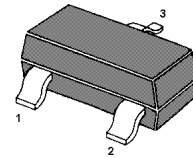
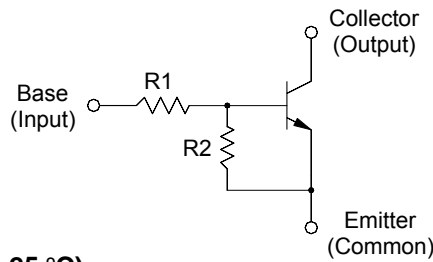


# MMDT221F NPN Silicon Epitaxial Planar Transistor

For digital circuits applications



1.Base 2.Emitter 3.Collector  
SOT-23 Plastic Package

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	V <sub>CB0</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>s</sub>	-55 to +150	°C

## Resistor Values

Type	R1 (KΩ)	R2 (KΩ)
MMDT221F	4.7	10

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V <sub>CE</sub> = 10 V, I <sub>C</sub> = 5 mA	h <sub>FE</sub>	30	-	-	-
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 Base Cutoff Current at V <sub>CB</sub> = 50 V	I <sub>CBO</sub>	-	-	100	nA
Collector Emitter Cutoff Current at V <sub>CE</sub> = 50 V	I <sub>CEO</sub>	-	-	500	nA
Emitter Base Cutoff Current at V <sub>EB</sub> = 6 V	I <sub>EBO</sub>	-	-	1	mA
Collector Emitter Saturation Voltage at I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.3 mA	V <sub>CEsat</sub>	-	-	0.25	V
Output Voltage Low Level at V <sub>CC</sub> = 5 V, V <sub>B</sub> = 2.5 V, R <sub>L</sub> = 1 KΩ	V <sub>OL</sub>	-	-	0.2	V
Output Voltage High Level at V <sub>CC</sub> = 5 V, V <sub>B</sub> = 0.5 V, R <sub>L</sub> = 1 KΩ	V <sub>OH</sub>	4.9	-	-	V
Transition Frequency at V <sub>CB</sub> = 10 V, -I <sub>E</sub> = 2 mA, f = 200 MHz	f <sub>T</sub>	-	150	-	MHz
Input Resistor	R1	3.3	4.7	6.1	KΩ
Resistor Ratio	R1/R2	0.37	-	0.57	-

## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23

