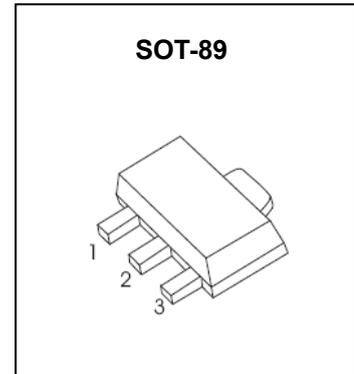


### Features

- Epitaxial planar die construction
- Ultra-small surface mount package
- Compliant to Halogen-free

### Mechanical Data

- Case:SOT-89
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



### Maximum Ratings (T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V <sub>CBO</sub>	300	V
Collector-Emitter Breakdown Voltage	V <sub>CEO</sub>	300	V
Emitter-Base Breakdown Voltage	V <sub>EBO</sub>	5	V
Continuous Collector Current	I <sub>C</sub>	0.5	A
Peak Collector Current	I <sub>CM</sub>	1	A

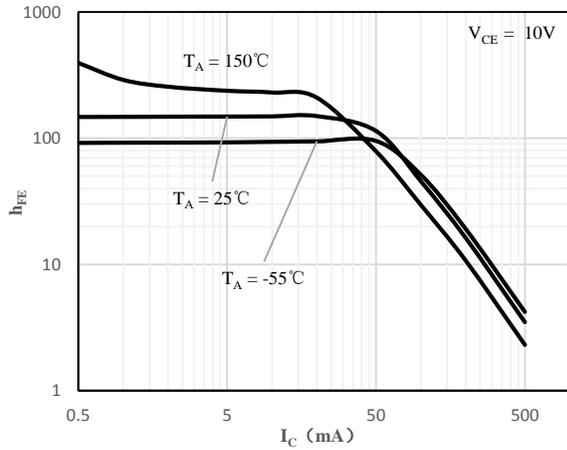
### Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	500	mW
Operating junction Temperature	T <sub>J</sub>	-55 ~ +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ +150	°C

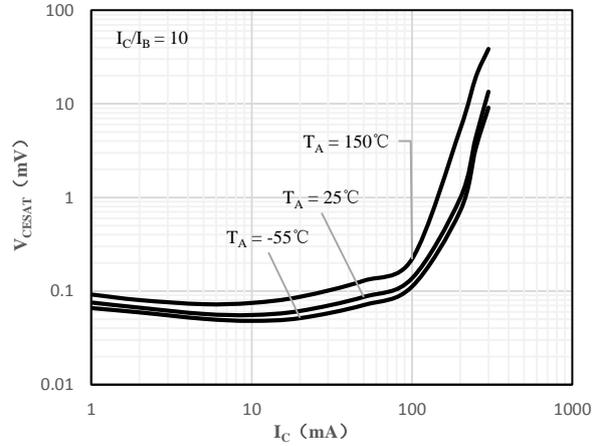
### Electrical Characteristics (T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = 100μA, I <sub>E</sub> = 0	300	-	-	V
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 1mA, I <sub>B</sub> = 0	300	-	-	V
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 100μA, I <sub>C</sub> = 0	5	-	-	V
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> = 200V, I <sub>E</sub> = 0	-	-	250	nA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0	-	-	100	nA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 1mA	60	-	-	-
		V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA	100	-	300	-
		V <sub>CE</sub> = 10V, I <sub>C</sub> = 30mA	75	-	-	-
Collector-emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 20mA, I <sub>B</sub> = 2mA	-	-	0.2	V
Base-emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 20mA, I <sub>B</sub> = 2mA	-	-	0.9	V
Transition Frequency	f <sub>T</sub>	I <sub>C</sub> = 10mA, V <sub>CE</sub> = 20V	50	-	-	MHz

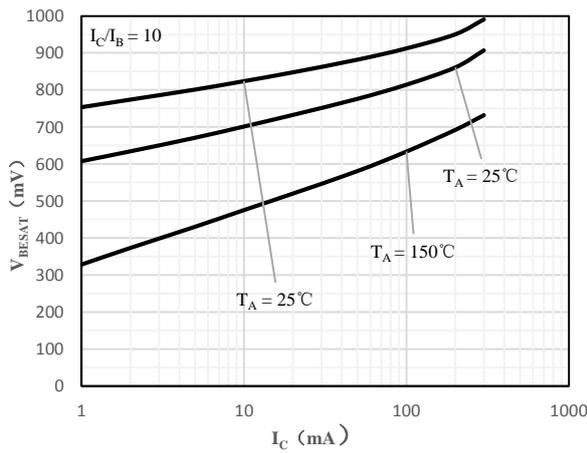
### Ratings and Characteristics Curves (T<sub>A</sub> = 25°C unless otherwise specified)



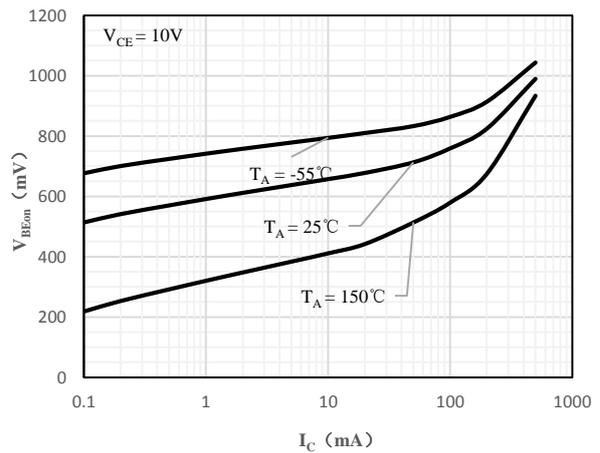
**Fig 1** h<sub>FE</sub> vs. I<sub>C</sub>



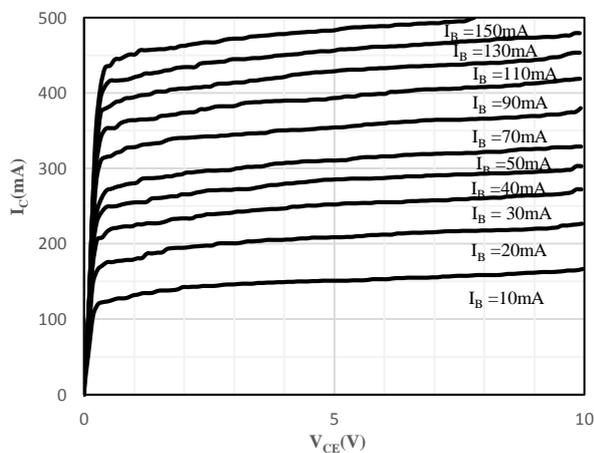
**Fig 2** V<sub>CE(sat)</sub> vs. I<sub>C</sub>



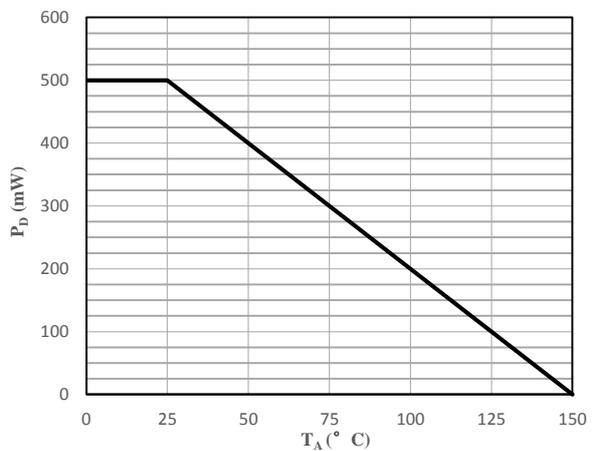
**Fig 3** V<sub>BE(sat)</sub> vs. I<sub>C</sub>



**Fig 4** V<sub>BE(on)</sub> vs. I<sub>C</sub>

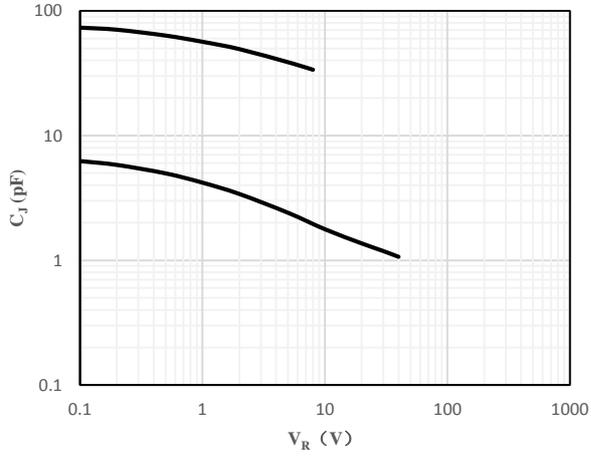


**Fig 5** I<sub>C</sub> vs. V<sub>CE</sub>



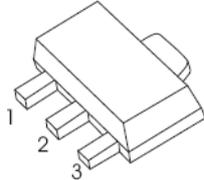
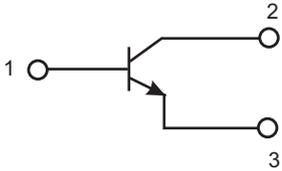
**Fig 6** P<sub>D</sub> vs. T<sub>A</sub>

**Ratings and Characteristics Curves** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)



**Fig 7  $C_J$  vs.  $V_R$**

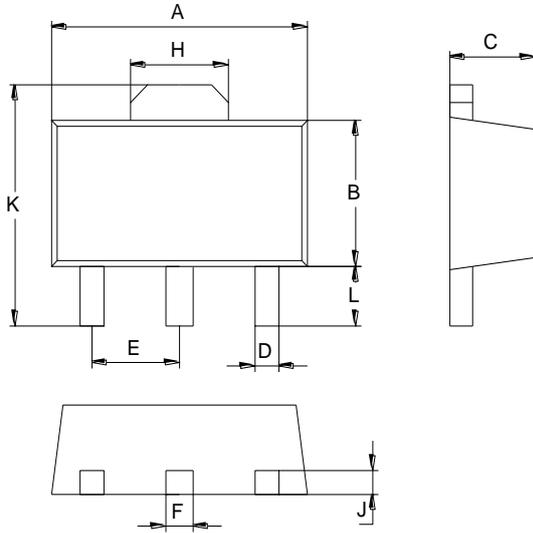
### Pinning Information

Pin	Simplified outline	Symbol
Pin1 Base Pin2 Collector Pin3 Emitter		

### Marking

Type number	Marking code
A42	A42

### Package Outline Dimensions (Unit: mm)



SOT-89		
Dimension	Min.	Max.
A	4.30	4.70
B	2.25	2.65
C	1.30	1.70
D	0.30	0.50
E	1.40	1.60
F	0.38	0.58
H	1.60	1.80
J	0.30	0.50
L	0.90	1.10
K	3.95	4.35

### Mounting Pad Layout (Unit: mm)

#### SOT-89

