

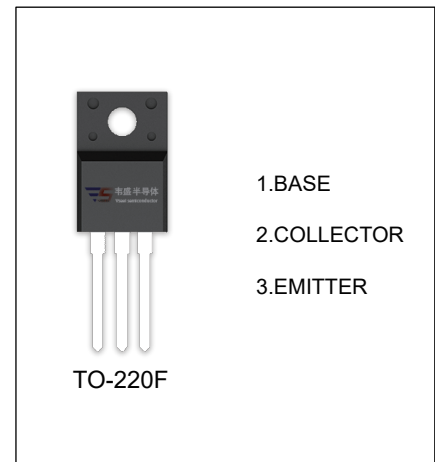
## 3DD13003F TRANSISTOR ( NPN )

### FEATURE

- Power Switching Applications

### MAXIMUM RATINGS (T<sub>a</sub>=25 °C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	700	V
V <sub>CEO</sub>	Collector-Emitter Voltage	400	V
V <sub>EBO</sub>	Emitter-Base Voltage	9	V
I <sub>c</sub>	Collector Current -Continuous	1.5	A
P <sub>C</sub>	Collector Dissipation	2	W
R <sub>θJA</sub>	Thermal Resistance from Junction to Ambient	62.5	°C/W
T <sub>J</sub> , T <sub>stg</sub>	Operation Junction and Storage Temperature Range	-55~+150	°C



### ELECTRICAL CHARACTERISTICS (T<sub>a</sub>= 25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>c</sub> = 5mA, I <sub>E</sub> =0	700			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>c</sub> =10mA, I <sub>B</sub> =0	400			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 2mA, I <sub>C</sub> =0	9			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =700V, I <sub>E</sub> =0			1	mA
Collector cut-off current	I <sub>CEO</sub>	V <sub>CE</sub> =400V, I <sub>B</sub> =0			0.5	mA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =9V, I <sub>C</sub> =0			1	mA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =0.5 A	8		40	
	h <sub>FE(2)</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =1.5 A	5			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =1A, I <sub>B</sub> =250mA			0.6	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =1A, I <sub>B</sub> =250mA			1.2	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>c</sub> =100mA f =1MHz	5			MHz
Fall time	t <sub>f</sub>	I <sub>C</sub> =1A, I <sub>B1</sub> =-I <sub>B2</sub> =0.2A V <sub>CC</sub> =100V			0.5	μs
Storage time	t <sub>s</sub>	I <sub>c</sub> =250mA	2		4	μs

### CLASSIFICATION OF h<sub>FE(1)</sub>

Rank							
Range	8-10	10-15	15-20	20-25	25-30	30-35	35-40

### CLASSIFICATION OF t<sub>s</sub>

Rank	A1	A2	B1	B2
Range	2-2.5 (μs)	2.5-3(μs)	3-3.5(μs)	3.5-4 (μs)