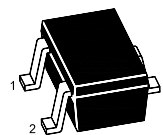
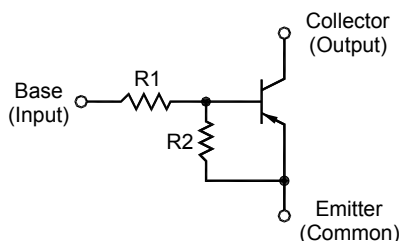


MMDT5110W...MMDT511ZW

PNP Silicon Epitaxial Planar Digital Transistor



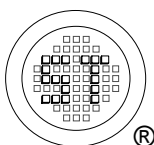
1.Base 2.Emitter 3.Collector
SOT-323 Plastic Package

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

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	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$



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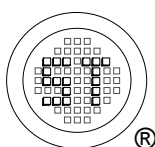
Dated : 21/07/2009

MMDT5110W...MMDT511ZW

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_{CE} = 5\text{ V}$, $-I_C = 10\text{ mA}$					
MMDT5118/511L/511VW	h_{FE}	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 ¹⁾		160	-	460	-
Collector Base Cutoff Current at $-V_{CB} = 50\text{ V}$	$-I_{CBO}$	-	-	100	nA
Emitter Base Cutoff Current at $-V_{EB} = 6\text{ V}$					
MMDT5110/5115/5116/5117W	$-I_{EBO}$	-	-	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 $-I_C = 10\text{ }\mu\text{A}$	$-V_{(BR)CBO}$	50	-	-	V
Collector Emitter Breakdown Voltage at $-I_C = 2\text{ mA}$	$-V_{(BR)CEO}$	50	-	-	V
Collector Emitter Saturation Voltage at $-I_C = 10\text{ mA}$, $-I_B = 0.5\text{ mA}$	$-V_{CEsat}$	-	-	0.3	V
Input Voltage (ON)					
at $-V_o = 0.3\text{ V}$, $-I_o = 20\text{ mA}$	$-V_{I(ON)}$	-	-	3	V
MMDT511V/511L/5119/511H/5118W					
at $-V_o = 0.3\text{ V}$, $-I_o = 20\text{ mA}$				2.5	
MMDT511FW					
at $-V_o = 0.3\text{ V}$, $-I_o = 2\text{ mA}$				2.5	
MMDT511TW					
at $-V_o = 0.3\text{ V}$, $-I_o = 2\text{ mA}$				5	
MMDT511DW					
at $-V_o = 0.3\text{ V}$, $-I_o = 2\text{ mA}$				4	
MMDT511EW					
at $-V_o = 0.3\text{ V}$, $-I_o = 10\text{ mA}$				3	
MMDT5111W					
at $-V_o = 0.2\text{ V}$, $-I_o = 5\text{ mA}$				3	
MMDT5112W					
at $-V_o = 0.3\text{ V}$, $-I_o = 2\text{ mA}$	3				
MMDT5113W					
at $-V_o = 0.3\text{ V}$, $-I_o = 5\text{ mA}$	1.1				
MMDT511MW					
at $-V_o = 0.2\text{ V}$, $-I_o = 5\text{ mA}$	1.7				
MMDT511ZW					
at $-V_o = 0.3\text{ V}$, $-I_o = 5\text{ mA}$	1.3				
MMDT511NW					
at $-V_o = 0.3\text{ V}$, $-I_o = 1\text{ mA}$	1.4				
MMDT5114W					

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



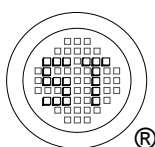
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MMDT5110W...MMDT511ZW

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	
Input Voltage (OFF) at $-V_{CC} = 5\text{ V}$, $-I_o = 100\text{ }\mu\text{A}$	MMDT511V/511L/5111/5112/5113W MMDT5118/5119/511M/511Z/511NW MMDT511H/511F/5114W MMDT511TW MMDT511DW MMDT511EW	$-V_{I(OFF)}$	0.5 0.5 0.3 0.4 1 0.8	- - - - - -	- - - - - -	V
Transition Frequency at $-V_{CB} = 10\text{ V}$, $-I_E = 5\text{ mA}$, $f = 100\text{ MHz}$		f_T	-	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%	K Ω
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	- - - - - - - - - - - -



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