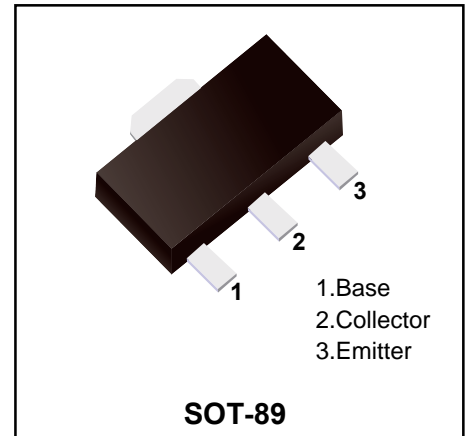


**NPN TRANSISTOR**

**FEATURES**

- ◆High breakdown voltage
- ◆Low collector-emitter saturation voltage
- ◆Complementary to MPSA92SI (PNP)



<b>Marking Code</b>	
<b>MPSA42SI</b>	<b>A42</b>

**MAXIMUM RATINGS (TA=25°C unless otherwise noted)**

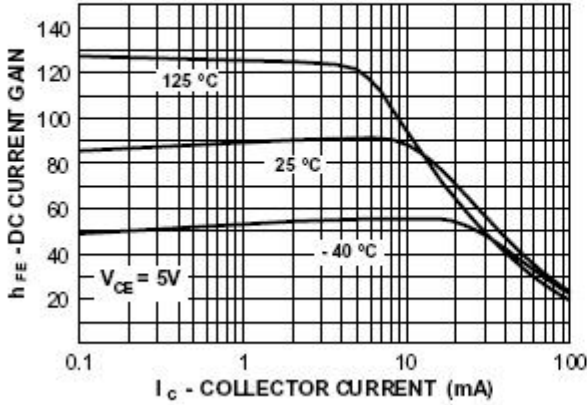
Characteristics	Symbols	Value	Units
Collector-Base Voltage	<b>V<sub>CB0</sub></b>	300	<b>V</b>
Collector-Emitter Voltage	<b>V<sub>CEO</sub></b>	300	<b>V</b>
Emitter-Base Voltage	<b>V<sub>EBO</sub></b>	5	<b>V</b>
Collector Current -Continuous	<b>I<sub>C</sub></b>	0.3	<b>A</b>
Collector Power dissipation	<b>P<sub>C</sub></b>	0.35	<b>W</b>
Thermal Resistance, junction to Ambient	<b>R<sub>θJA</sub></b>	357	<b>°C/mW</b>
Junction Temperature	<b>T<sub>J</sub></b>	150	<b>°C</b>
Storage Temperature	<b>T<sub>STG</sub></b>	-55 to +150	<b>°C</b>

**ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)**

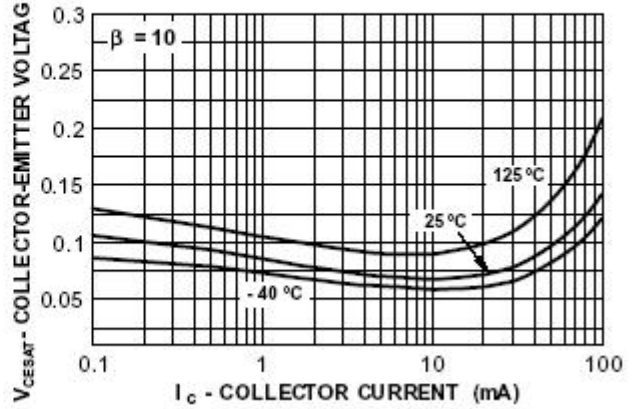
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Collector-base breakdown voltage	I <sub>C</sub> = 100μA, I <sub>E</sub> =0	<b>V<sub>(BR)CBO</sub></b>	300	-	-	<b>V</b>
Collector-emitter breakdown voltage	I <sub>C</sub> = 1mA, I <sub>B</sub> =0	<b>V<sub>(BR)CEO</sub></b>	300	-	-	<b>V</b>
Emitter-base breakdown voltage	I <sub>E</sub> = 100μA, I <sub>C</sub> =0	<b>V<sub>(BR)EBO</sub></b>	5	-	-	<b>V</b>
Collector cut-off current	V <sub>CB</sub> =200V, I <sub>E</sub> =0	<b>I<sub>CB0</sub></b>	-	-	0.25	<b>μA</b>
Emitter cut-off current	V <sub>EB</sub> = 5V, I <sub>C</sub> =0	<b>I<sub>EBO</sub></b>	-	-	0.1	<b>μA</b>
DC current gain	V <sub>CE</sub> = 10V, I <sub>C</sub> = 1mA	<b>h<sub>FE(1)</sub></b>	60	-	-	
	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA	<b>h<sub>FE(2)</sub></b>	100	-	200	
	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA	<b>h<sub>FE(3)</sub></b>	60	-	-	
Collector-emitter saturation voltage	I <sub>C</sub> =20mA, I <sub>B</sub> = 2mA	<b>V<sub>CE(sat)</sub></b>	-	-	0.2	<b>V</b>
Base-emitter saturation voltage	I <sub>C</sub> = 20mA, I <sub>B</sub> =2mA	<b>V<sub>BE(sat)</sub></b>	-	-	0.9	<b>V</b>
Transition frequency	V <sub>CE</sub> = 20V, I <sub>C</sub> = 10mA, f=30MHz	<b>f<sub>T</sub></b>	50	-	-	<b>MHz</b>

Typical Characteristics

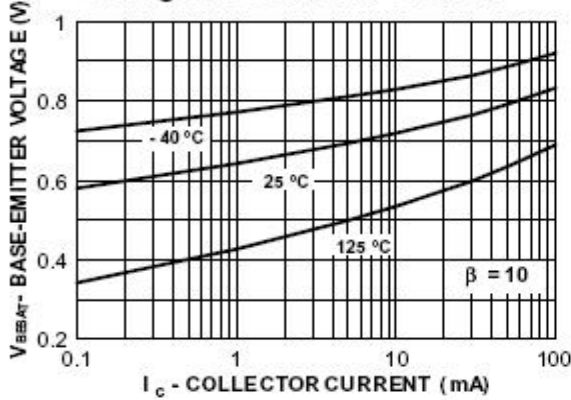
**DC Current Gain vs Collector Current**



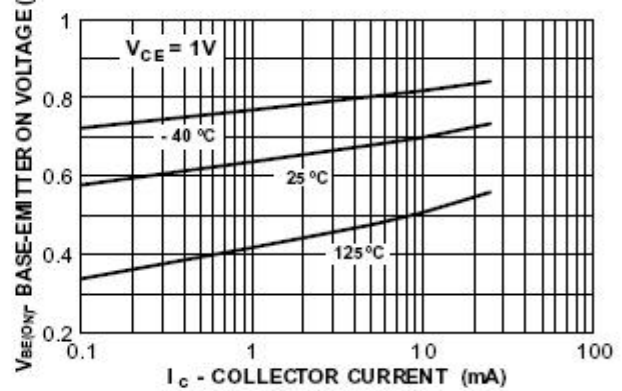
**Collector-Emitter Saturation Voltage vs Collector Current**



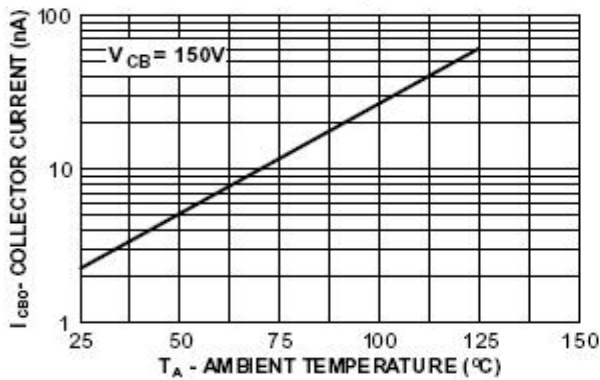
**Base-Emitter Saturation Voltage vs Collector Current**



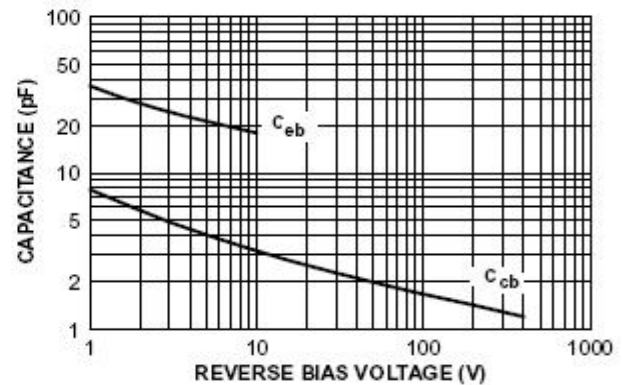
**Base-Emitter ON Voltage vs Collector Current**



**Collector-Cutoff Current vs Ambient Temperature**



**Collector-Base and Emitter-Base Capacitance vs Reverse Bias Voltage**



**Ordering information**

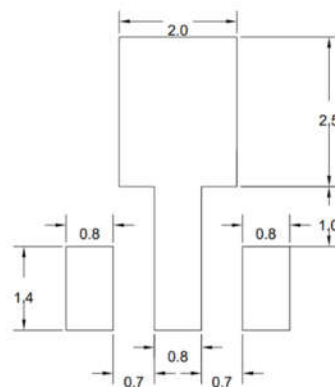
Package	Packing Description	Base Quantity	Packing Quantity
SOT-89	Tape/Reel,7"reel	1000pcs/Reel	6000PCS/Box 30000PCS/Carton

**Package Dimensions**

**SOT-89**

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.40	1.60	0.055	0.063
b	0.32	0.52	0.013	0.020
b1	0.38	0.58	0.015	0.023
c	0.35	0.45	0.014	0.018
D	4.40	4.60	0.173	0.181
D1	1.45	1.65	0.057	0.065
D2	1.70	1.80	0.067	0.071
E	2.30	2.60	0.091	0.102
E1	3.95	4.25	0.156	0.167
E2	1.80	2.00	0.071	0.079
e	1.40	1.60	0.055	0.063
e1	2.80	3.20	0.110	0.126
L	0.90	1.20	0.035	0.047

**The recommended mounting pad size**



UNIT:MM

## Disclaimer

The information presented in this document is for reference only. Guangdong Youfeng Microelectronics Co.,Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise. The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), YFW or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale. This publication supersedes & replaces all information previously supplied. For additional information, please visit our website <https://www.yfwdiode.com>, or consult YFW sales office for further assistance.