



# FUKUCOM COMPANY LTD.

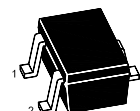
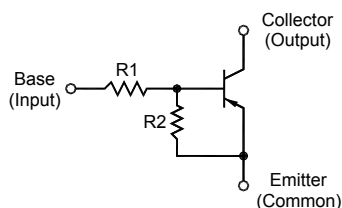
## 福 靈 有 限 公 司

FLAT P, 3/F., EVEREST INDUSTRIAL CENTRE, 396 KWUN TONG ROAD,  
KWUN TONG, KOWLOON, HONG KONG.

TEL: 852-2790 0314 FAX: 852-2790 0206

### MMDT5110W...MMDT511ZW

#### PNP Silicon Epitaxial Planar Digital Transistor



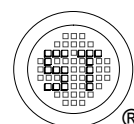
1.Base 2.Emitter 3.Collector  
SOT-323 Plastic Package

#### 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<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



Dated : 21/07/2009



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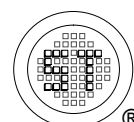
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## MMDT5110W...MMDT511ZW

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

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 <sup>1)</sup>		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 $-I_C = 10\ \mu\text{A}$	$-V_{(BR)CBO}$	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				
at $-V_O = 0.3\text{ V}$ , $-I_O = 20\text{ mA}$				2.5					
at $-V_O = 0.3\text{ V}$ , $-I_O = 2\text{ mA}$				2.5					
at $-V_O = 0.3\text{ V}$ , $-I_O = 2\text{ mA}$				5					
at $-V_O = 0.3\text{ V}$ , $-I_O = 2\text{ mA}$				4					
at $-V_O = 0.3\text{ V}$ , $-I_O = 10\text{ mA}$				3					
at $-V_O = 0.2\text{ V}$ , $-I_O = 5\text{ mA}$				3					
at $-V_O = 0.3\text{ V}$ , $-I_O = 2\text{ mA}$				3					
at $-V_O = 0.3\text{ V}$ , $-I_O = 5\text{ mA}$				1.1					
at $-V_O = 0.2\text{ V}$ , $-I_O = 5\text{ mA}$				1.7					
at $-V_O = 0.3\text{ V}$ , $-I_O = 5\text{ mA}$				1.3					
at $-V_O = 0.3\text{ V}$ , $-I_O = 1\text{ mA}$				1.4					
MMDT511V/511L/5119/511H/5118W									
MMDT511FW									
MMDT511TW									
MMDT511DW									
MMDT511EW									
MMDT5111W									
MMDT5112W									
MMDT5113W									
MMDT511MW									
MMDT511ZW									
MMDT511NW									
MMDT5114W									

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





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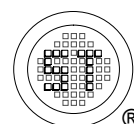
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## MMDT5110W...MMDT511ZW

### 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	$-V_{I(OFF)}$	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 $-V_{CB} = 10\text{ V}$ , $-I_E = 5\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	-	250	-	MHz
Input Resistance					
MMDT5118W	R1	- 30%	0.51	+ 30%	K $\Omega$
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	-



Dated : 21/07/2009