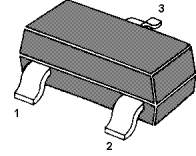
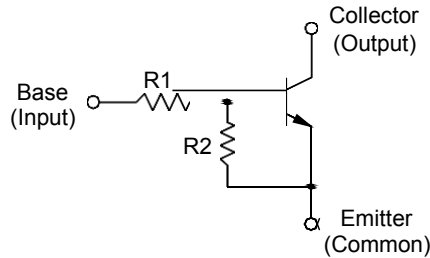


NPN Silicon Epitaxial Planar Transistor

for switching and interface circuit and drive circuit applications



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

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

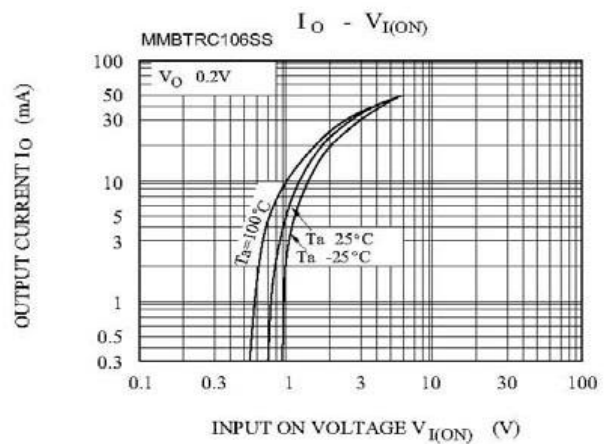
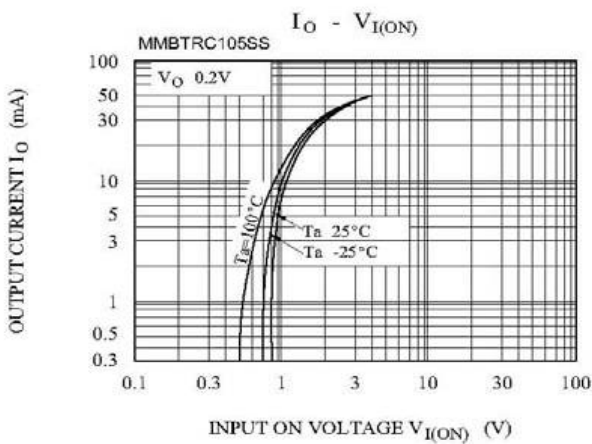
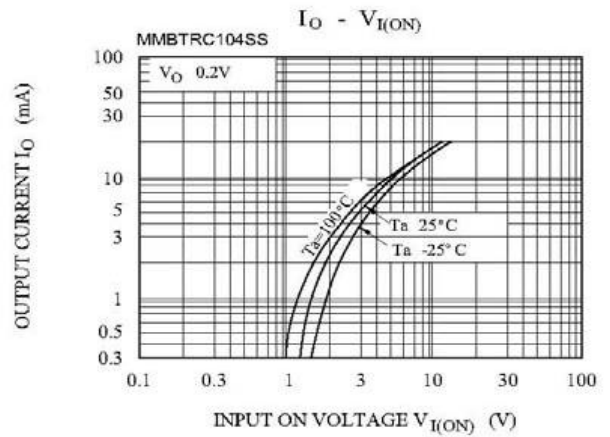
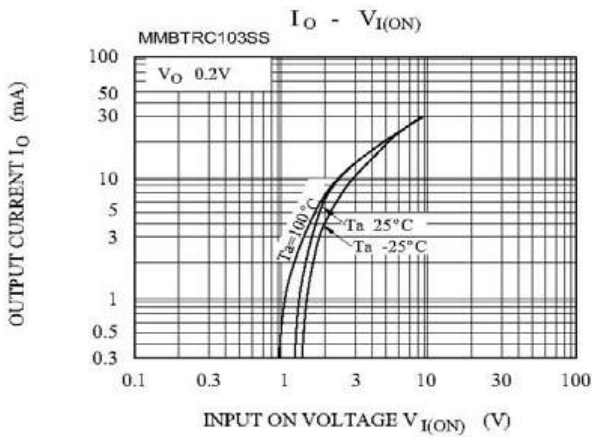
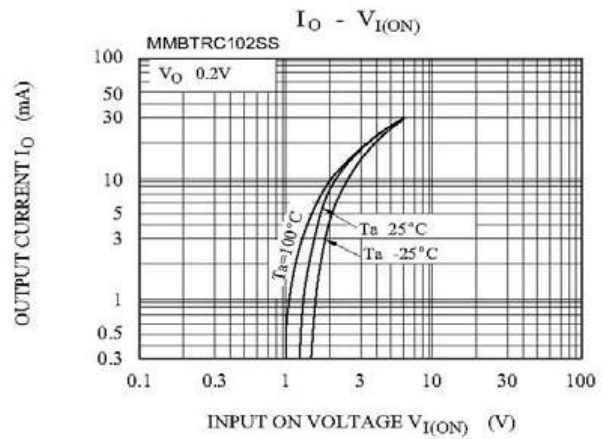
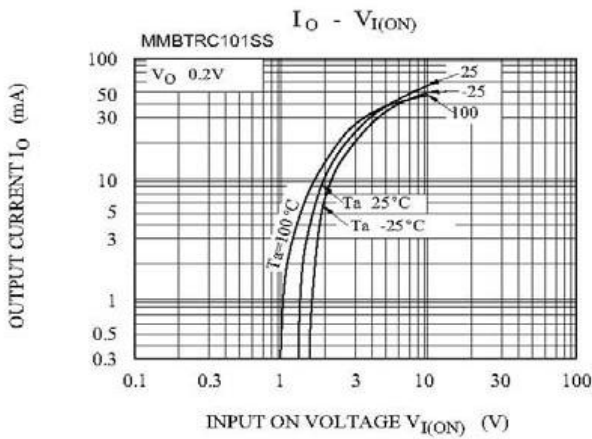
Absolute Maximum Ratings (T_a = 25 °C)

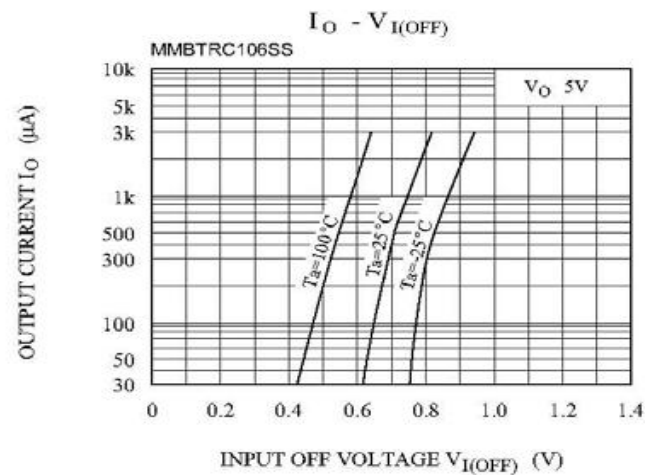
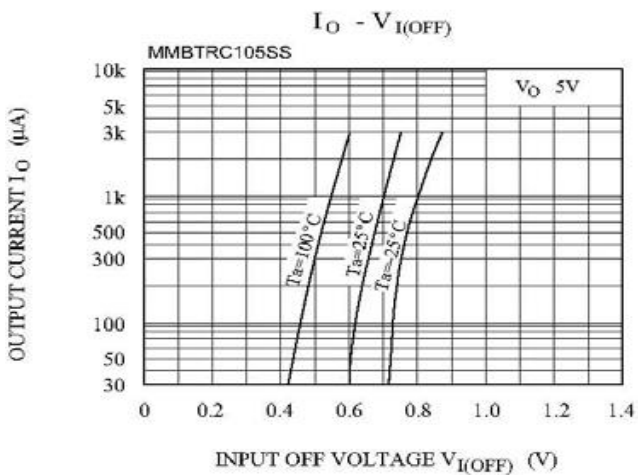
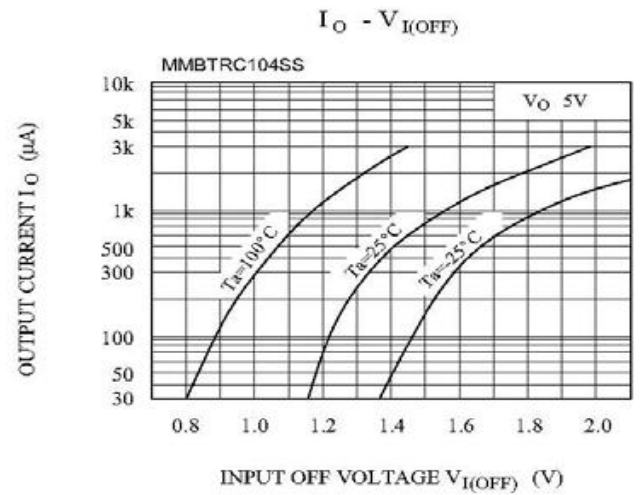
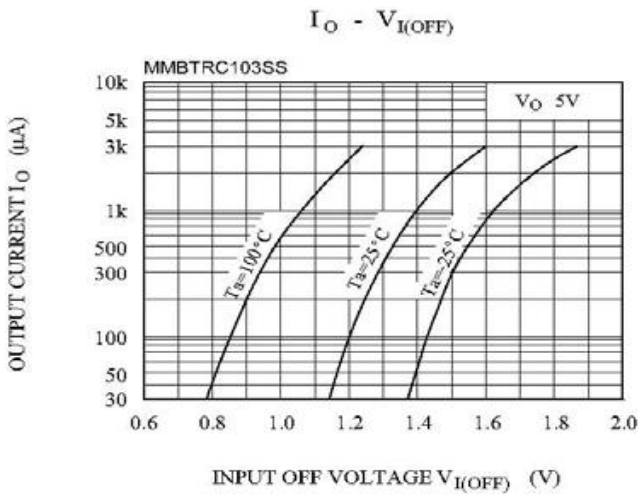
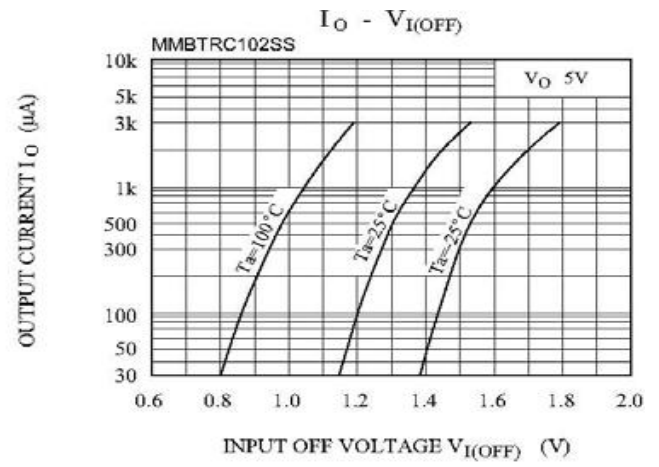
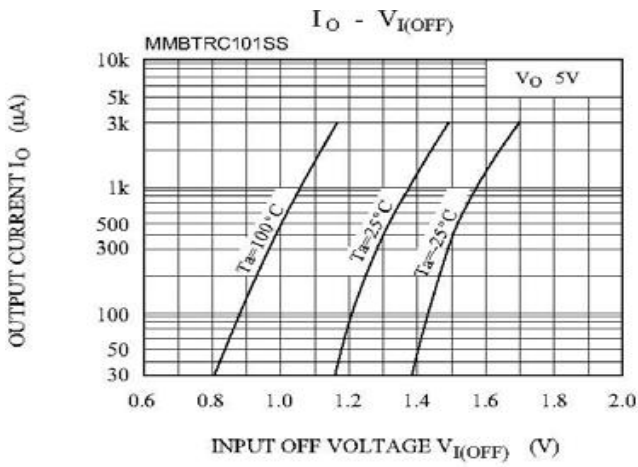
Parameter		Symbol	Value	Unit
Output Voltage		V _O	50	V
Input Voltage	MMBTRC101SS	V _I	20, -10	V
	MMBTRC102SS		30, -10	
	MMBTRC103SS		40, -10	
	MMBTRC104SS		40, -10	
	MMBTRC105SS		12, -5	
	MMBTRC106SS		20, -5	
Output Current		I _O	100	mA
Total Power Dissipation		P _{tot}	200	mW
Junction Temperature		T _j	150	°C
Storage Temperature Range		T _{stg}	- 55 to + 150	°C

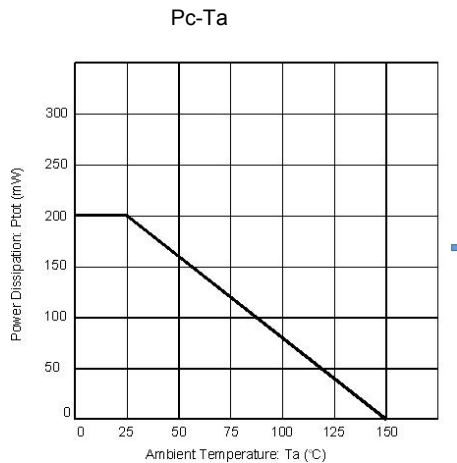
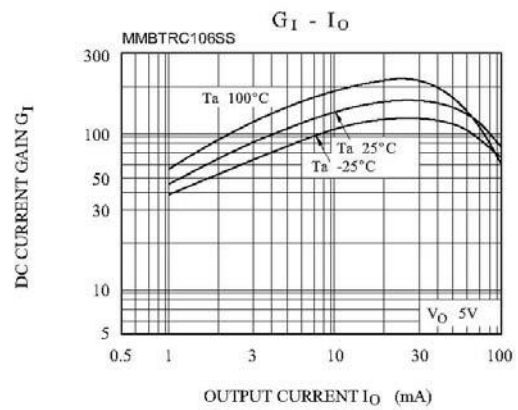
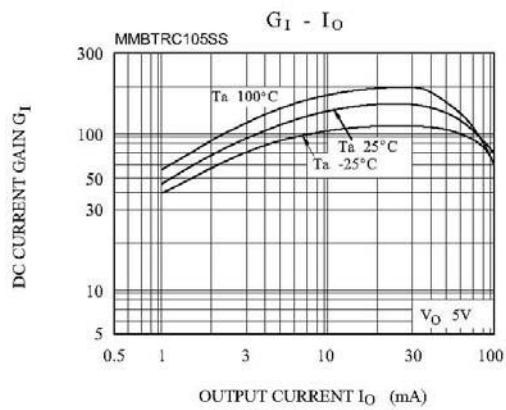
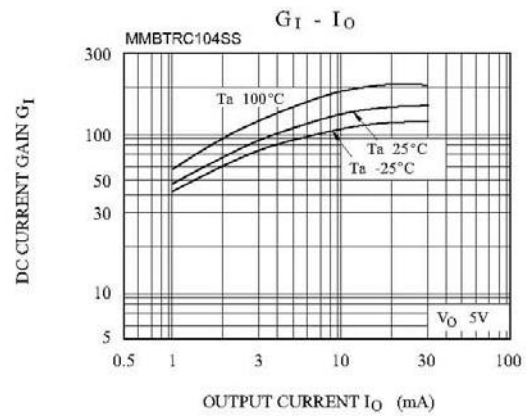
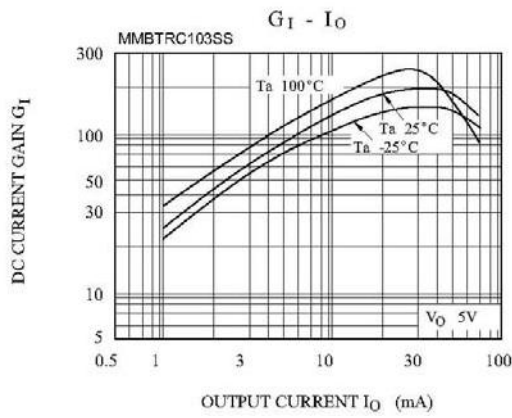
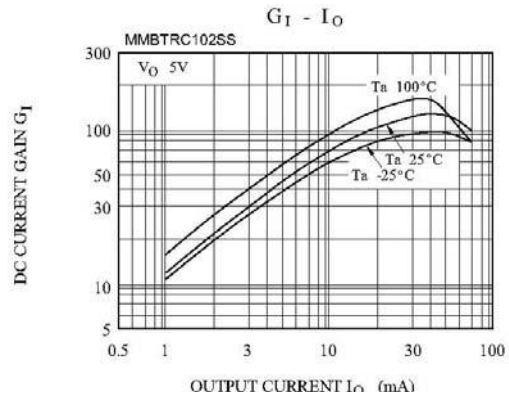
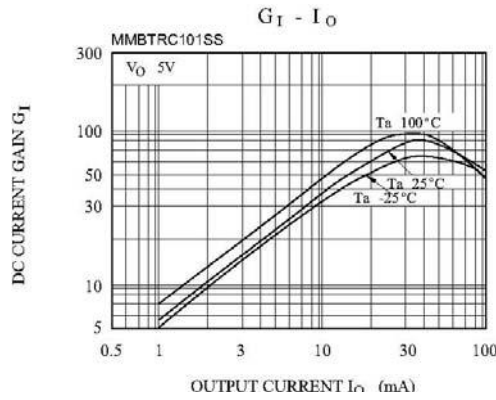
Characteristics at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_o = 5\text{ V}$, $I_o = 10\text{ mA}$	G_i				
MMBTRC101SS		30	-	-	-
MMBTRC102SS		50	-	-	-
MMBTRC103SS		70	-	-	-
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				
MMBTRC101SS		-	-	1.8	mA
MMBTRC102SS		-	-	0.88	
MMBTRC103SS		-	-	0.36	
MMBTRC104SS		-	-	0.18	
MMBTRC105SS		-	-	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 $V_o = 0.2\text{ V}$, $I_o = 5\text{ mA}$	$V_{I(ON)}$				
MMBTRC101SS		-	-	2	V
MMBTRC102SS		-	-	2.4	
MMBTRC103SS		-	-	3	
MMBTRC104SS		-	-	5	
MMBTRC105SS		-	-	1.1	
MMBTRC106SS		-	-	1.3	
Input Voltage (OFF) at $V_o = 5\text{ V}$, $I_o = 0.1\text{ mA}$	$V_{I(OFF)}$				
MMBTRC101SS~104SS		1	-	-	V
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.

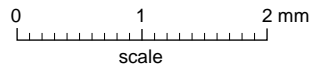
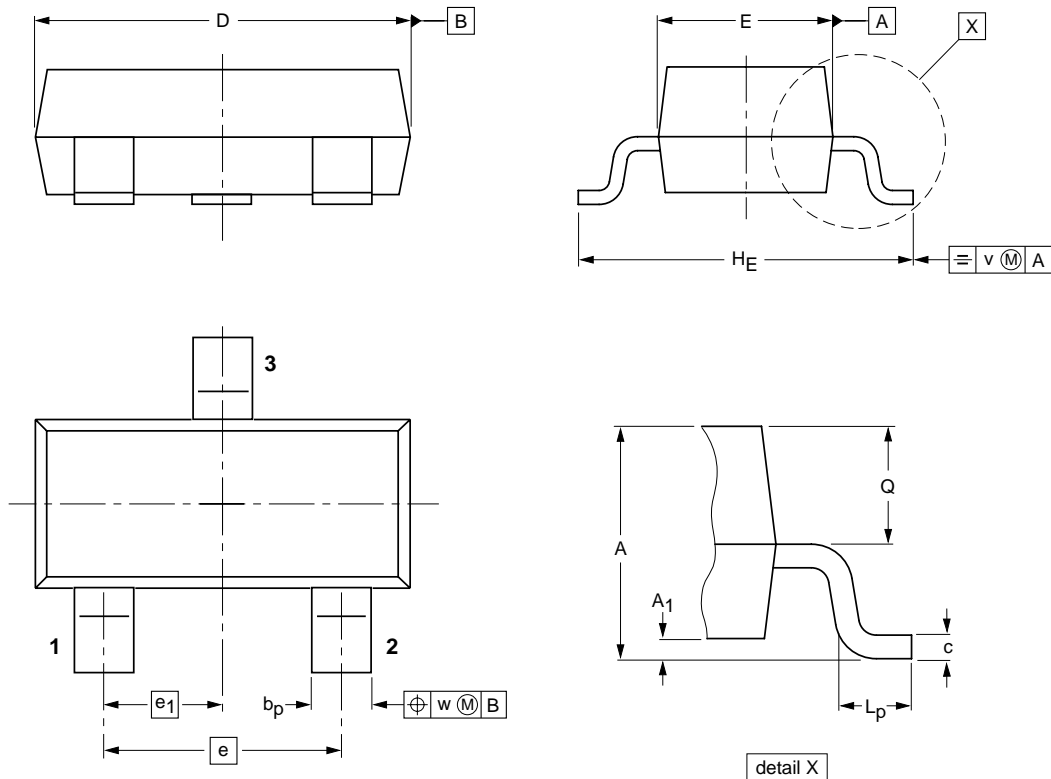






Package Outline

SOT-23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max.	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SOT-23	Tape/Reel, 7" reel	3000	EIA-481-1