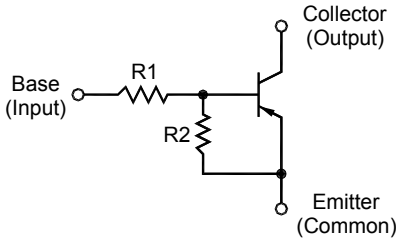
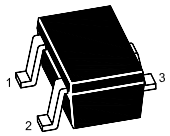
MMDT5110W…MMDT511ZW

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_a = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	50	V
Collector Emitter Voltage	$-V_{CEO}$	50	V
Collector Current	$-I_C$	100	mA
Total Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

Dated : 21/07/2009

Characteristics at T_a = 25 °C

Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain						
at $-V_{CE}$ = 5 V, $-I_C$ = 10 mA	MMDT5118/511L/511VW		20	-	-	-
	MMDT5119/511D/511F/511HW		30	-	-	-
	MMDT5111W		35	-	-	-
	MMDT5112/511EW	h_{FE}	60	-	-	-
	MMDT511ZW		60	-	200	-
	MMDT5113/5114/511MW		80	-	-	-
	MMDT511N/511TW		80	-	400	-
	MMDT5110/5115/5116/5117W [1]		160	-	460	-
Collector Base Cutoff Current at $-V_{CB}$ = 50 V		$-I_{CBO}$	-	-	100	nA
Emitter Base Cutoff Current						
at $-V_{EB}$ = 6 V	MMDT5110/5115/5116/5117W		-	-	0.01	
	MMDT5113W		-	-	0.1	
	MMDT5112/5114/511D/511E/511M/511N/511TW		-	-	0.2	
	MMDT511ZW	$-I_{EBO}$	-	-	0.4	mA
	MMDT5111W		-	-	0.5	
	MMDT511F/511HW		-	-	1	
	MMDT5119W		-	-	1.5	
	MMDT5118/511L/511VW		-	-	2	
Collector Base Breakdown Voltage at $-I_C$ = 10 µA		$-V_{(BR)CBO}$	50	-	-	V
Collector Emitter Breakdown Voltage at $-I_C$ = 2 mA		$-V_{(BR)CEO}$	50	-	-	V
Collector Emitter Saturation Voltage at $-I_C$ = 10 mA, $-I_B$ = 0.5 mA		$-V_{CEsat}$	-	-	0.3	V
Input Voltage (ON)						
at $-V_O$ = 0.3 V, $-I_O$ = 20 mA	MMDT511V/511L/5119/511H/5118W		-	-	3	
at $-V_O$ = 0.3 V, $-I_O$ = 20 mA	MMDT511FW		-	-	2.5	
at $-V_O$ = 0.3 V, $-I_O$ = 2 mA	MMDT511TW		-	-	2.5	
at $-V_O$ = 0.3 V, $-I_O$ = 2 mA	MMDT511DW		-	-	5	
at $-V_O$ = 0.3 V, $-I_O$ = 2 mA	MMDT511EW		-	-	4	
at $-V_O$ = 0.3 V, $-I_O$ = 10 mA	MMDT5111W	$-V_{I(ON)}$	-	-	3	V
at $-V_O$ = 0.2 V, $-I_O$ = 5 mA	MMDT5112W		-	-	3	
at $-V_O$ = 0.3 V, $-I_O$ = 2 mA	MMDT5113W		-	-	3	
at $-V_O$ = 0.3 V, $-I_O$ = 5 mA	MMDT511MW		-	-	1.1	
at $-V_O$ = 0.2 V, $-I_O$ = 5 mA	MMDT511ZW		-	-	1.7	
at $-V_O$ = 0.3 V, $-I_O$ = 5 mA	MMDT511NW		-	-	1.3	
at $-V_O$ = 0.3 V, $-I_O$ = 1 mA	MMDT5114W		-	-	1.4	

[1] h_{FE} Rank Classification: Q: 160~260, R: 210~340, S: 290~460, No-rank: 160~460

Characteristics at T_a = 25 °C

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