

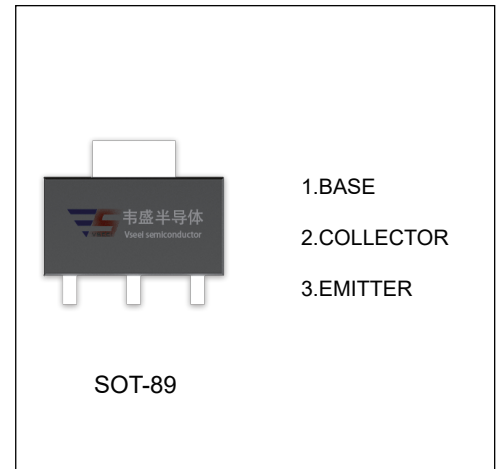
## 2SD1616A TRANSISTOR (NPN)

### FEATURES

- Low collector saturation voltage
- High break down voltage
- High total power dissipation

### MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	120	V
V <sub>CEO</sub>	Collector-Emitter Voltage	60	V
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>C</sub>	Collector Current -Continuous	1	A
P <sub>C</sub>	Collector Power Dissipation	0.5	W
R <sub>θJA</sub>	Thermal Resistance, junction to Ambient	250	°C/W
T <sub>J</sub> , T <sub>stg</sub>	Operation Junction and Storage Temperature Range	-55~+150	°C



### ELECTRICAL CHARACTERISTICS (Ta=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> =10μA, I <sub>E</sub> =0	120			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =2mA, I <sub>B</sub> =0	60			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	6			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =60V, I <sub>E</sub> =0			0.1	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =6V, I <sub>C</sub> =0			0.1	μA
DC current gain*	h <sub>FE1</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =100mA	135		600	
	h <sub>FE2</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =1A	81			
Collector-emitter saturation voltage *	V <sub>CE(sat)</sub>	I <sub>C</sub> = 1A, I <sub>B</sub> =50mA			0.3	V
Base-emitter saturation voltage *	V <sub>BE(sat)</sub>	I <sub>C</sub> = 1A, I <sub>B</sub> =50mA			1.2	V
Base-emitter voltage *	V <sub>BE</sub>	V <sub>CE</sub> = 2V, I <sub>C</sub> =50mA	0.6		0.7	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> = 100mA	100			MHz
Output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10 V, I <sub>E</sub> = 0, f=1MHz			19	pF
Turn on time	t <sub>on</sub>	V <sub>CC</sub> =10V, I <sub>C</sub> =100mA, I <sub>B1</sub> =-I <sub>B2</sub> =10mA		0.07		μs
Storage time	t <sub>S</sub>			0.95		μs
Fall time	t <sub>F</sub>			0.07		μs

\*pulse test: PW≤350μs, δ≤2%.

### CLASSIFICATION of h<sub>FE1</sub>

Rank	L	K	U
Range	135-270	200-400	300-600