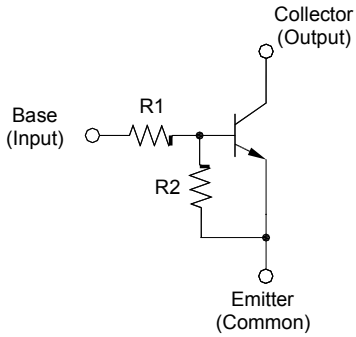
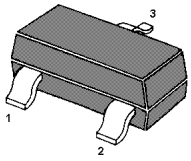
NPN Silicon Epitaxial Planar Transistor

for high current switching, interface circuit
and driver circuit application.





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

Feature

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

Resistor Values

Type	R1 (KΩ)	R2 (KΩ)
MMBTRC241SS	1	1
MMBTRC242SS	2.2	2.2
MMBTRC243SS	4.7	4.7
MMBTRC244SS	10	10
MMBTRC245SS	1	10
MMBTRC246SS	2.2	10

Absolute Maximum Ratings (T_a = 25 °C)

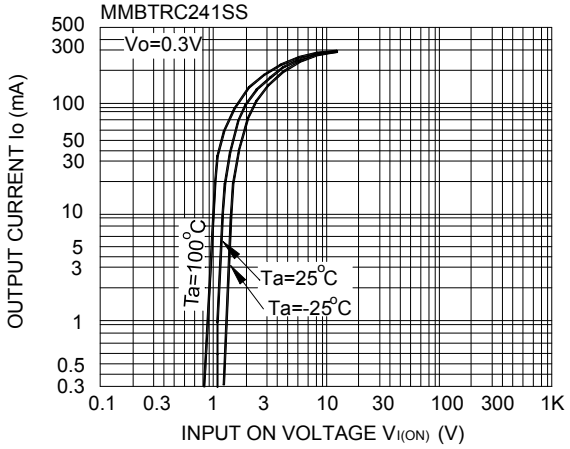
Parameter		Symbol	Value	Unit
Output Voltage		V_O	50	V
Input Voltage	MMBTRC241SS	V_I	10, -10	V
	MMBTRC242SS		12, -10	
	MMBTRC243SS		20, -10	
	MMBTRC244SS		30, -10	
	MMBTRC245SS		10, -5	
	MMBTRC246SS		12, -6	
Output Current		I_O	300	mA
Total Power Dissipation		P_{tot}	200	mW
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	- 55 to + 150	°C

Characteristics at T_a = 25 °C

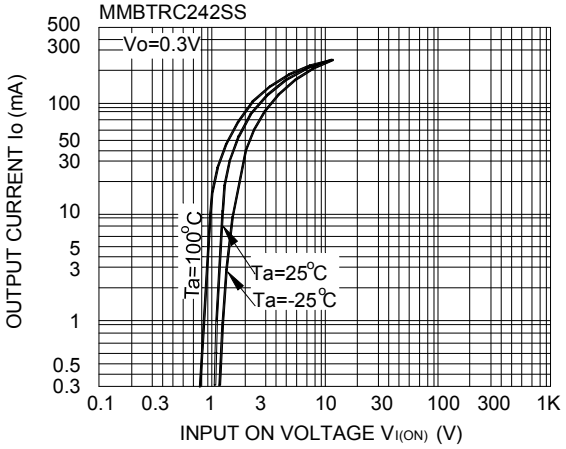
Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_O = 5 V, I_O = 50 mA	MMBTRC241SS	G_I	33	-	-	-
	MMBTRC242SS		39	-	-	-
	MMBTRC243SS		47	-	-	-
	MMBTRC244SS		56	-	-	-
	MMBTRC245SS		56	-	-	-
	MMBTRC246SS		56	-	-	-
Output Cutoff Current at V_O = 30 V		$I_{O(OFF)}$	-	-	10	μA
Input Current at V_I = 5 V	MMBTRC241SS	I_I	-	-	7.2	mA
	MMBTRC242SS		-	-	3.8	
	MMBTRC243SS		-	-	1.8	
	MMBTRC244SS		-	-	0.88	
	MMBTRC245SS		-	-	7.2	
	MMBTRC246SS		-	-	3.6	
Output Voltage at I_O = 10 mA, I_I = 0.5 mA		$V_{O(ON)}$	-	-	0.3	V
Input Voltage (ON) at V_O = 0.3 V, I_O = 20 mA	MMBTRC241SS	$V_{I(ON)}$	-	-	3	V
	MMBTRC242SS		-	-	3	
	MMBTRC243SS		-	-	3	
	MMBTRC244SS		-	-	3	
	MMBTRC245SS		-	-	3	
	MMBTRC246SS		-	-	2	
Input Voltage (OFF) at V_O = 5 V, I_O = 0.1 mA	MMBTRC241SS~244SS	$-V_{I(OFF)}$	0.5	-	-	V
	MMBTRC245SS~246SS		0.3	-	-	
Transition Frequency at V_O = 10 V, I_O = 5 mA, f = 100 MHz		f_T [1)]	-	200	-	MHz

1) Characteristic of transistor only.

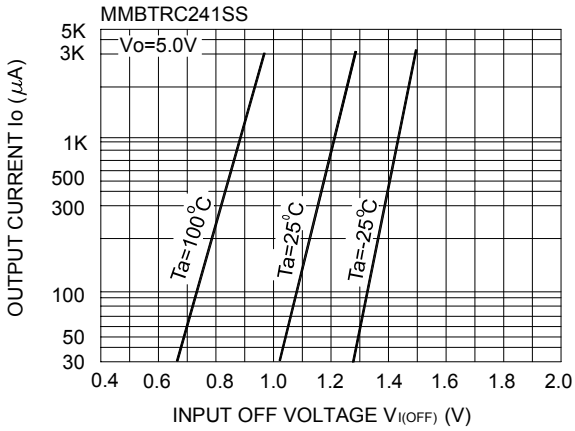
Io - $V_{I(ON)}$



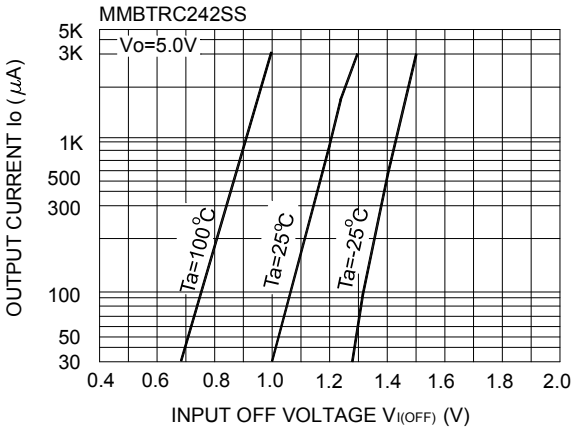
Io - $V_{I(ON)}$



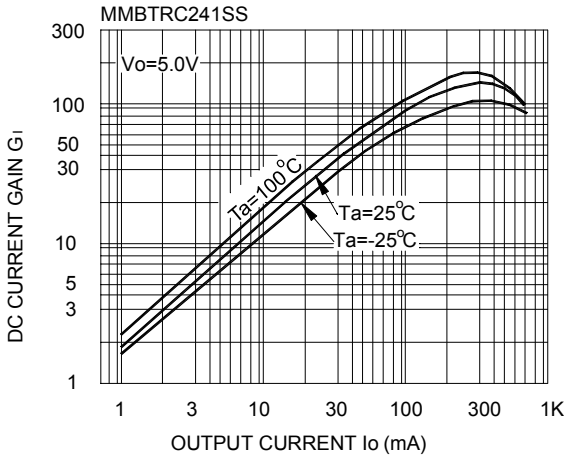
Io - $V_{I(OFF)}$



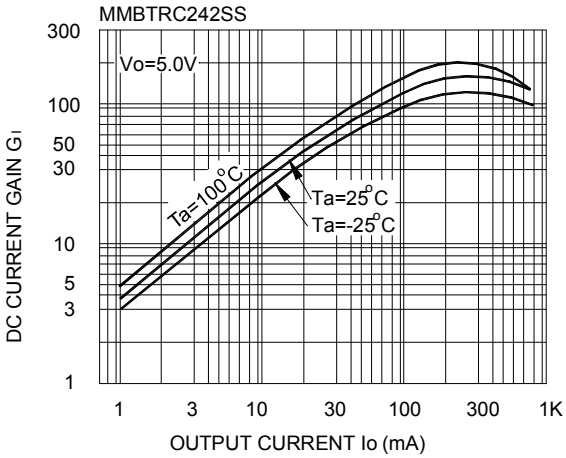
Io - $V_{I(OFF)}$



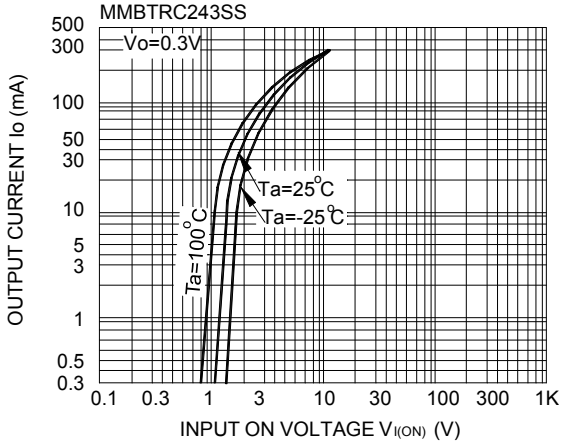
G_I - Io



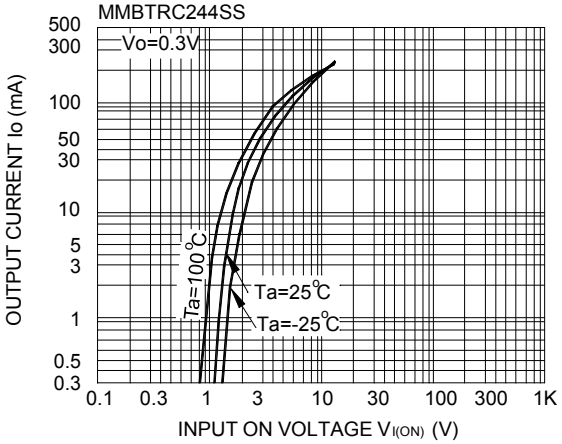
G_I - Io



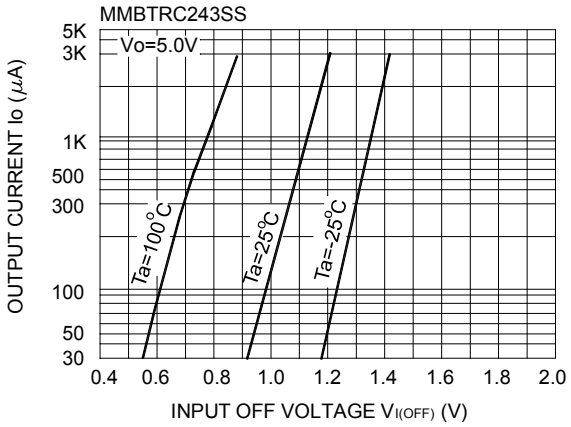
Io - $V_{I(ON)}$



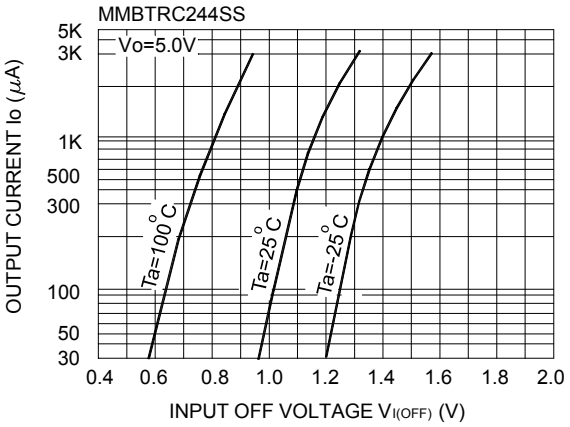
Io - $V_{I(ON)}$



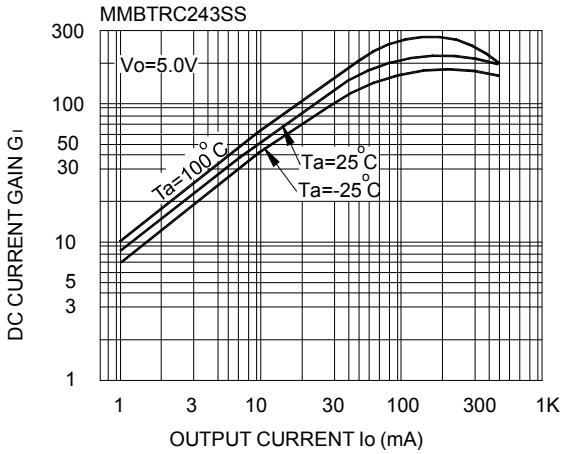
Io - $V_{I(OFF)}$



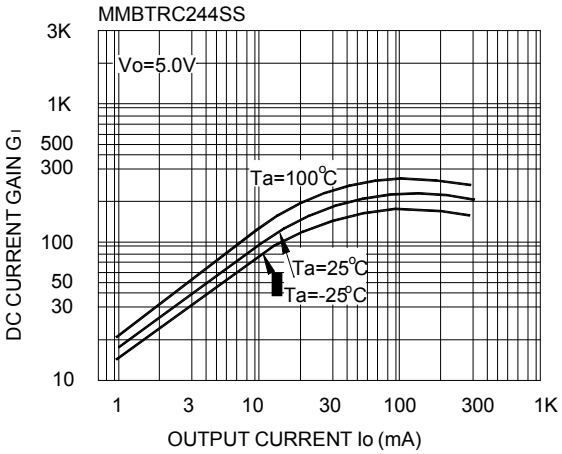
Io - $V_{I(OFF)}$



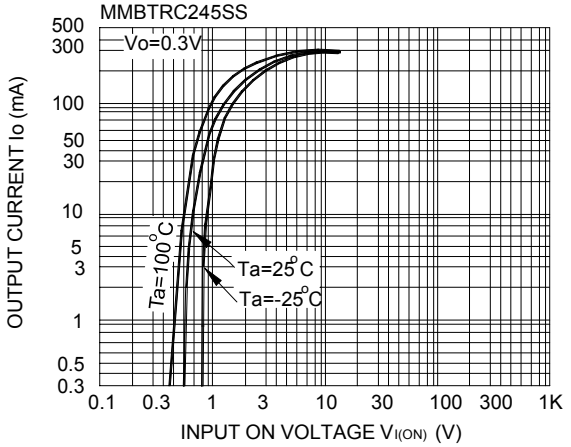
G_I - Io



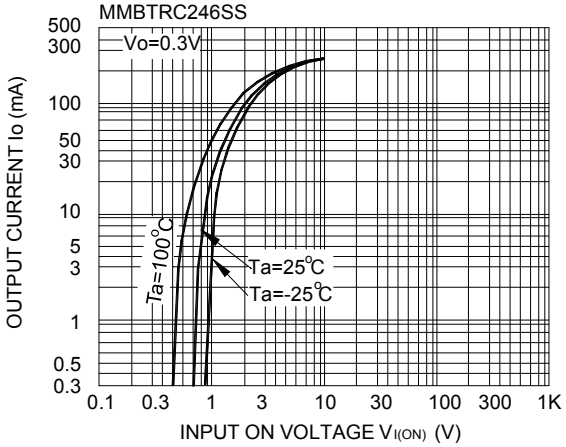
G_I - Io



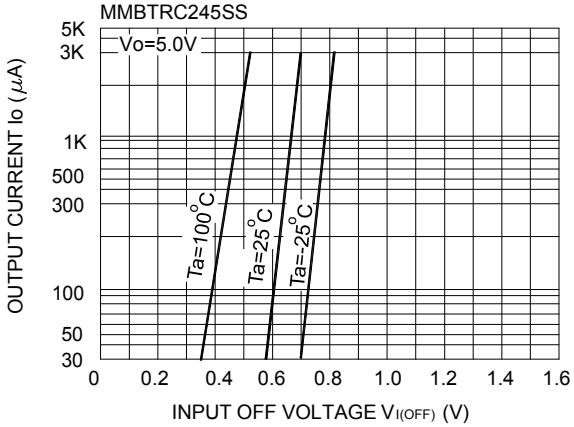
Io - $V_{I(ON)}$



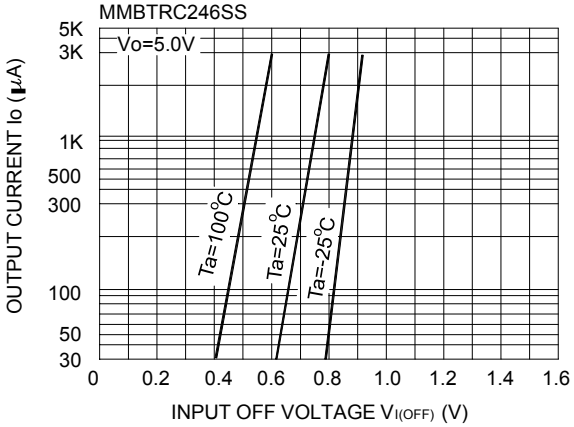
Io - $V_{I(ON)}$



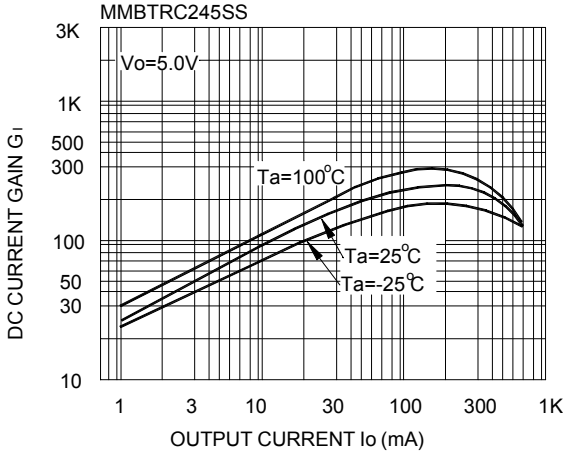
Io - $V_{I(OFF)}$



Io - $V_{I(OFF)}$



G_I - Io



G_I - Io