

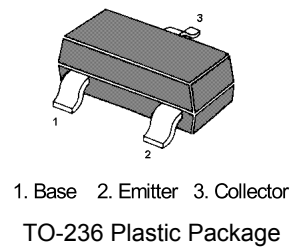
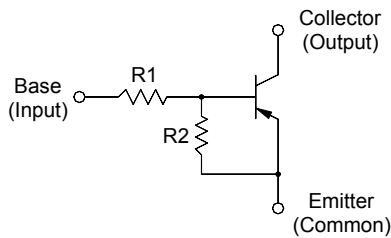
MMBTRA116SS...MMBTRA122SS

PNP Silicon Epitaxial Planar Transistor

for switching, interface circuit and drive circuit applications

Features

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

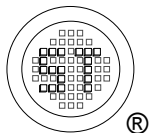


Resistor Values

Type	R1 (K Ω)	R2 (K Ω)
MMBTRA116SS	1	10
MMBTRA117SS	2.2	2.2
MMBTRA118SS	2.2	10
MMBTRA119SS	4.7	10
MMBTRA120SS	10	4.7
MMBTRA121SS	47	10
MMBTRA122SS	100	100

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

Parameter		Symbol	Value	Unit
Output Voltage		$-V_O$	50	V
Input Voltage	MMBTRA116SS	V_I	- 10, 5	V
	MMBTRA117SS		- 12, 10	
	MMBTRA118SS		- 12, 5	
	MMBTRA119SS		- 20, 7	
	MMBTRA120SS		- 30, 10	
	MMBTRA121SS		- 40, 15	
	MMBTRA122SS		- 40, 10	
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	$^{\circ}\text{C}$

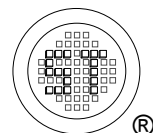


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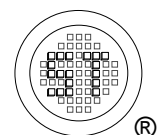
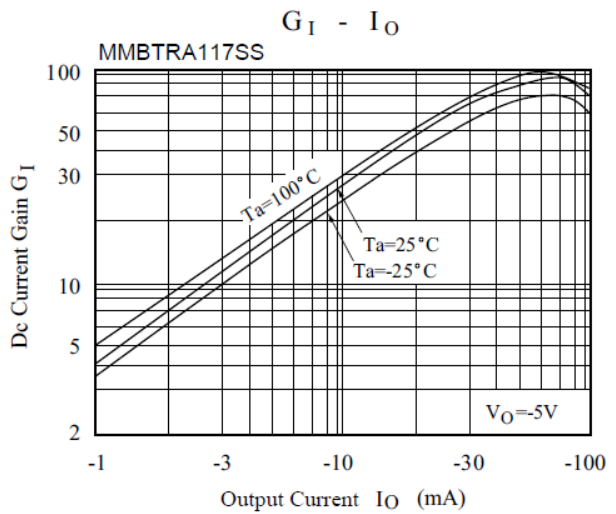
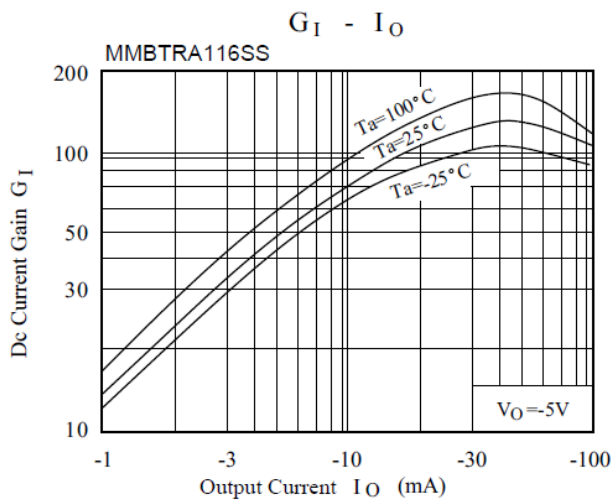
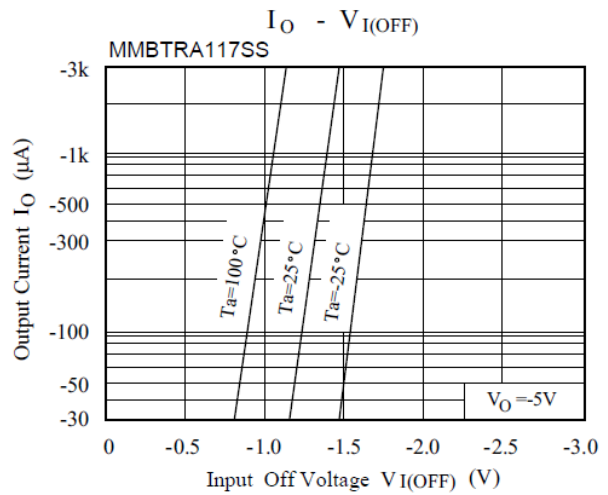
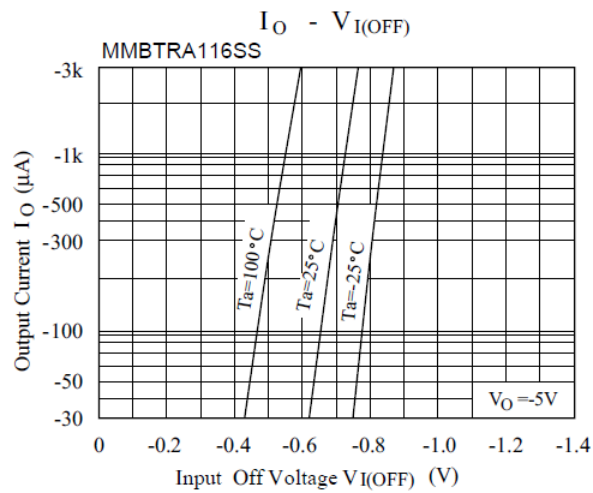
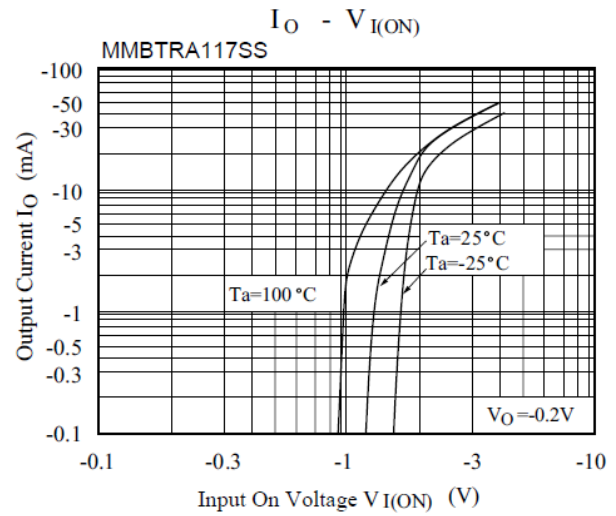
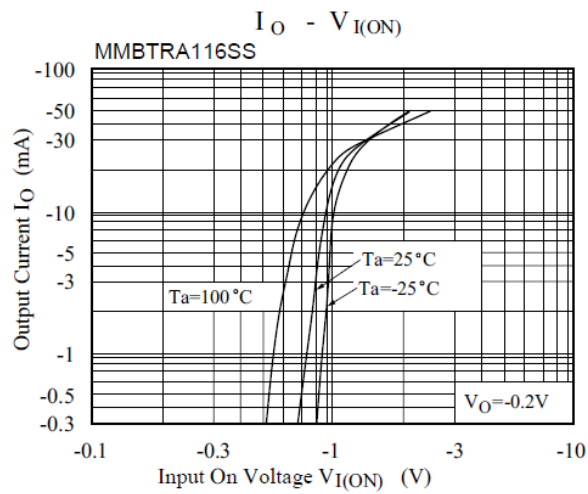
Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_O = 5\text{ V}$, $-I_O = 5\text{ mA}$ MMBTRA116SS at $-V_O = 5\text{ V}$, $-I_O = 20\text{ mA}$ MMBTRA117SS at $-V_O = 5\text{ V}$, $-I_O = 10\text{ mA}$ MMBTRA118SS at $-V_O = 5\text{ V}$, $-I_O = 10\text{ mA}$ MMBTRA119SS at $-V_O = 5\text{ V}$, $-I_O = 10\text{ mA}$ MMBTRA120SS at $-V_O = 5\text{ V}$, $-I_O = 5\text{ mA}$ MMBTRA121SS at $-V_O = 5\text{ V}$, $-I_O = 5\text{ mA}$ MMBTRA122SS	G_I	33 20 33 30 24 33 62	- - - - - - -	- - - - - - -	- - - - - - -
Output Cutoff Current at $-V_O = 50\text{ V}$	$-I_{O(\text{OFF})}$	-	-	500	nA
Input Current at $-V_I = 5\text{ V}$ MMBTRA116SS MMBTRA117SS MMBTRA118SS MMBTRA119SS MMBTRA120SS MMBTRA121SS MMBTRA122SS	$-I_I$	- - - - - - -	- - - - - - -	7.2 3.8 3.8 1.8 0.88 0.16 0.15	mA
Output Voltage at $-I_O = 10\text{ mA}$, $-I_I = 0.5\text{ mA}$ MMBTRA116SS at $-I_O = 10\text{ mA}$, $-I_I = 0.5\text{ mA}$ MMBTRA117SS at $-I_O = 10\text{ mA}$, $-I_I = 0.5\text{ mA}$ MMBTRA118SS at $-I_O = 10\text{ mA}$, $-I_I = 0.5\text{ mA}$ MMBTRA119SS at $-I_O = 10\text{ mA}$, $-I_I = 0.5\text{ mA}$ MMBTRA120SS at $-I_O = 10\text{ mA}$, $-I_I = 0.5\text{ mA}$ MMBTRA121SS at $-I_O = 5\text{ mA}$, $-I_I = 0.25\text{ mA}$ MMBTRA122SS	$-V_{O(\text{ON})}$	- - - - - - -	- - - - - - -	0.3 0.3 0.3 0.3 0.3 0.3 0.3	V
Input Voltage (ON) at $-V_O = 0.3\text{ V}$, $-I_O = 20\text{ mA}$ MMBTRA116SS at $-V_O = 0.3\text{ V}$, $-I_O = 20\text{ mA}$ MMBTRA117SS at $-V_O = 0.3\text{ V}$, $-I_O = 20\text{ mA}$ MMBTRA118SS at $-V_O = 0.3\text{ V}$, $-I_O = 20\text{ mA}$ MMBTRA119SS at $-V_O = 0.3\text{ V}$, $-I_O = 2\text{ mA}$ MMBTRA120SS at $-V_O = 0.3\text{ V}$, $-I_O = 2\text{ mA}$ MMBTRA121SS at $-V_O = 0.3\text{ V}$, $-I_O = 1\text{ mA}$ MMBTRA122SS	$-V_{I(\text{ON})}$	- - - - - - -	- - - - - - -	3 3 3 2.5 3 5 3	V
Input Voltage (OFF) at $-V_{CC} = 5\text{ V}$, $-I_O = 100\text{ }\mu\text{A}$ MMBTRA116SS MMBTRA117SS MMBTRA118SS MMBTRA119SS MMBTRA120SS MMBTRA121SS MMBTRA122SS	$-V_{I(\text{OFF})}$	0.3 0.5 0.3 0.3 0.8 1 0.5	- - - - - - -	- - - - - - -	V
Transition Frequency at $-V_O = 10\text{ V}$, $-I_O = 5\text{ mA}$	$f_T^{1)}$	-	250	-	MHz

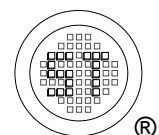
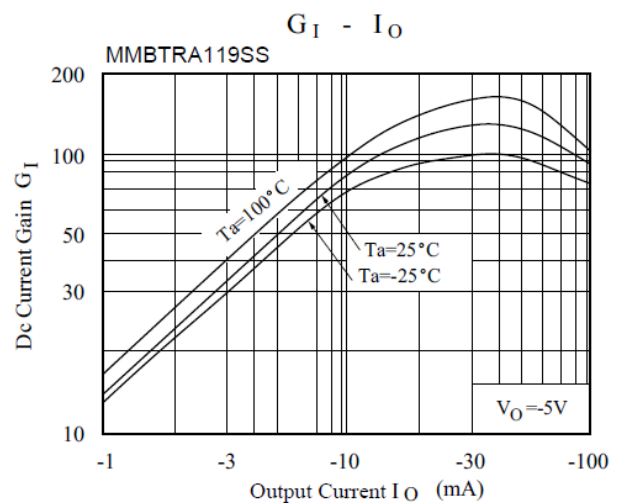
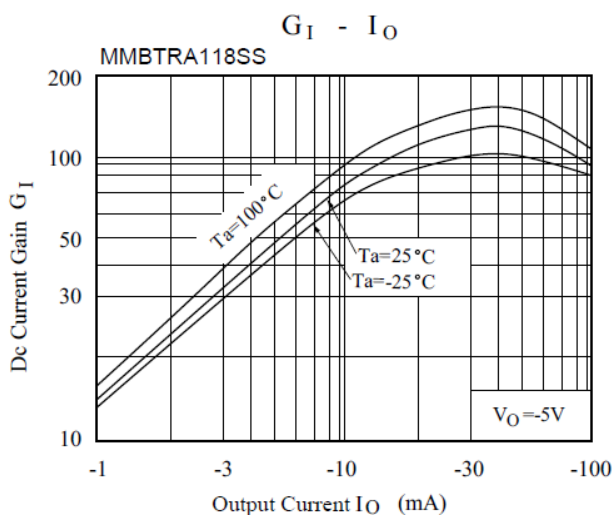
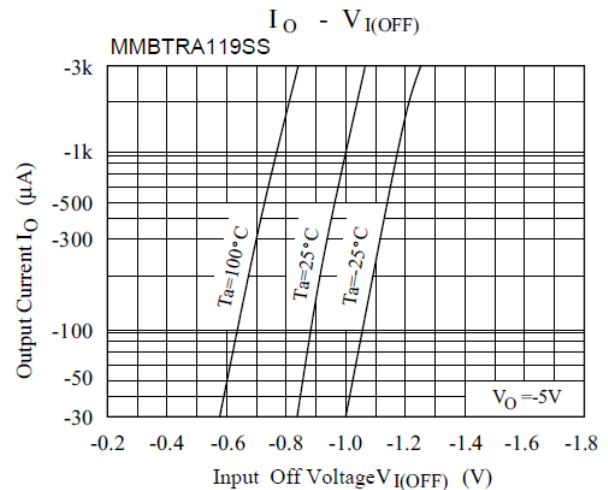
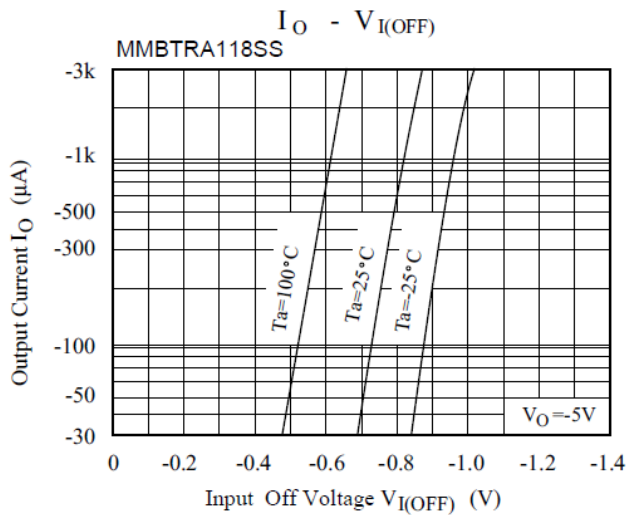
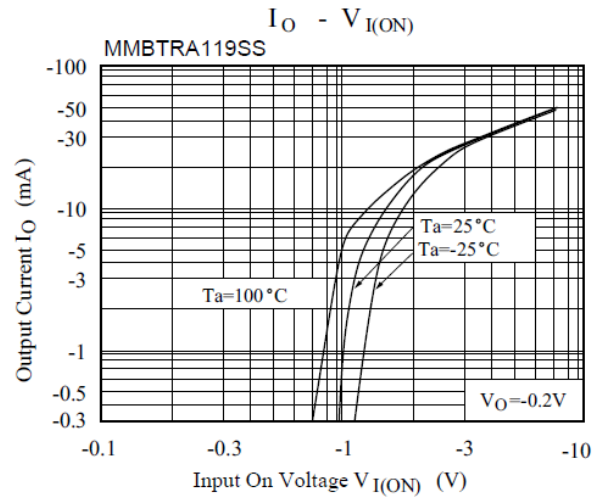
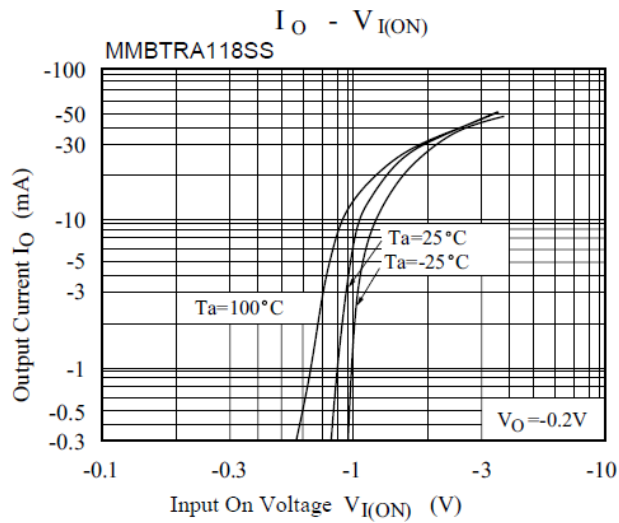
¹⁾ Characteristic of transistor only.



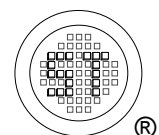
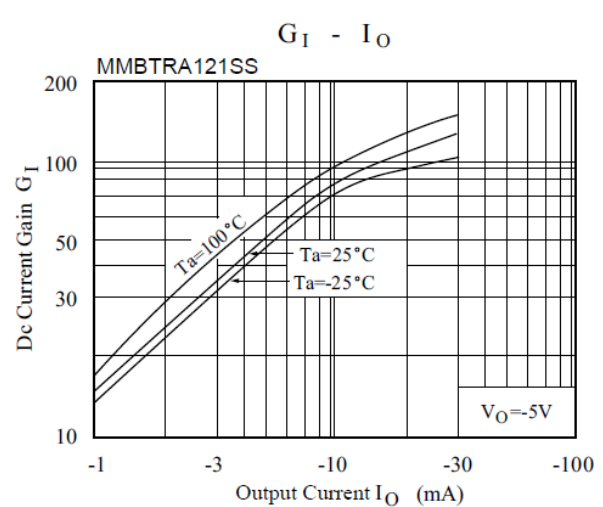
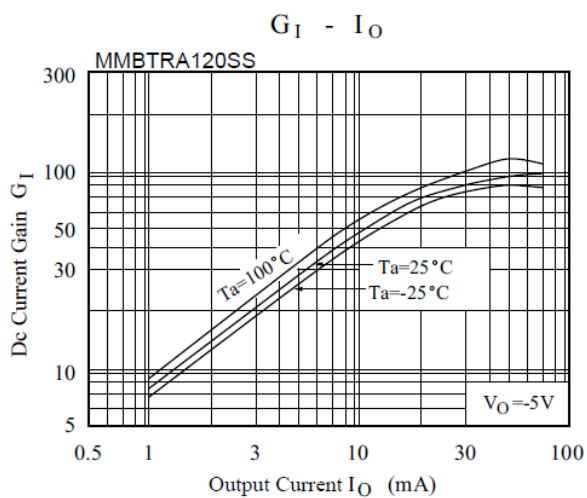
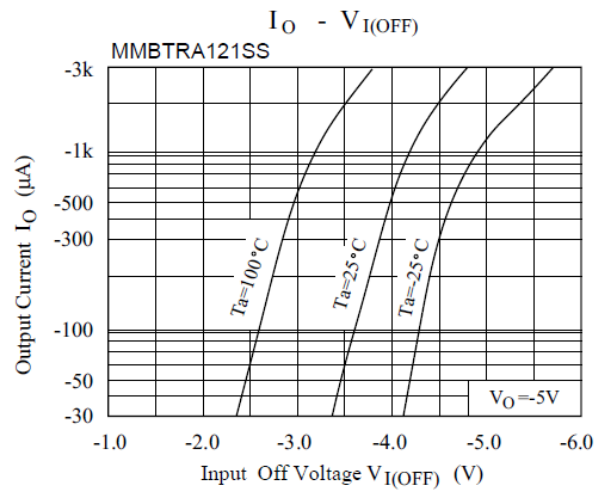
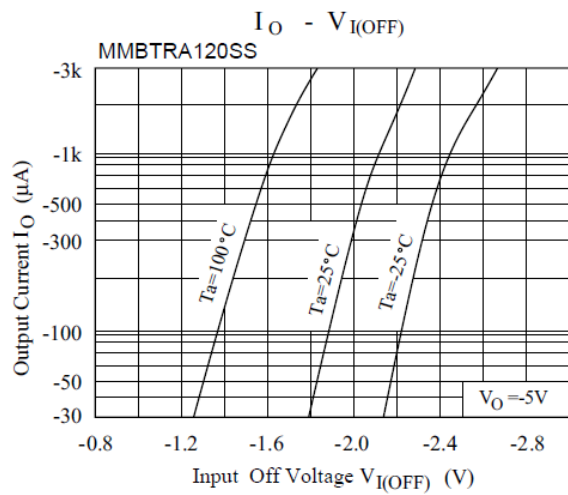
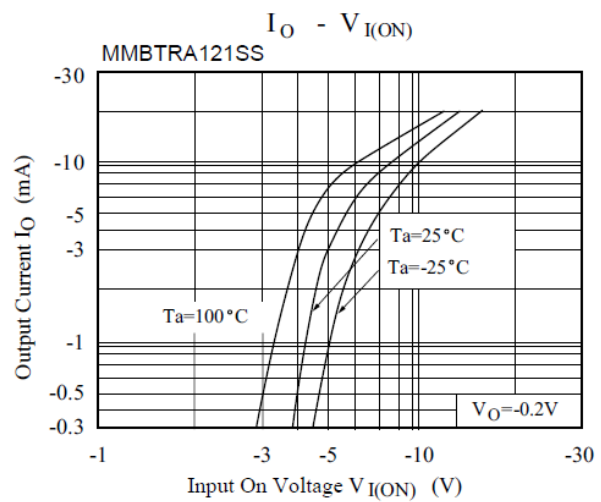
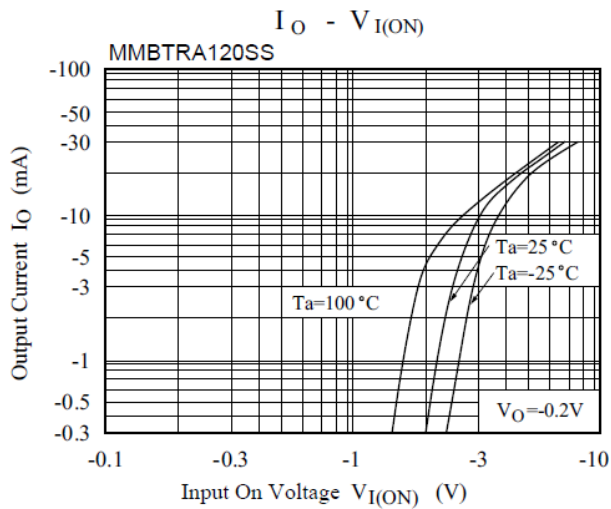
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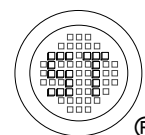
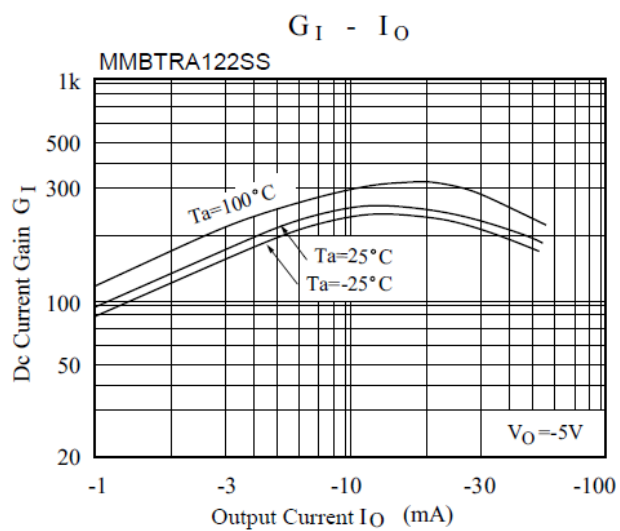
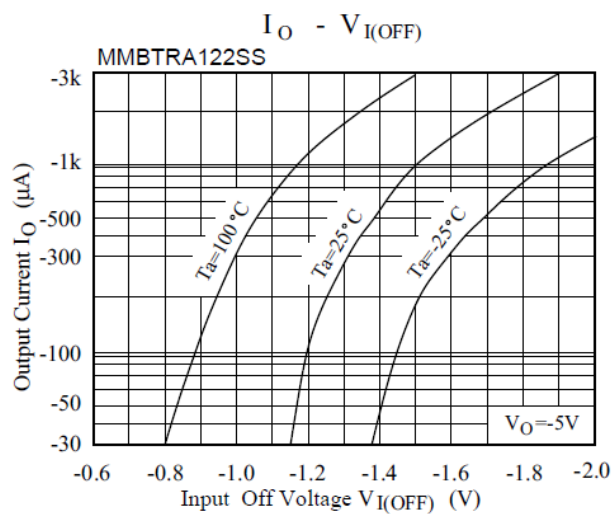
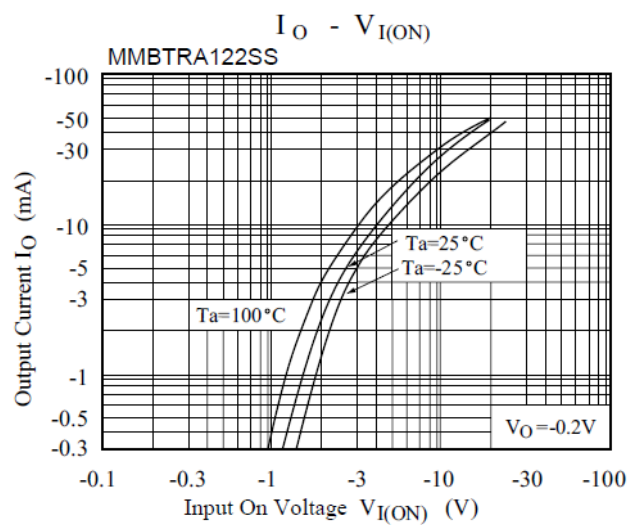
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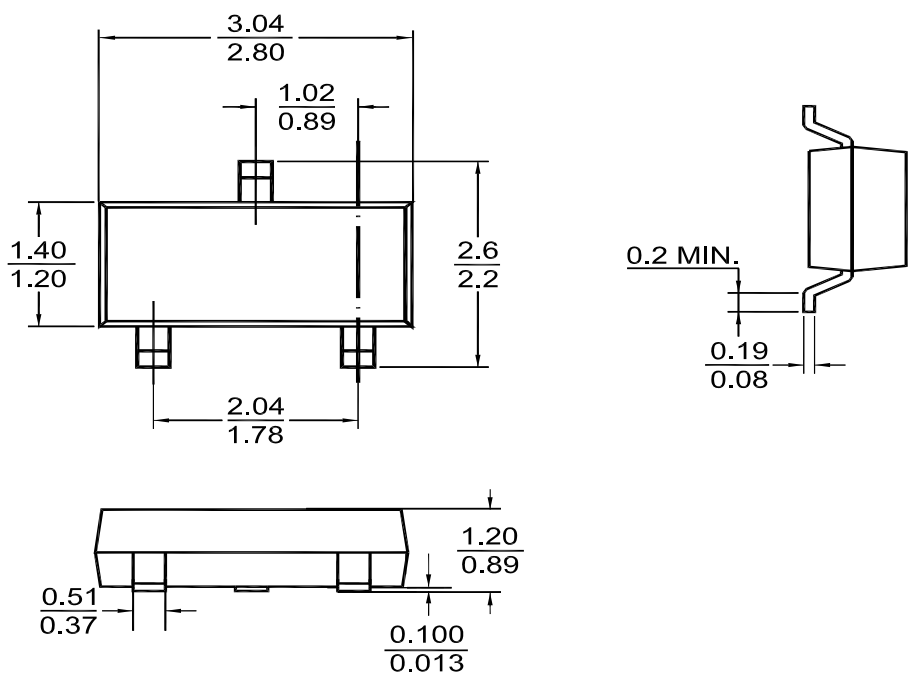


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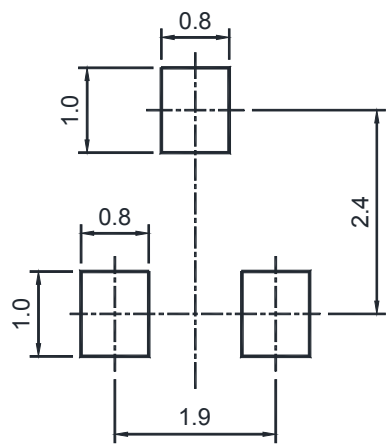


MMBTRA116SS...MMBTRA122SS

PACKAGE OUTLINE(Dimensions in mm)



Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
TO-236	8	4 ± 0.1	0.157 ± 0.004	178	7	3,000

