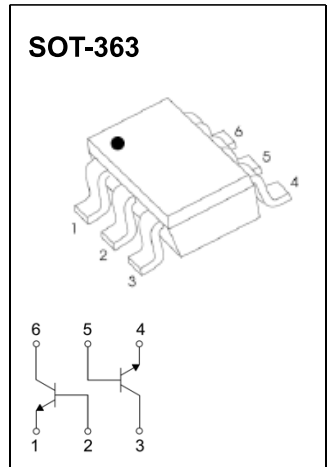


### Features

- Epoxy meets UL-94 V-0 flammability rating
- Surface mount package ideally Suited for Automatic Insertion

### Mechanical Data

- **Package:** SOT-363
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 1F



### MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Symbol          | Parameter  | Value    | Unit                        |
|-----------------|--|----------|-----------------------------|
| $V_{CBO}$       | Collector-Base Voltage                           | 50       | V                           |
| $V_{CEO}$       | Collector-Emitter Voltage                        | 45       |                             |
| $V_{EBO}$       | Emitter-Base Voltage                             | 6        |                             |
| $I_C$           | Collector Current-Continuous                     | 100      | mA                          |
| $P_D$           | Power Dissipation                                | 200      | mW                          |
| $R_{\theta JA}$ | Thermal Resistance. Junction to Ambient          | 625      | $^{\circ}\text{C}/\text{W}$ |
| $T_J, T_{stg}$  | Operation Junction and Storage Temperature Range | -55~+150 | $^{\circ}\text{C}$          |

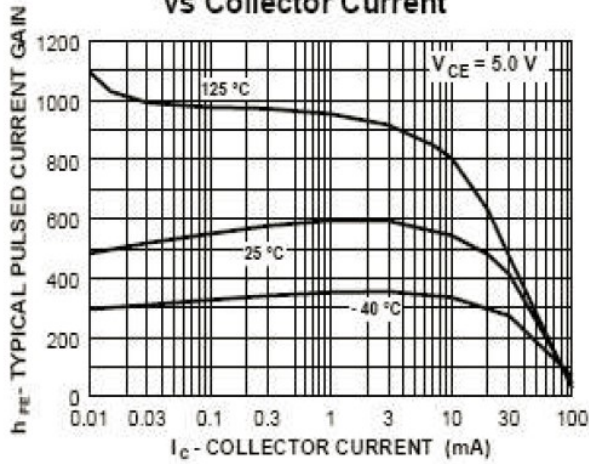
### ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter                            | Symbol           | Test conditions                                      | Min  | Typ | Max  | Unit |
|--------------------------------------|------------------|--|------|-----|------|------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$    | $I_C=10\mu\text{A}, I_E=0$                           | 50   |     |      | V    |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$    | $I_C=1\text{mA}, I_B=0$                              | 45   |     |      | V    |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$    | $I_E=10\mu\text{A}, I_C=0$                           | 6    |     |      | V    |
| Collector cut-off current            | $I_{CBO}$        | $V_{CB}=30\text{V}, I_E=0$                           |      |     | 15   | nA   |
| Emitter cut-off current              | $I_{EBO}$        | $V_{EB}=4\text{V}, I_C=0$                            |      |     | 15   |      |
| DC current gain*                     | $h_{FE}$         | $V_{CE}=5\text{V}, I_C=2\text{mA}$                   | 200  |     | 450  |      |
| Collector-emitter saturation voltage | $V_{CE(sat)(1)}$ | $I_C=10\text{mA}, I_B=0.5\text{mA}$                  |      |     | 0.25 | V    |
|                                      | $V_{CE(sat)(2)}$ | $I_C=100\text{mA}, I_B=5\text{mA}$                   |      |     | 0.65 | V    |
| Base-emitter voltage                 | $V_{BE(1)}$      | $V_{CE}=5\text{V}, I_C=2\text{mA}$                   | 0.58 |     | 0.7  | V    |
|                                      | $V_{BE(2)}$      | $V_{CE}=5\text{V}, I_C=10\text{mA}$                  |      |     | 0.77 | V    |
| Transition frequency                 | $f_T$            | $V_{CE}=5\text{V}, I_C=20\text{mA}, f=100\text{MHz}$ |      | 200 |      | MHz  |
| Collector output capacitance         | $C_{ob}$         | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$            |      | 2   |      | pF   |

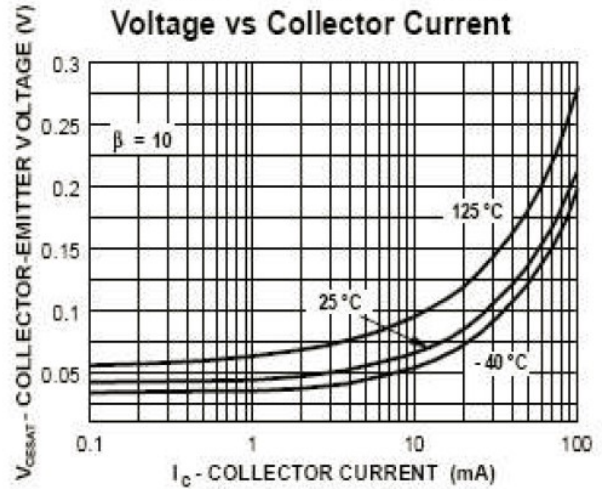
\*pulse test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

## Typical Characteristics

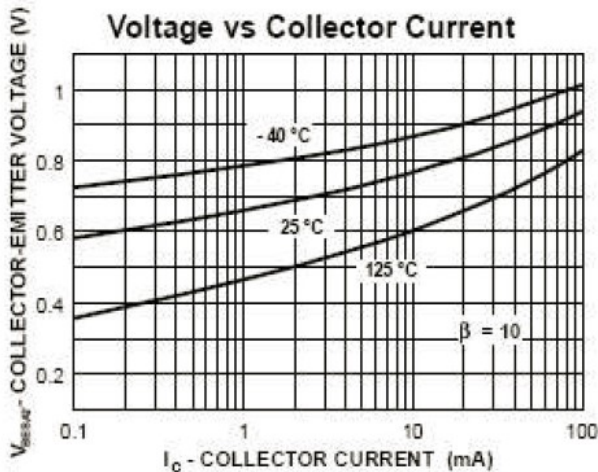
**Typical Pulsed Current Gain vs Collector Current**



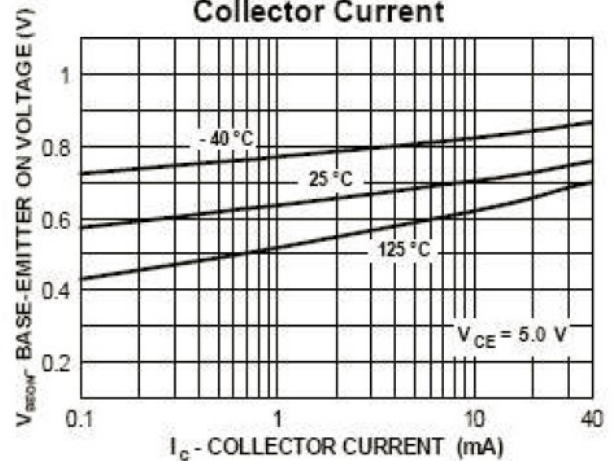
**Collector-Emitter Saturation Voltage vs Collector Current**



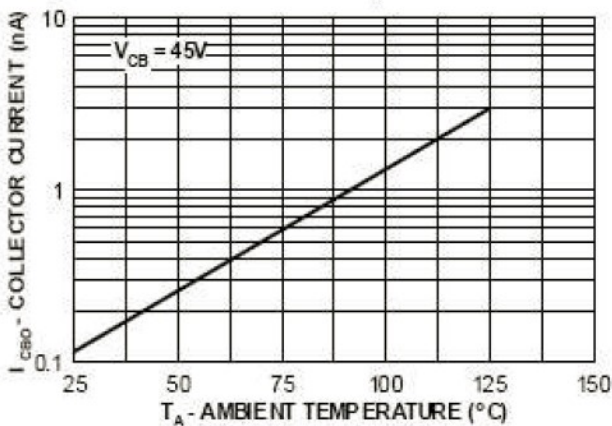
**Base-Emitter Saturation Voltage vs Collector Current**



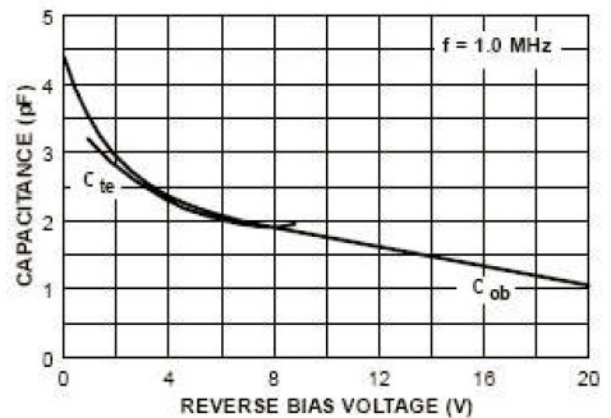
**Base-Emitter ON Voltage vs Collector Current**



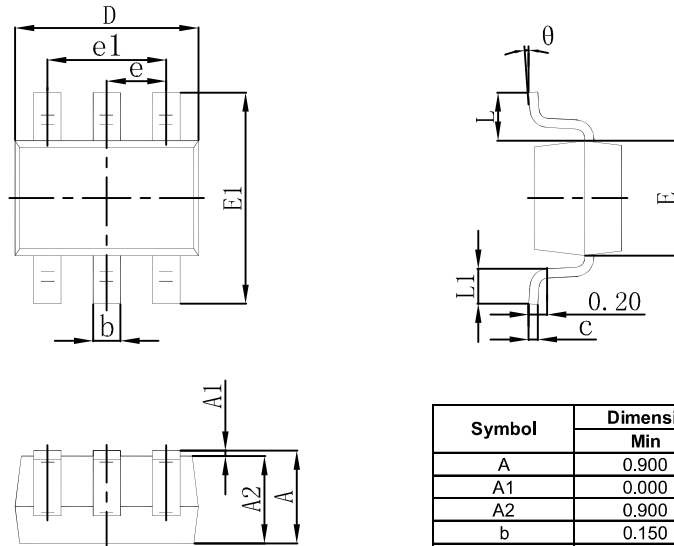
**Collector-Cutoff Current vs Ambient Temperature**



**Input and Output Capacitance vs Reverse Bias Voltage**

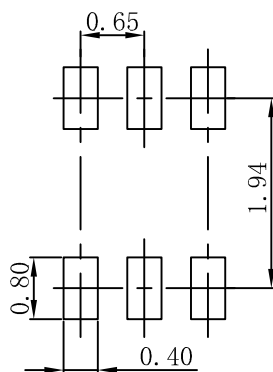


## SOT-363 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.100 | 0.035                | 0.043 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.000 | 0.035                | 0.039 |
| b      | 0.150                     | 0.350 | 0.006                | 0.014 |
| c      | 0.100                     | 0.150 | 0.004                | 0.006 |
| D      | 2.000                     | 2.200 | 0.079                | 0.087 |
| E      | 1.150                     | 1.350 | 0.045                | 0.053 |
| E1     | 2.150                     | 2.400 | 0.085                | 0.094 |
| e      | 0.650 TYP                 |       | 0.026 TYP            |       |
| e1     | 1.200                     | 1.400 | 0.047                | 0.055 |
| L      | 0.525 REF                 |       | 0.021 REF            |       |
| L1     | 0.260                     | 0.460 | 0.010                | 0.018 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

## SOT-363 Suggested Pad Layout



**Note:**

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

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