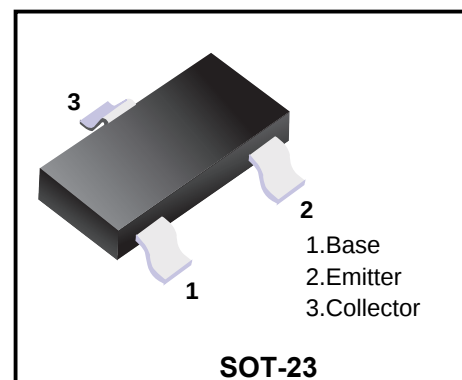
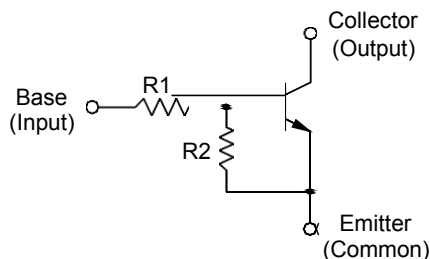


NPN Silicon Epitaxial Planar Transistor

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



Resistor Values

Type	Marking	R1 (KΩ)	R2 (KΩ)
MMBTRC101SS	NA	4.7	4.7
MMBTRC102SS	NB	10	10
MMBTRC103SS	NC	22	22
MMBTRC104SS	ND	47	47
MMBTRC105SS	NF	2.2	47
MMBTRC106SS	NE	4.7	47

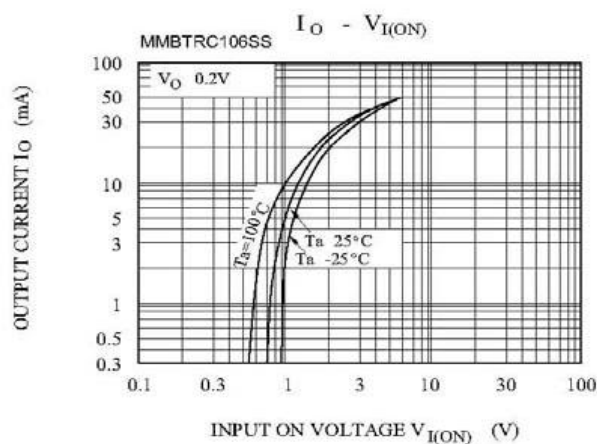
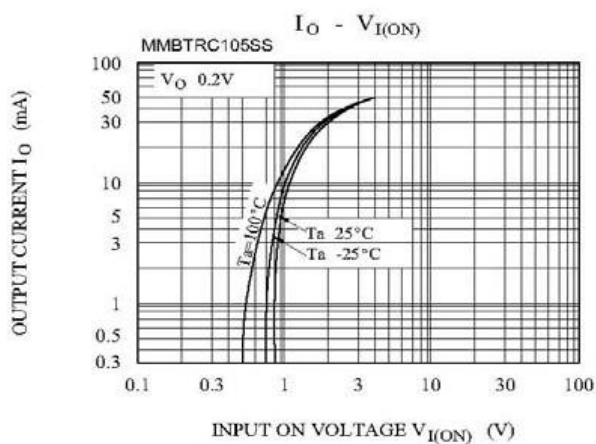
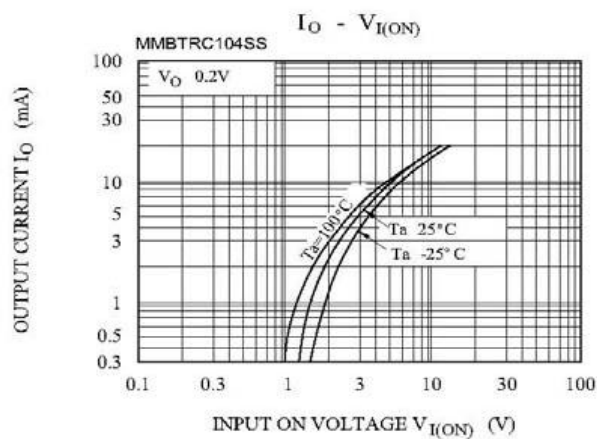
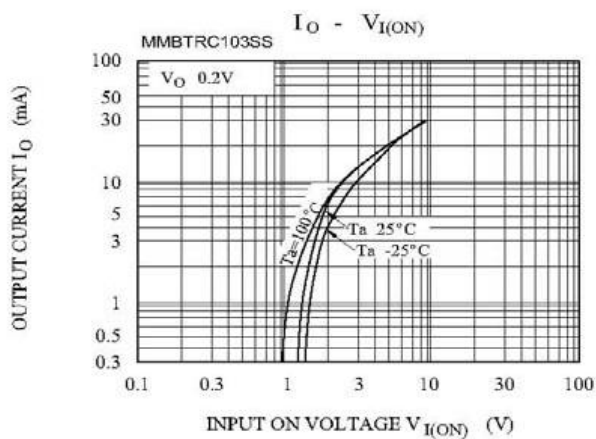
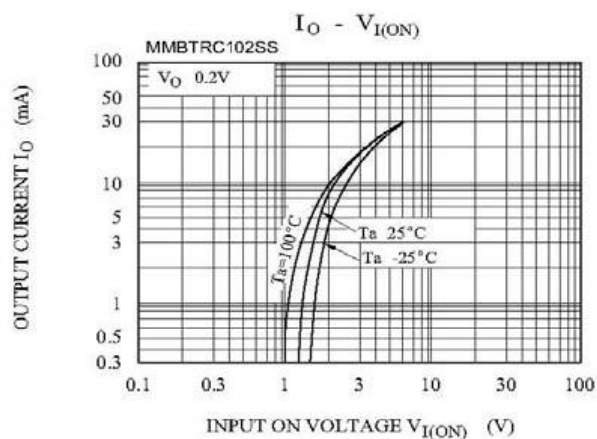
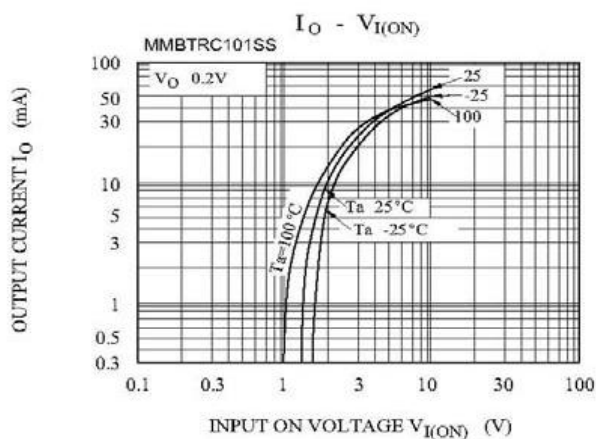
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

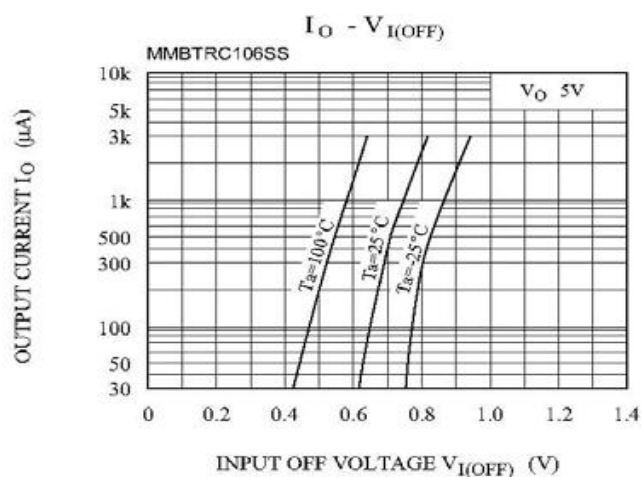
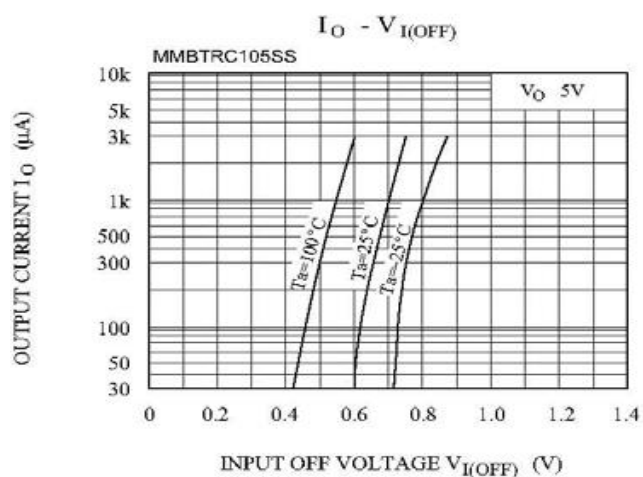
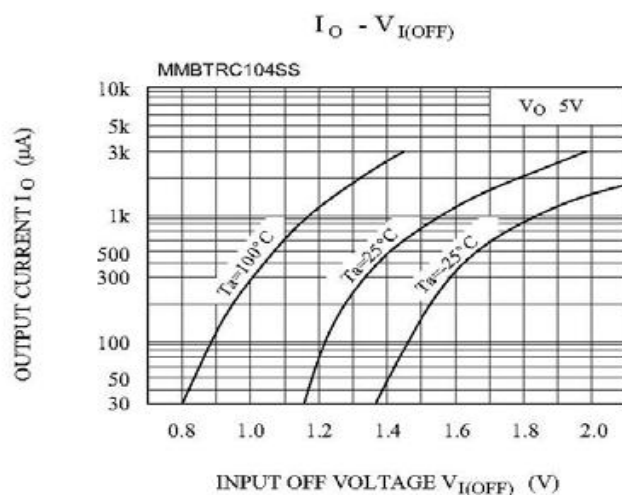
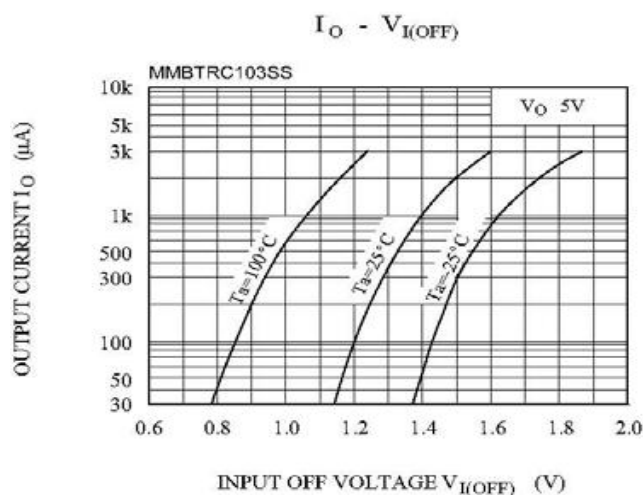
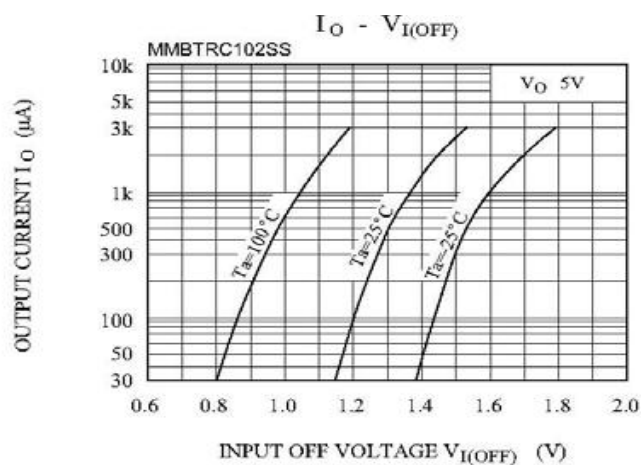
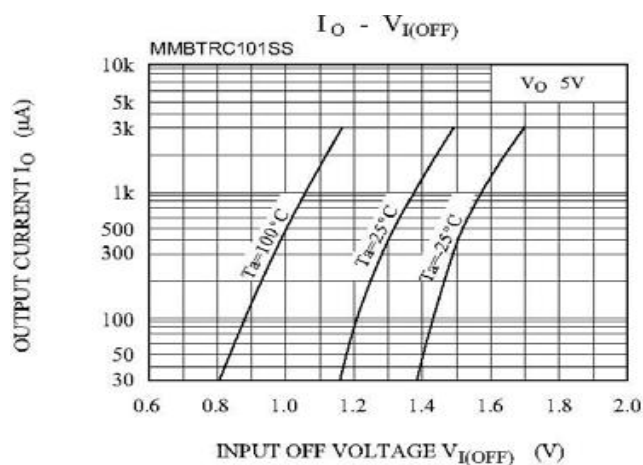
Parameter		Symbol	Value	Unit
Output Voltage		V_o	50	V
Input Voltage	MMBTRC101SS	V_i	20, -10	V
	MMBTRC102SS		30, -10	
	MMBTRC103SS		40, -10	
	MMBTRC104SS		40, -10	
	MMBTRC105SS		12, -5	
	MMBTRC106SS		20, -5	
Output Current		I_o	100	mA
Total Power Dissipation		P_{tot}	200	mW
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	- 55 to + 150	$^\circ\text{C}$

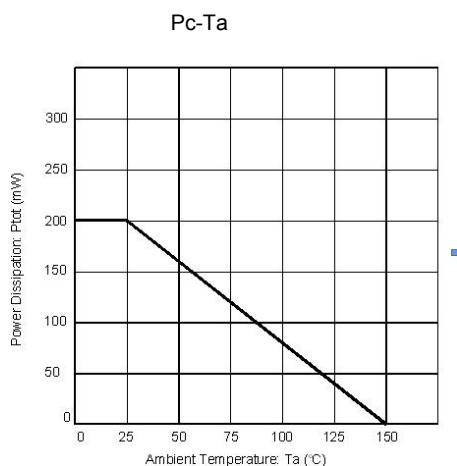
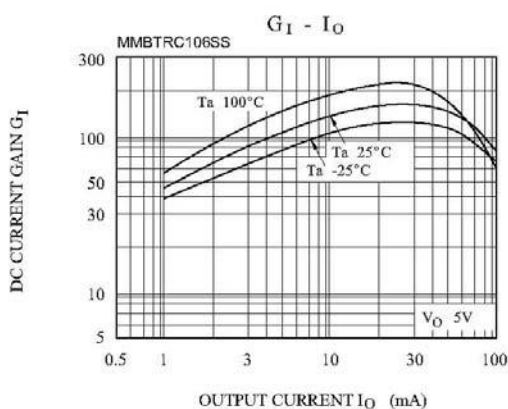
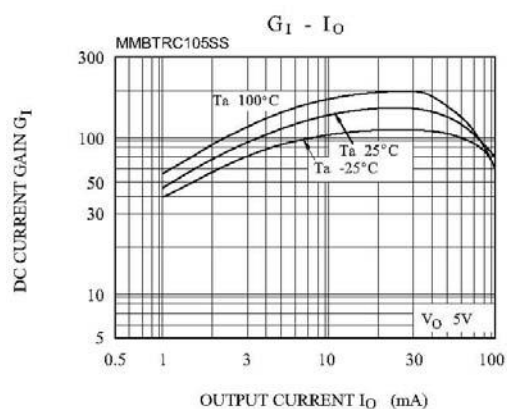
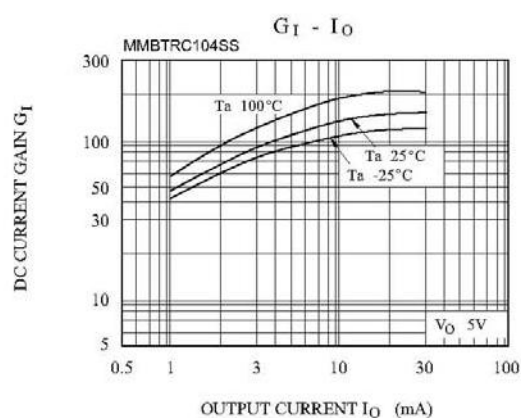
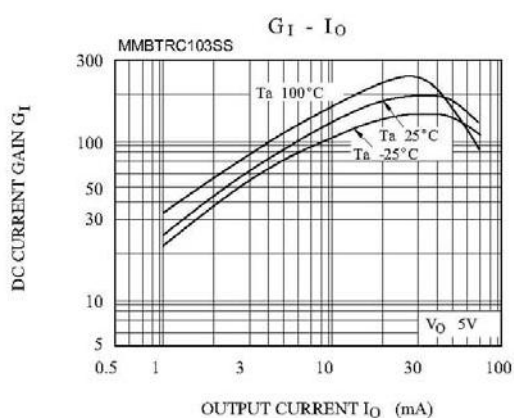
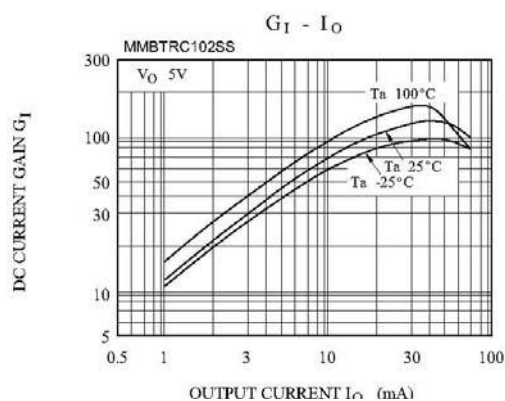
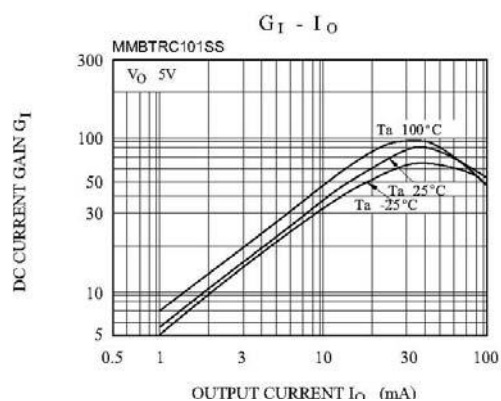
Characteristics at $T_a = 25\text{ }^{\circ}\text{C}$

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	-	-	-
MMBTRC105SS		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	
MMBTRC105SS		-	-	1.8	
MMBTRC106SS		-	-	-	
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	
MMBTRC105SS		-	-	1.3	
MMBTRC106SS		-	-	-	
Input Voltage (OFF) at $V_O = 5\text{ V}$, $I_O = 0.1\text{ mA}$	$V_{I(OFF)}$	1	-	-	V
MMBTRC101SS~104SS		0.5	-	-	
MMBTRC105SS~106SS					
Transition Frequency at $V_O = 10\text{ V}$, $I_O = 5\text{ mA}$	$f_T^{1)}$	-	200	-	MHz

1) Characteristic of transistor only.







Ordering information

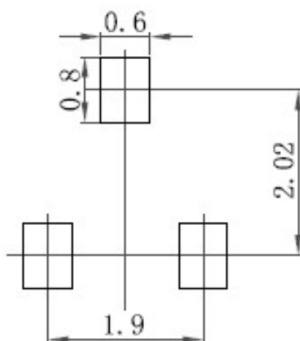
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-23

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



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