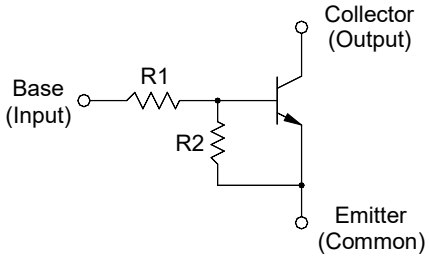
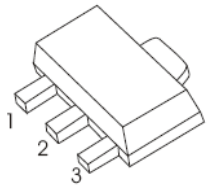
NPN Silicon Epitaxial Planar Transistor

for switching and interface circuit and drive circuit applications



SOT-89-3L



1. BASE
2. COLLECTOR
3. EMITTER

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)
MMBTRC101SSU	NA	4.7	4.7
MMBTRC102SSU	NB	10	10
MMBTRC103SSU	NC	22	22
MMBTRC104SSU	ND	47	47
MMBTRC105SSU	NF	2.2	47
MMBTRC106SSU	NE	4.7	47

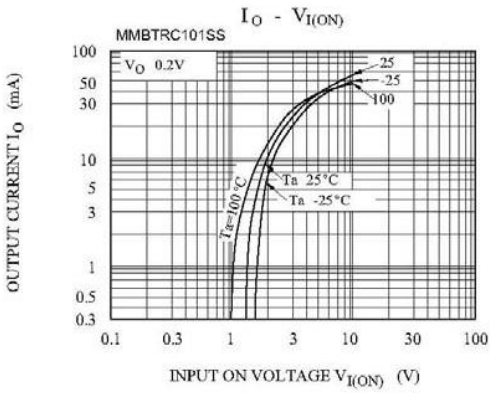
Absolute Maximum Ratings (T_a = 25 °C)

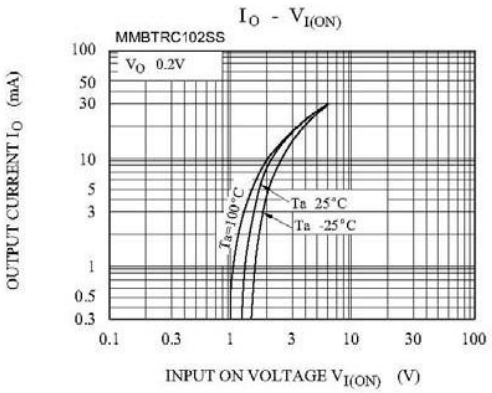
Parameter		Symbol	Value	Unit
Output Voltage		V_O	50	V
Input Voltage	MMBTRC101SSU	V_I	20, -10	V
	MMBTRC102SSU		30, -10	
	MMBTRC103SSU		40, -10	
	MMBTRC104SSU		40, -10	
	MMBTRC105SSU		12, -5	
	MMBTRC106SSU		20, -5	
Output Current		I_O	100	mA
Total Power Dissipation		P_{tot}	200	mW
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	- 55 to + 150	°C

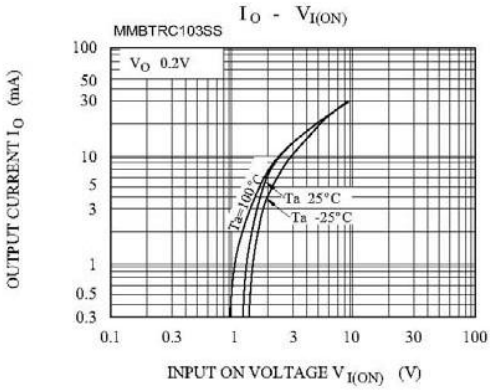
Characteristics at T_a = 25 °C

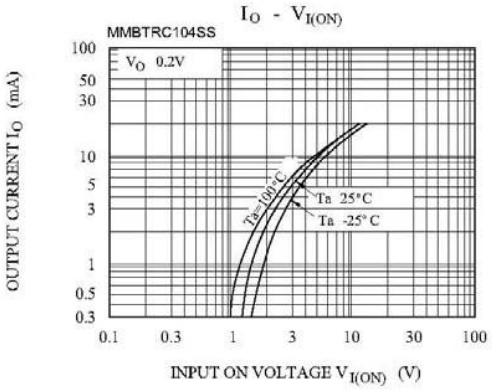
Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_O = 5 V, I_O = 10 mA	MMBTRC101SSU	G_I	30	-	-	-
	MMBTRC102SSU		50	-	-	-
	MMBTRC103SSU		70	-	-	-
	MMBTRC104SSU		80	-	-	-
	MMBTRC105SSU		80	-	-	-
	MMBTRC106SSU		80	-	-	-
Output Cutoff Current at V_O = 50 V		$I_{O(OFF)}$	-	-	500	nA
Input Current at V_I = 5 V	MMBTRC101SSU	I_I	-	-	1.8	mA
	MMBTRC102SSU		-	-	0.88	
	MMBTRC103SSU		-	-	0.36	
	MMBTRC104SSU		-	-	0.18	
	MMBTRC105SSU		-	-	3.6	
	MMBTRC106SSU		-	-	1.8	
Output Voltage at I_O = 10 mA, I_I = 0.5 mA		$V_{O(ON)}$	-	-	0.3	V
Input Voltage (ON) at V_O = 0.2 V, I_O = 5 mA	MMBTRC101SSU	$V_{I(ON)}$	-	-	2	V
	MMBTRC102SSU		-	-	2.4	
	MMBTRC103SSU		-	-	3	
	MMBTRC104SSU		-	-	5	
	MMBTRC105SSU		-	-	1.1	
	MMBTRC106SSU		-	-	1.3	
Input Voltage (OFF) at V_O = 5 V, I_O = 0.1 mA	MMBTRC101SSU~104SSU	$V_{I(OFF)}$	1	-	-	V
	MMBTRC105SSU~106SSU		0.5	-	-	
Transition Frequency at V_O = 10 V, I_O = 5 mA		f_T [1)]	-	200	-	MHz

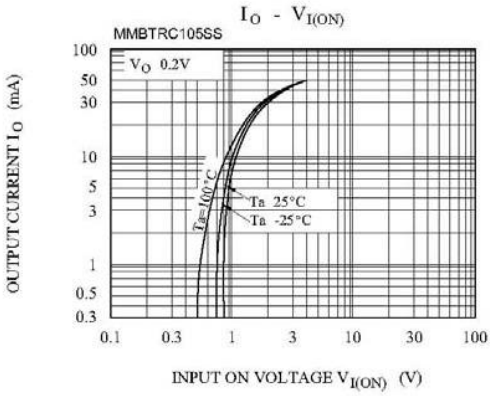
1) Characteristic of transistor only.

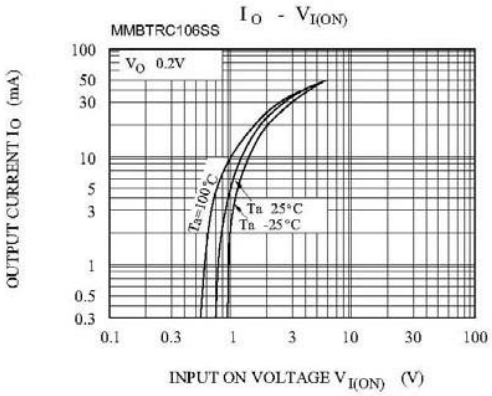






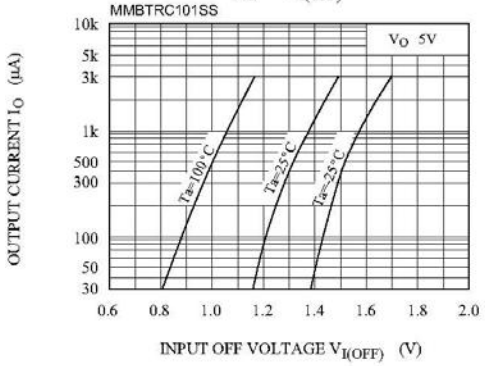






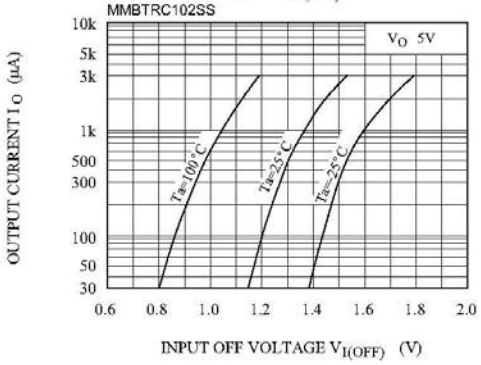
I_O - $V_{I(OFF)}$

MMBTRC101SS



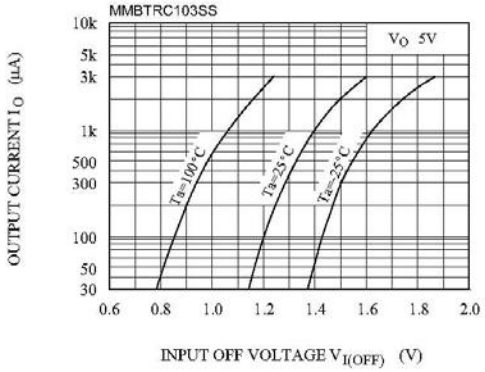
I_O - $V_{I(OFF)}$

MMBTRC102SS



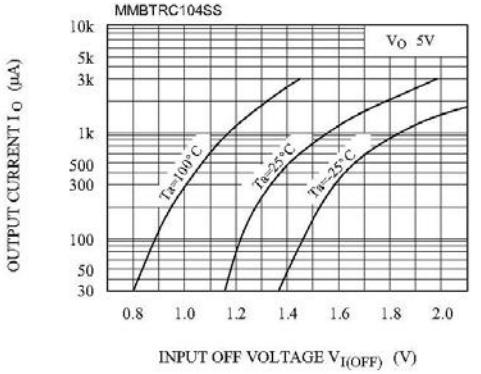
I_O - $V_{I(OFF)}$

MMBTRC103SS



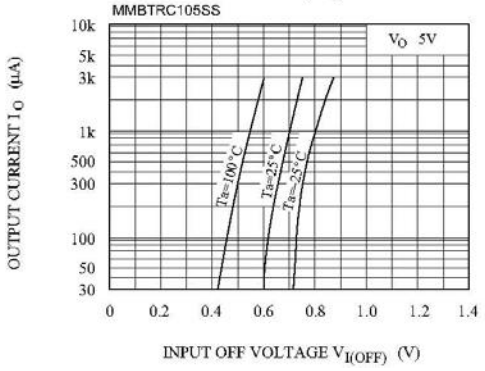
I_O - $V_{I(OFF)}$

MMBTRC104SS



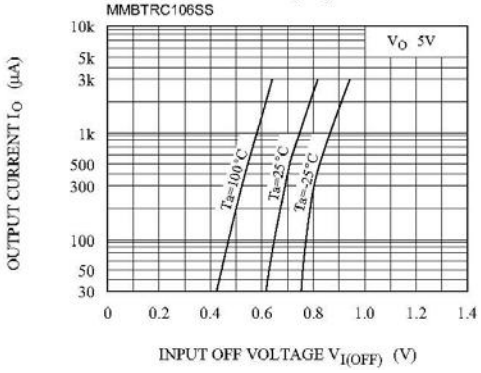
I_O - $V_{I(OFF)}$

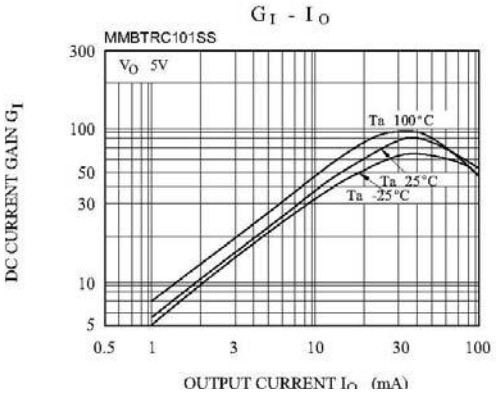
MMBTRC105SS

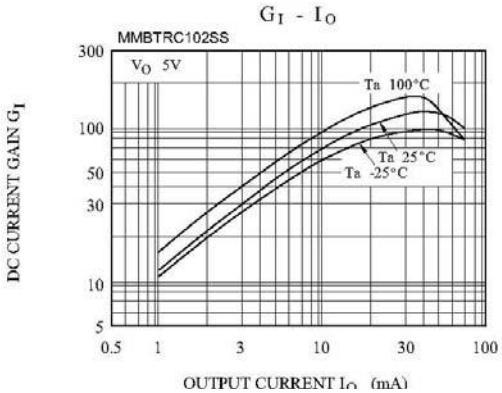


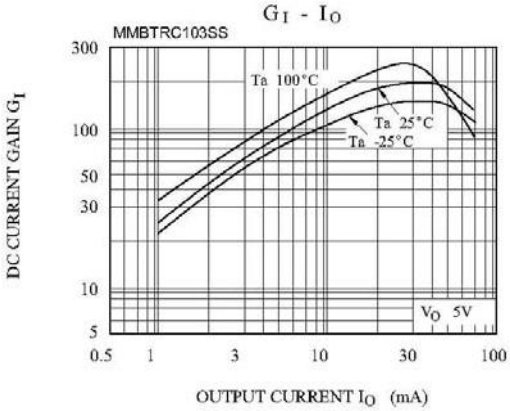
I_O - $V_{I(OFF)}$

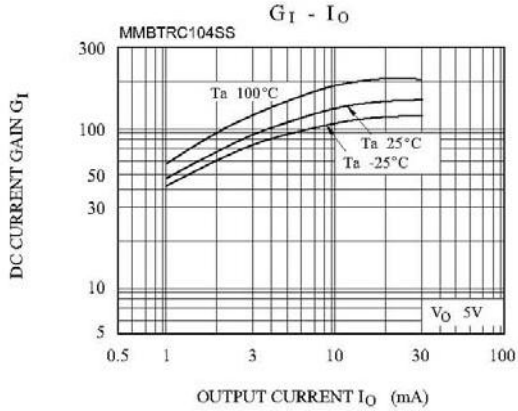
MMBTRC106SS

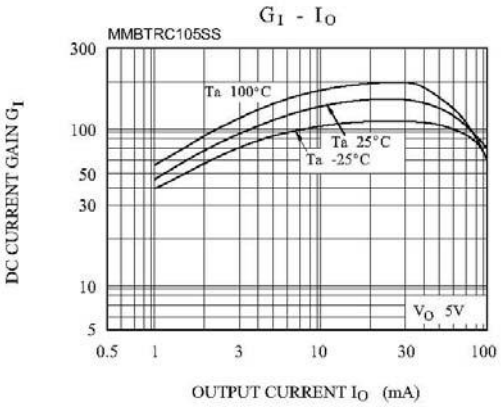


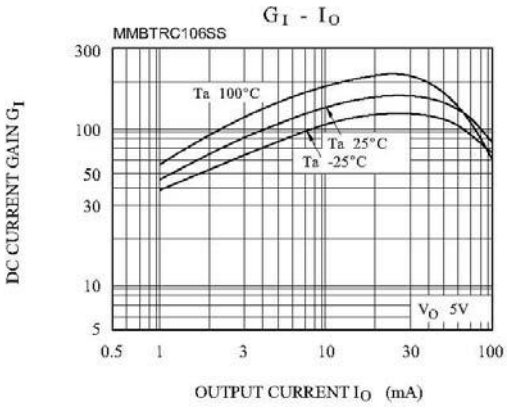












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