN Silicon Epitaxial Planar Transistor

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 (KΩ)	R2 (KΩ)
MMBTRC101SS	4.7	4.7
MMBTRC102SS	10	10
MMBTRC103SS	22	22
MMBTRC104SS	47	47
MMBTRC105SS	2.2	47
MMBTRC106SS	4.7	47

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

Parameter		Symbol	Value	Unit
Output Voltage		V_o	50	V
Input Voltage	MMBTRC101SS	V_i	20, -10	V
	MMBTRC102SS		30, -10	
	MMBTRC103SS		40, -10	
	MMBTRC104SS		40, -10	
	MMBTRC105SS		12, -5	
	MMBTRC106SS		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	$^\circ\text{C}$

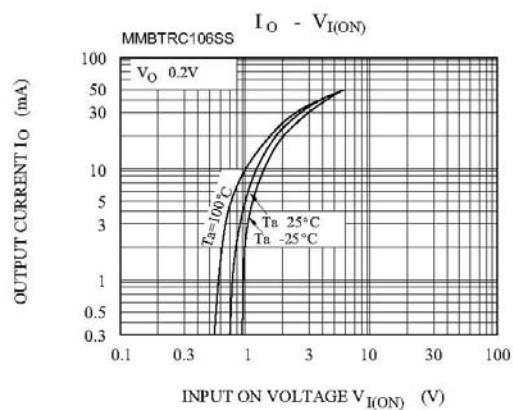
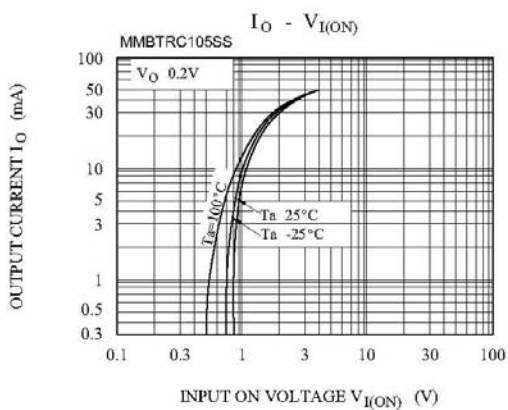
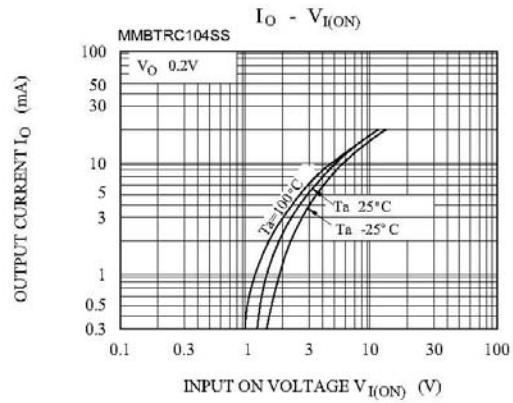
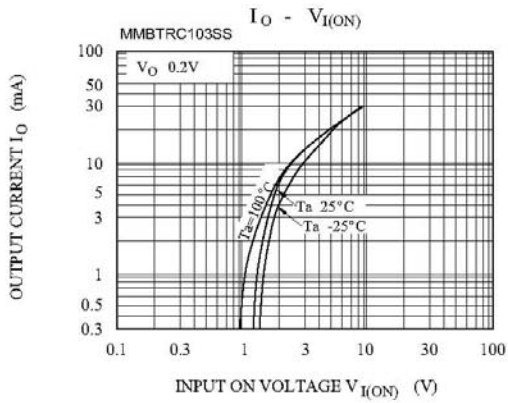
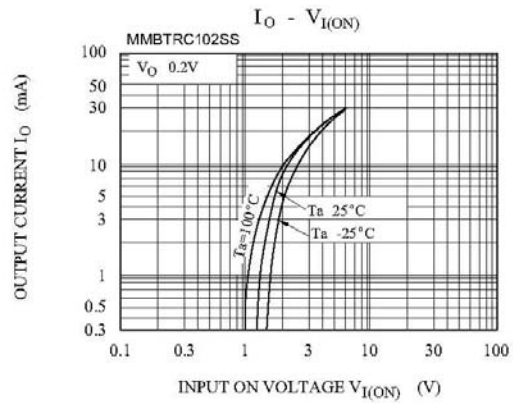
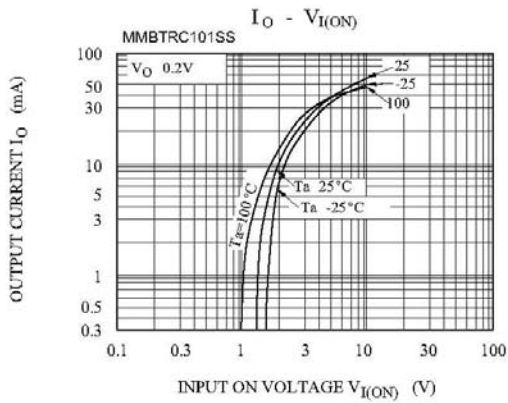
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Characteristics at $T_a = 25\text{ }^\circ\text{C}$

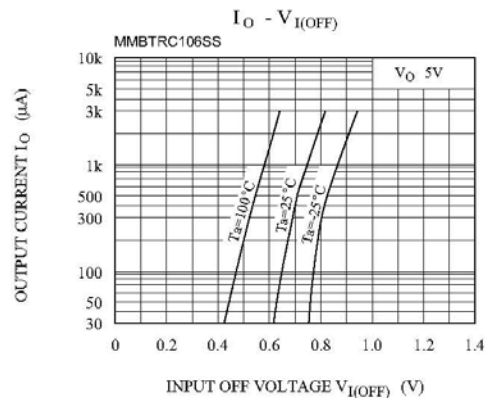
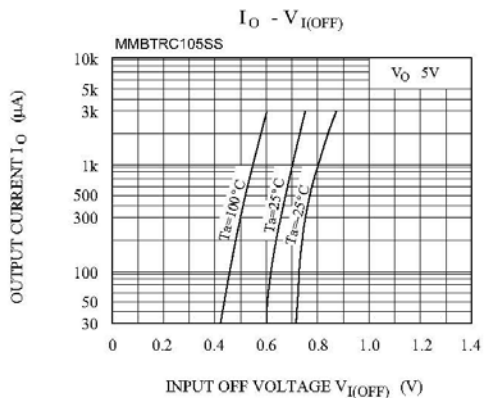
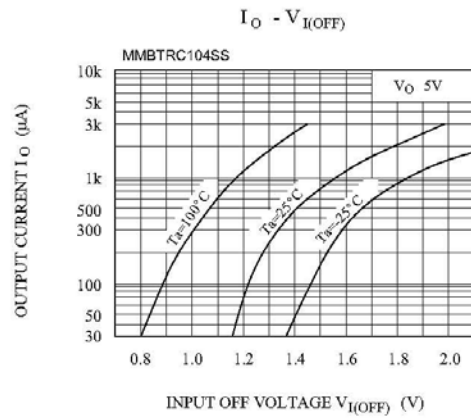
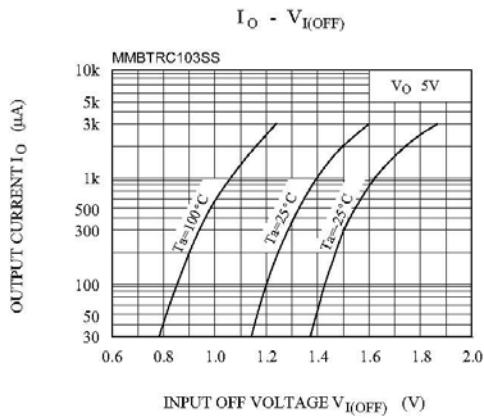
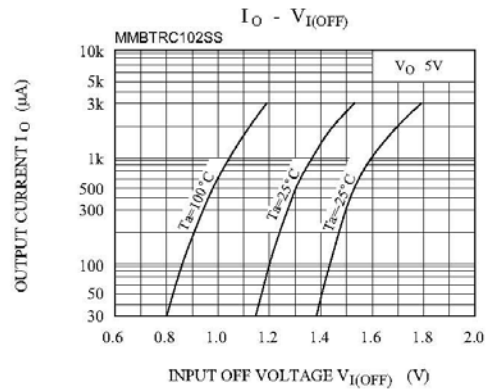
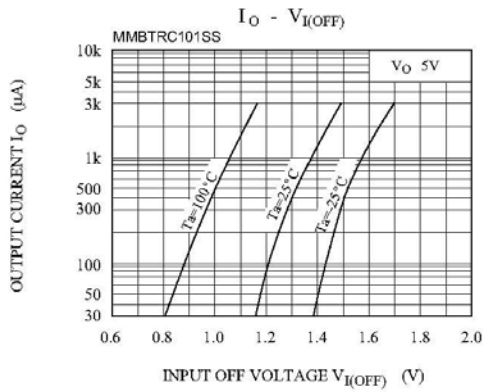
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_O = 5\text{ V}$, $I_O = 10\text{ mA}$	G _I	30	-	-	-
MMBTRC101SS		50	-	-	-
MMBTRC102SS		70	-	-	-
MMBTRC103SS		80	-	-	-
MMBTRC104SS		80	-	-	-
MMBTRC106SS		80	-	-	-
Output Cutoff Current at $V_O = 50\text{ V}$	I _{O(OFF)}	-	-	500	nA
Input Current at $V_I = 5\text{ V}$	I _I	-	-	1.8	mA
MMBTRC101SS		-	-	0.88	
MMBTRC102SS		-	-	0.36	
MMBTRC103SS		-	-	0.18	
MMBTRC104SS		-	-	3.6	
MMBTRC106SS		-	-	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 $V_O = 0.2\text{ V}$, $I_O = 5\text{ mA}$	V _{I(ON)}	-	-	2	V
MMBTRC101SS		-	-	2.4	
MMBTRC102SS		-	-	3	
MMBTRC103SS		-	-	5	
MMBTRC104SS		-	-	1.1	
MMBTRC106SS		-	-	1.3	
Input Voltage (OFF) at $V_O = 5\text{ V}$, $I_O = 0.1\text{ mA}$	V _{I(OFF)}	1	-	-	V
MMBTRC101SS~104SS MMBTRC105SS~106SS		0.5	-	-	
Transition Frequency at $V_O = 10\text{ V}$, $I_O = 5\text{ mA}$	f _T ¹⁾	-	200	-	MHz

¹⁾ Characteristic of transistor only.

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