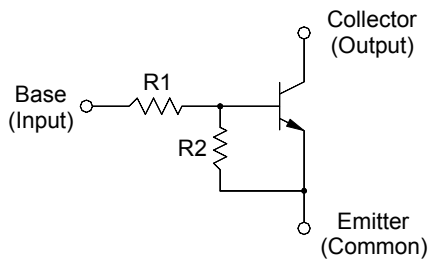




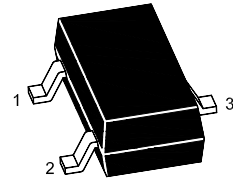
MMBTRC101SS~MMBTRC106SS NPN Digital Transistor

Features

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



**SOT-23
(TO-236)**



1.Base 2.Emitter 3.Collector

Resistor Values/Marking Code

Type	R1 (KΩ)	R2 (KΩ)	Marking
MMBTRC101SS	4.7	4.7	1BR
MMBTRC102SS	10	10	2BR
MMBTRC103SS	22	22	3BR
MMBTRC104SS	47	47	4BR
MMBTRC105SS	2.2	47	5BR
MMBTRC106SS	4.7	47	6BR

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



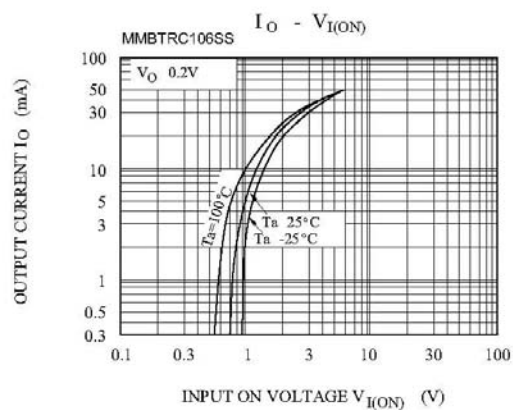
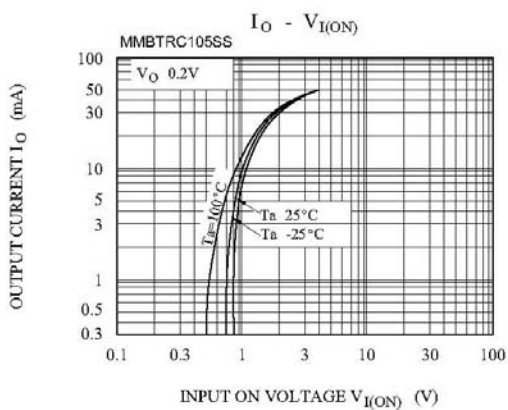
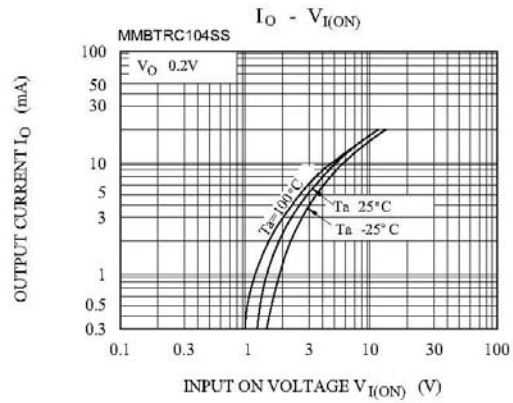
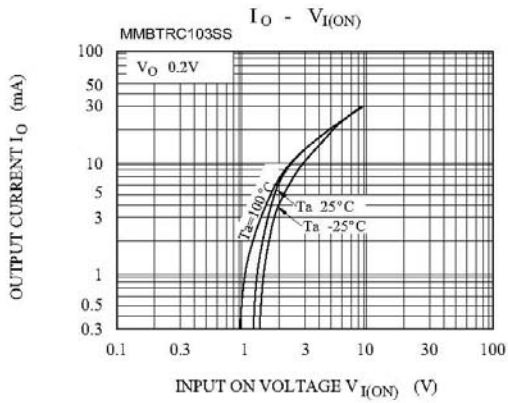
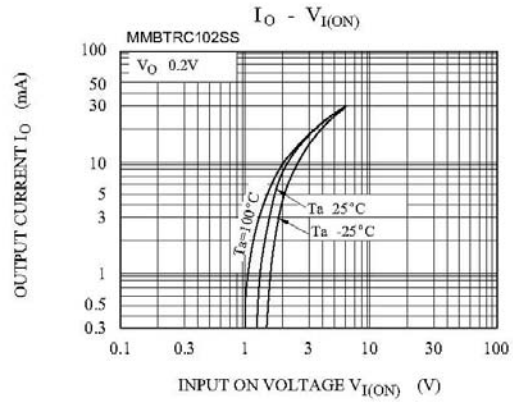
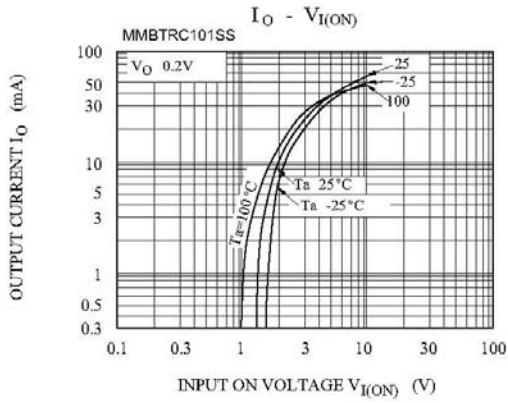
MMBTRC101SS~MMBTRC106SS NPN Digital Transistor

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 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 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	
MMBTRC105SS 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



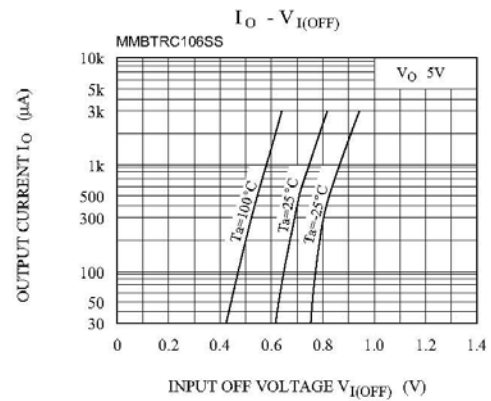
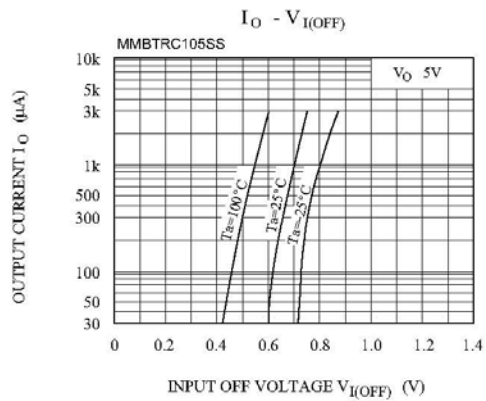
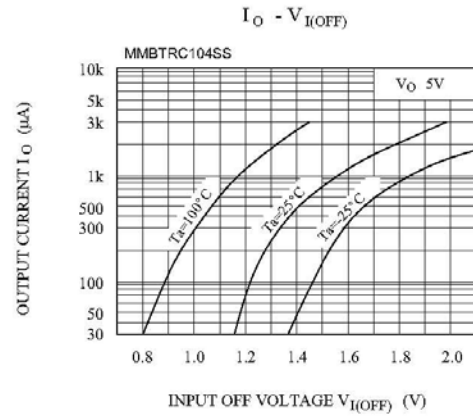
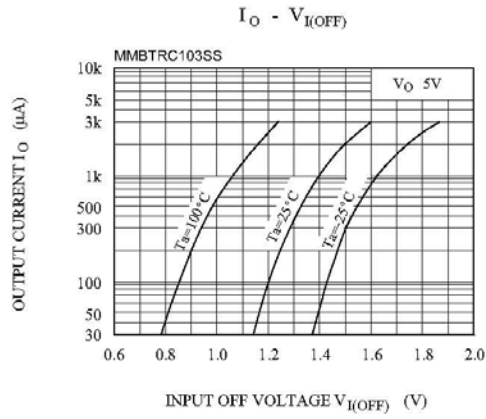
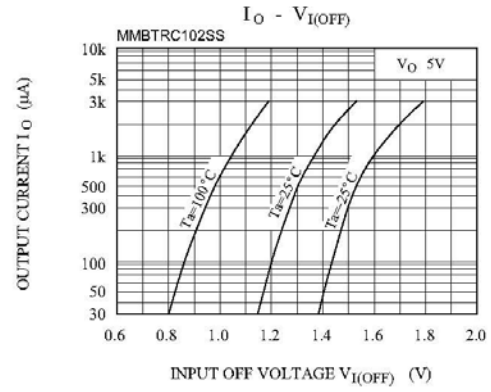
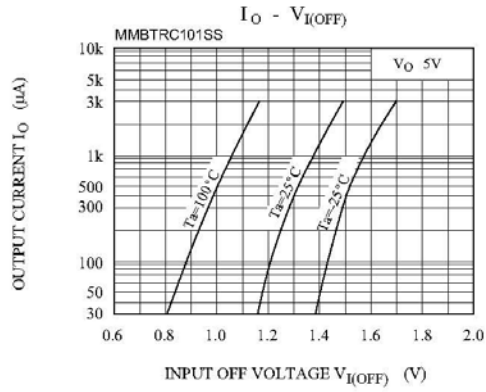
MMBTRC101SS~MMBTRC106SS NPN Digital Transistor





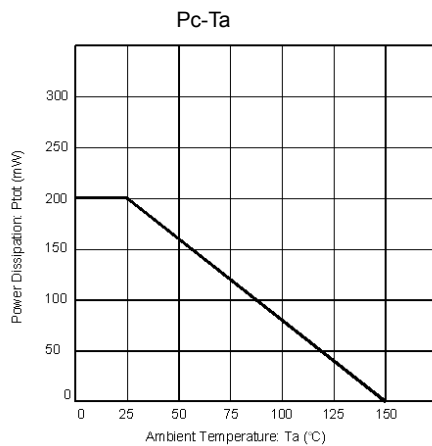
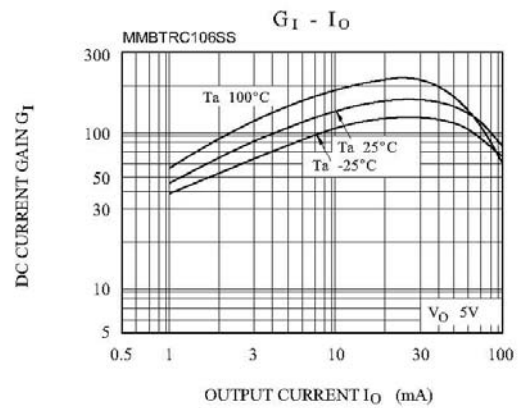
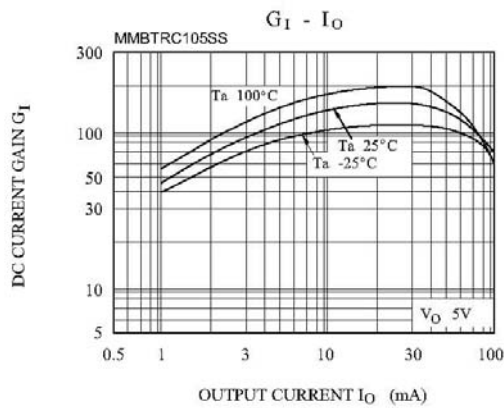
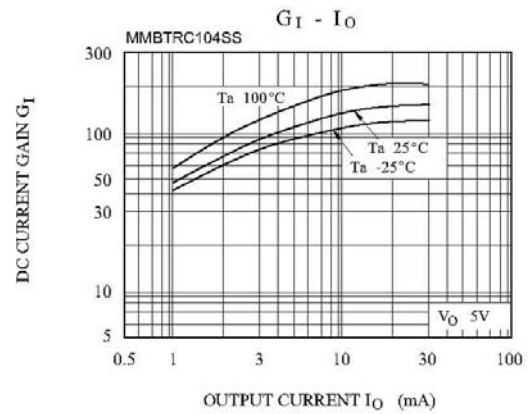
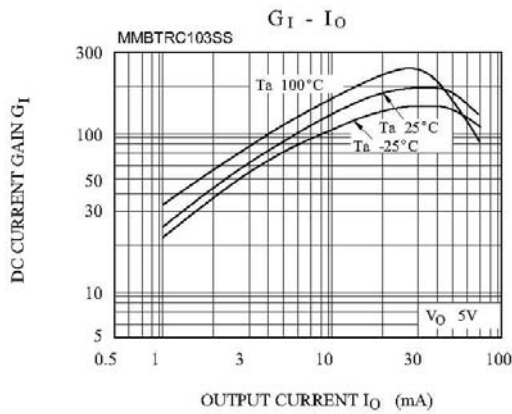
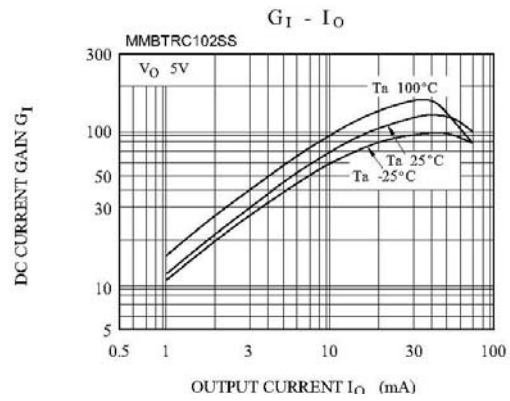
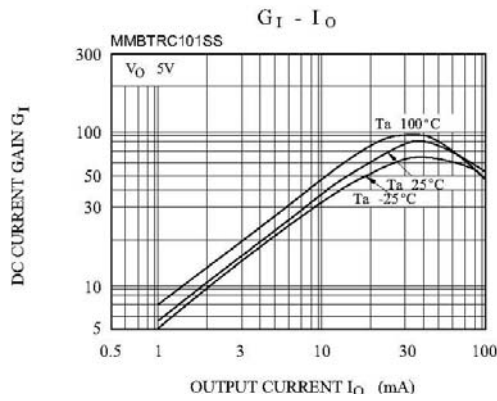
MMBTRC101SS~MMBTRC106SS

NPN Digital Transistor





MMBTRC101SS~MMBTRC106SS NPN Digital Transistor



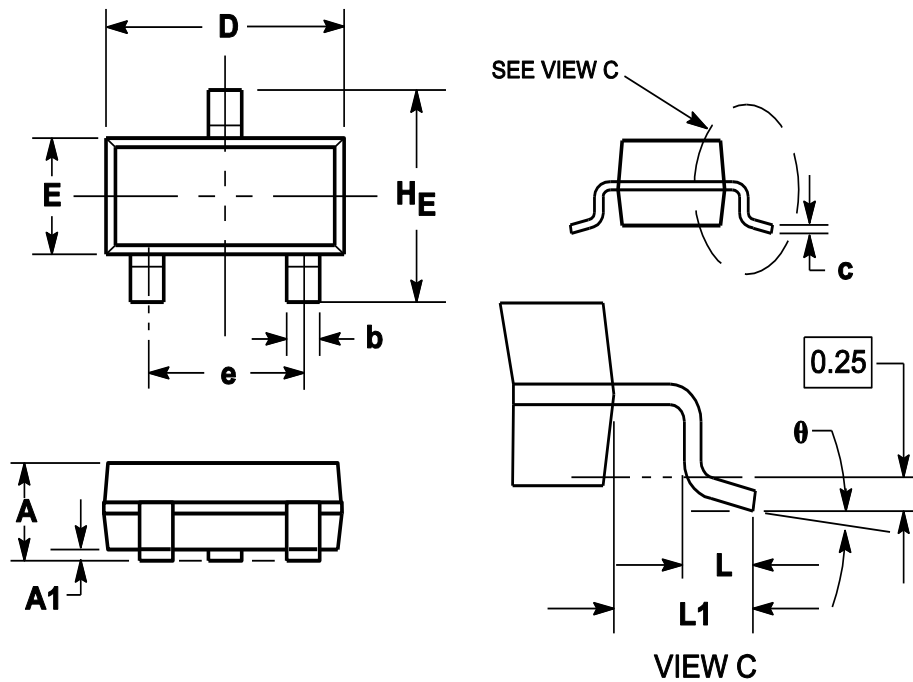


MMBTRC101SS~MMBTRC106SS NPN Digital Transistor

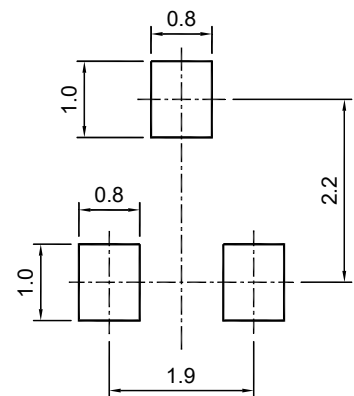
Package Outline

SOT-23 (TO-236)

Dimensions in mm



Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.900	1.025	1.150
A1	0.000	0.050	0.100
b	0.300	0.400	0.500
c	0.080	0.115	0.150
D	2.800	2.900	3.000
E	1.200	1.300	1.400
HE	2.250	2.400	2.550
e	1.800	1.900	2.000
L1	0.550REF		
L	0.300		0.500
θ	0°		8°



SOT-23 (TO-236)

Recommended soldering pad