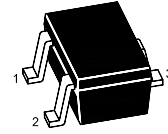
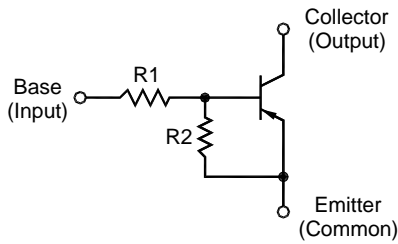


**PNP Silicon Epitaxial Planar Digital Transistor**



1.Base 2.Emitter 3.Collector  
SOT-323 Plastic Package

**Resistance Values**

Type	R1 (KΩ)	R2 (KΩ)	Type	R1 (KΩ)	R2 (KΩ)
MMDT5110W	47	-	MMDT511DW	47	10
MMDT5111W	10	10	MMDT511EW	47	22
MMDT5112W	22	22	MMDT511FW	4.7	10
MMDT5113W	47	47	MMDT511HW	2.2	10
MMDT5114W	10	47	MMDT511LW	4.7	4.7
MMDT5115W	10	-	MMDT511MW	2.2	47
MMDT5116W	4.7	-	MMDT511NW	4.7	47
MMDT5117W	22	-	MMDT511TW	22	47
MMDT5118W	0.51	5.1	MMDT511VW	2.2	2.2
MMDT5119W	1	10	MMDT511ZW	4.7	22

**Absolute Maximum Ratings (T<sub>a</sub> = 25 °C)**

Parameter	Symbol	Value	Unit
Collector Base Voltage	-V <sub>CBO</sub>	50	V
Collector Emitter Voltage	-V <sub>CEO</sub>	50	V
Collector Current	-I <sub>C</sub>	100	mA
Total Power Dissipation	P <sub>tot</sub>	200	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	- 55 to + 150	°C

**Characteristics at T<sub>a</sub> = 25 °C**

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at -V <sub>CE</sub> = 5 V, -I <sub>C</sub> = 10 mA					
MMDT5118/511L/511VW	h <sub>FE</sub>	20	-	-	-
MMDT5119/511D/511F/511HW		30	-	-	-
MMDT5111W		35	-	-	-
MMDT5112/511EW		60	-	-	-
MMDT511ZW		60	-	200	-
MMDT5113/5114/511MW		80	-	-	-
MMDT511N/511TW		80	-	400	-
MMDT5110/5115/5116/5117W <sup>1)</sup>	160	-	460	-	
Collector Base Cutoff Current at -V <sub>CB</sub> = 50 V	-I <sub>CBO</sub>	-	-	100	nA
Emitter Base Cutoff Current at -V <sub>EB</sub> = 6 V					
MMDT5110/5115/5116/5117W	-I <sub>EBO</sub>	-	-	0.01	mA
MMDT5113W		-	-	0.1	
MMDT5112/5114/511D/511E/511M/511N/511TW		-	-	0.2	
MMDT511ZW		-	-	0.4	
MMDT5111W		-	-	0.5	
MMDT511F/511HW		-	-	1	
MMDT5119W		-	-	1.5	
MMDT5118/511L/511VW		-	-	2	
Collector Base Breakdown Voltage at -I <sub>C</sub> = 10 μA	-V <sub>(BR)CBO</sub>	50	-	-	V
Collector Emitter Breakdown Voltage at -I <sub>C</sub> = 2 mA	-V <sub>(BR)CEO</sub>	50	-	-	V
Collector Emitter Saturation Voltage at -I <sub>C</sub> = 10 mA, -I <sub>B</sub> = 0.5 mA	-V <sub>CEsat</sub>	-	-	0.3	V
Input Voltage (ON)					
at -V <sub>O</sub> = 0.3 V, -I <sub>O</sub> = 20 mA	-V <sub>I(ON)</sub>	-	-	3	V
at -V <sub>O</sub> = 0.3 V, -I <sub>O</sub> = 20 mA				2.5	
at -V <sub>O</sub> = 0.3 V, -I <sub>O</sub> = 2 mA				2.5	
at -V <sub>O</sub> = 0.3 V, -I <sub>O</sub> = 2 mA				5	
at -V <sub>O</sub> = 0.3 V, -I <sub>O</sub> = 2 mA				4	
at -V <sub>O</sub> = 0.3 V, -I <sub>O</sub> = 10 mA				3	
at -V <sub>O</sub> = 0.2 V, -I <sub>O</sub> = 5 mA				3	
at -V <sub>O</sub> = 0.3 V, -I <sub>O</sub> = 2 mA				3	
at -V <sub>O</sub> = 0.3 V, -I <sub>O</sub> = 5 mA				1.1	
at -V <sub>O</sub> = 0.2 V, -I <sub>O</sub> = 5 mA				1.7	
at -V <sub>O</sub> = 0.3 V, -I <sub>O</sub> = 5 mA				1.3	
at -V <sub>O</sub> = 0.3 V, -I <sub>O</sub> = 1 mA				1.4	

<sup>1)</sup> h<sub>FE</sub> Rank Classification: Q: 160~260, R: 210~340, S: 290~460, No-rank: 160~460

**Characteristics at T<sub>a</sub> = 25 °C**

Parameter	Symbol	Min.	Typ.	Max.	Unit	
Input Voltage (OFF) at -V <sub>CC</sub> = 5 V, -I <sub>O</sub> = 100 μA	MMDT511V/511L/5111/5112/5113W MMDT5118/5119/511M/511Z/511NW MMDT511H/511F/5114W MMDT511TW MMDT511DW MMDT511EW	-V <sub>I(OFF)</sub>	0.5 0.5 0.3 0.4 1 0.8	- - - - - -	- - - - - -	V
Transition Frequency at -V <sub>CB</sub> = 10 V, -I <sub>E</sub> = 5 mA, f = 100 MHz	f <sub>T</sub>	-	250	-	MHz	
Input Resistance	MMDT5118W MMDT5119W MMDT511H/511M/511VW MMDT5116/511F/511L/511N/511ZW MMDT5111/5114/5115W MMDT5112/5117/511TW MMDT5110/5113/511D/511EW	R1	- 30%	0.51 1 2.2 4.7 10 22 47	+ 30%	KΩ
Resistance Ratio	MMDT511MW MMDT511NW MMDT5118/5119W MMDT511ZW MMDT5114W MMDT511TW MMDT511FW MMDT511VW MMDT5111/5112/5113/511LW MMDT511HW MMDT511EW MMDT511DW	R1/R2	- - 0.08 - 0.17 - 0.37 - 0.8 0.17 1.7 3.7	0.047 0.1 0.1 0.21 0.21 0.47 0.47 1 1 0.22 2.14 4.7	- - 0.12 - 0.25 - 0.57 - 1.2 0.27 2.6 5.7	- - - - - - - - - - - -