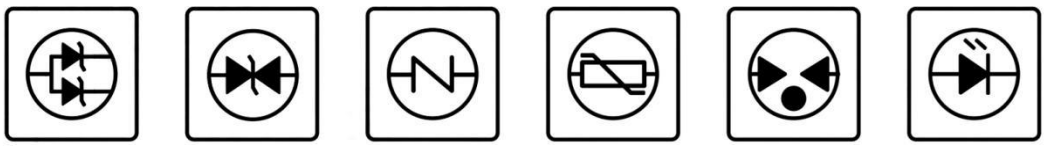
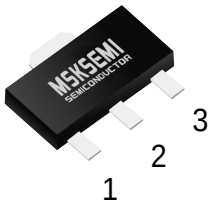
# MSKSEMI
SEMICONDUCTOR




# Product data sheet

**SOT-89**

1. BASE
2. COLLECTOR
3. EMITTER




**FEATURES**

- Low Collector-Emitter Saturation Voltage
- High Breakdown Voltage

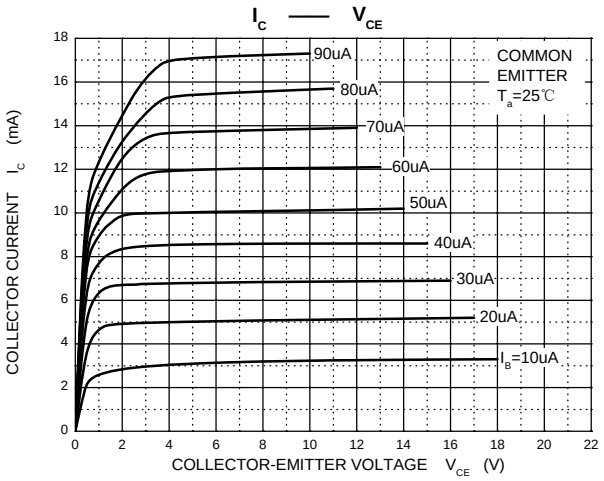
## MAXIMUM RATINGS ($T_a$=25℃ unless otherwise noted)

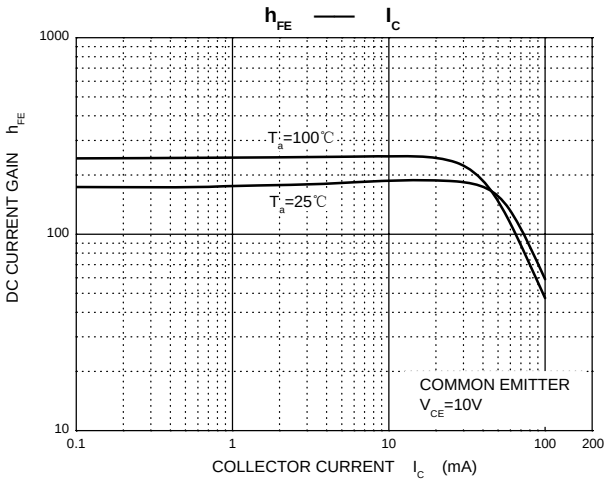
| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 310 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 305 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5 | V |
| $I_C$ | Collector Current -Continuous | 200 | mA |
| $I_{CM}$ | Collector Current -Pulsed | 500 | mA |
| $P_C$ | Collector Power Dissipation | 500 | mW |
| $R_{\theta JA}$ | Thermal Resistance from Junction to Ambient | 250 | ℃/W |
| $T_J$,$T_{stg}$ | Operation Junction and Storage Temperature Range | -55~+150 | ℃ |

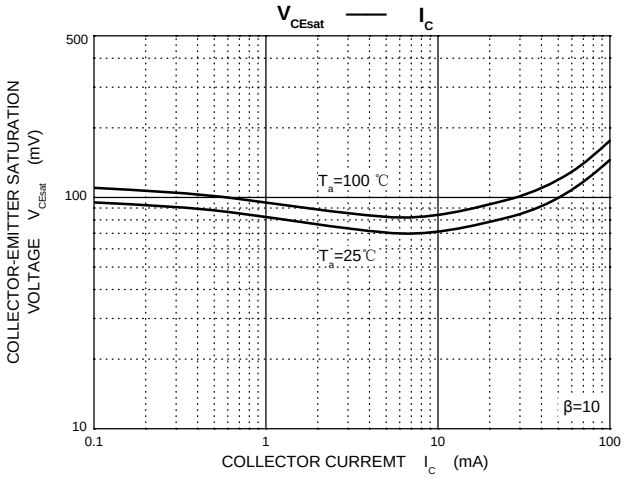
## ELECTRICAL CHARACTERISTICS ($T_a$=25℃ unless otherwise specified)

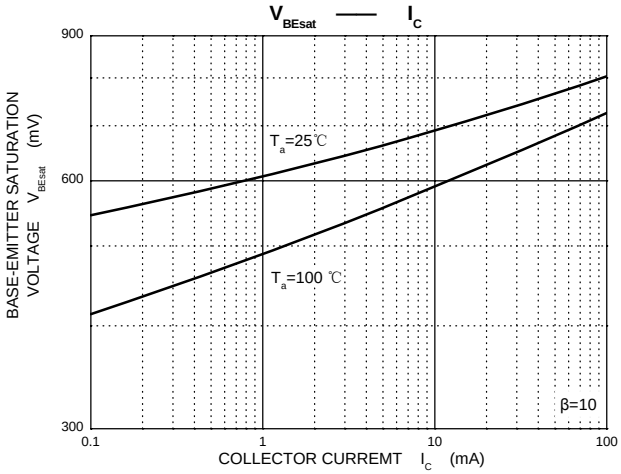
| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$=100μA,$I_E$=0 | 310 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$=1mA,$I_B$=0 | 305 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$=100μA,$I_C$=0 | 5 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=200V,$I_E$=0 | | | 0.25 | μA |
| | $I_{CEX}$ | $V_{CE}$=100V,$V_X$=5V | | | 5 | μA |
| | | $V_{CE}$=300V,$V_X$=5V | | | 10 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=5V,$I_C$=0 | | | 0.1 | μA |
| DC current gain | $h_{FE(1)}$ | $V_{CE}$=10V, $I_C$=1mA | 60 | | | |
| | $h_{FE(2)}$ | $V_{CE}$=10V, $I_C$=10mA | 100 | | 300 | |
| | $h_{FE(3)}$ | $V_{CE}$=10V, $I_C$=30mA | 75 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=20mA,$I_B$=2mA | | | 0.2 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C$=20mA,$I_B$=2mA | | | 0.9 | V |
| Transition frequency | $f_T$ | $V_{CE}$=20V,$I_C$=10mA, f=30MHz | 50 | | | MHz |

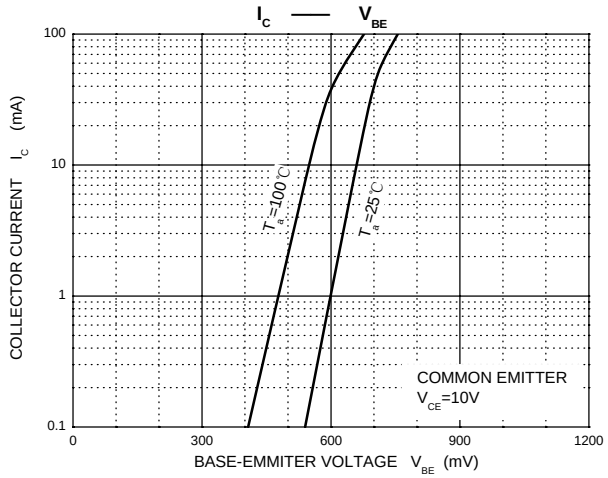
# Typical Characteristics

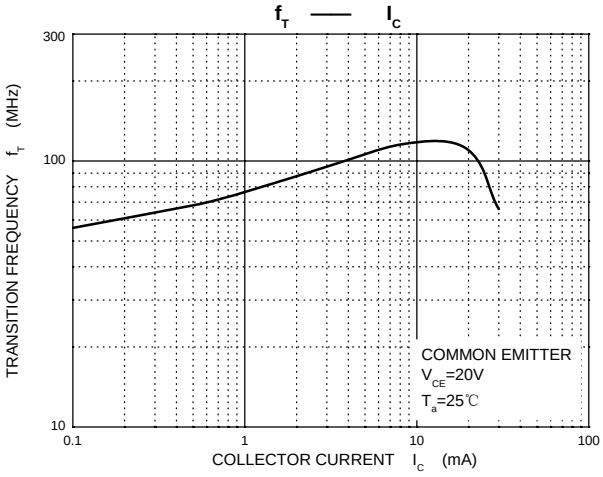


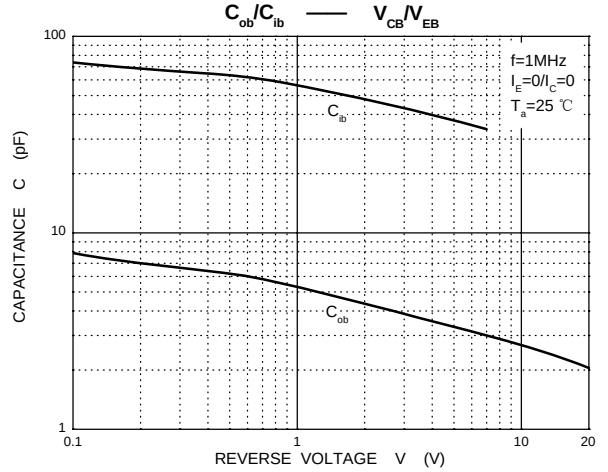



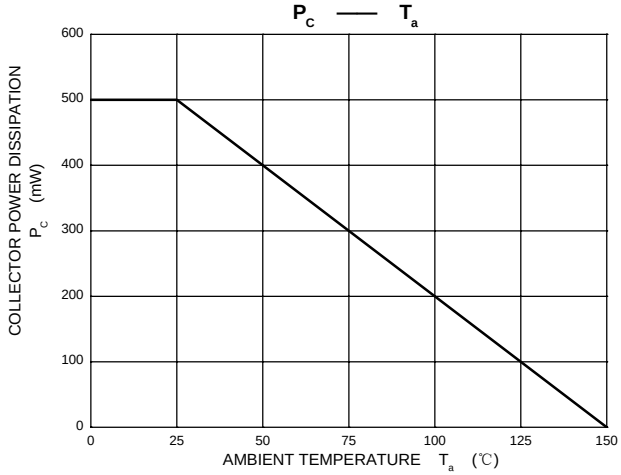



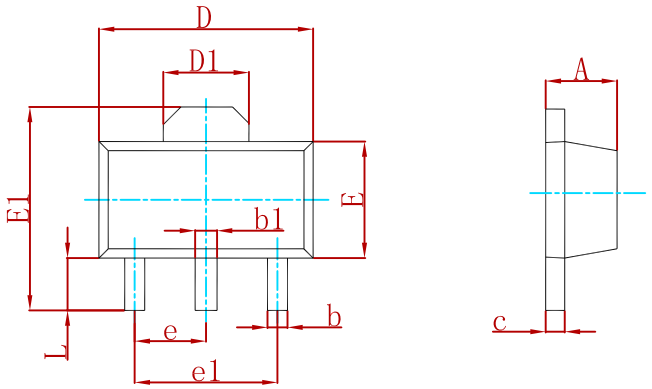



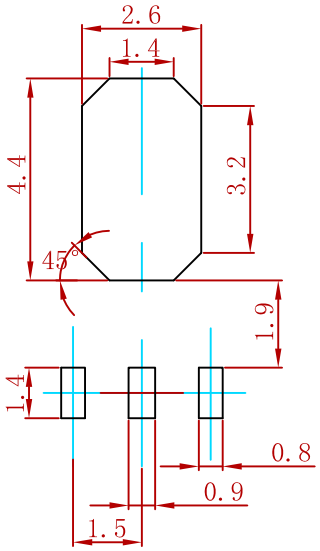



## PACKAGE MECHANICAL DATA




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 1.400 | 1.600 | 0.055 | 0.063 |
| b | 0.320 | 0.520 | 0.013 | 0.020 |
| b1 | 0.400 | 0.580 | 0.016 | 0.023 |
| c | 0.350 | 0.440 | 0.014 | 0.017 |
| D | 4.400 | 4.600 | 0.173 | 0.181 |
| D1 | 1.550 REF. | | 0.061 REF. | |
| E | 2.300 | 2.600 | 0.091 | 0.102 |
| E1 | 3.940 | 4.250 | 0.155 | 0.167 |
| e | 1.500 TYP. | | 0.060 TYP. | |
| e1 | 3.000 TYP. | | 0.118 TYP. | |
| L | 0.900 | 1.200 | 0.035 | 0.047 |

## Suggested Pad Layout




Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

## REEL SPECIFICATION

| P/N | PKG | QTY |
|---|---|---|
| A42 | SOT-89 | 1000 |

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