



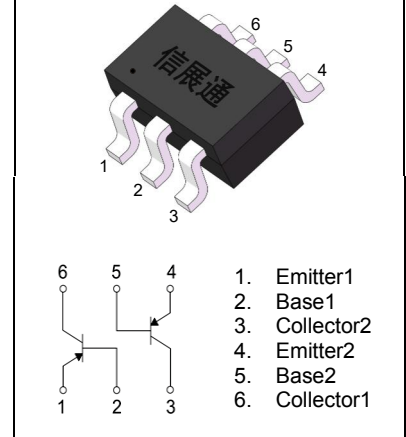
## FEATURES

- Epitaxial planar die construction
- Ideal for low power amplification and switching

## MAKING: K3N



## SOT-363



## Maximum Ratings @Ta=25°C

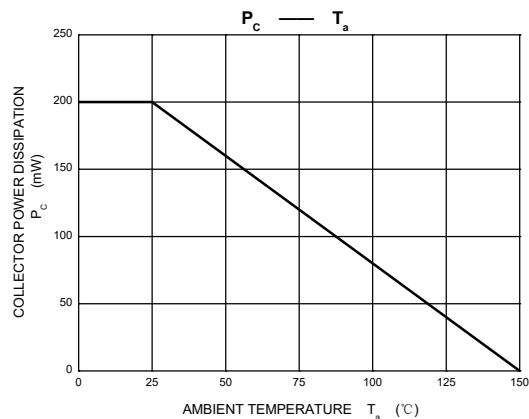
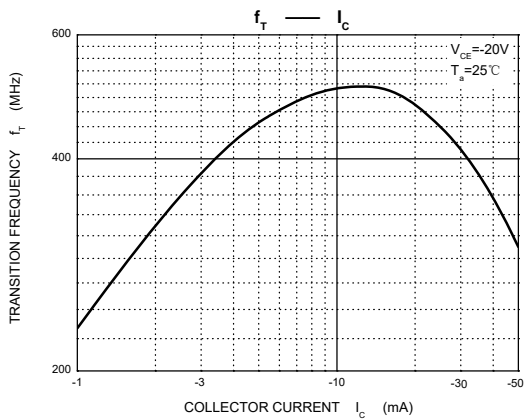
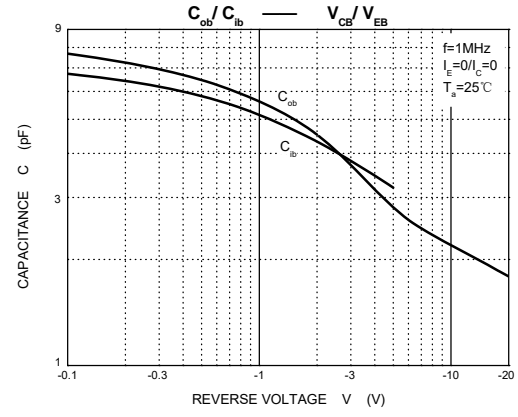
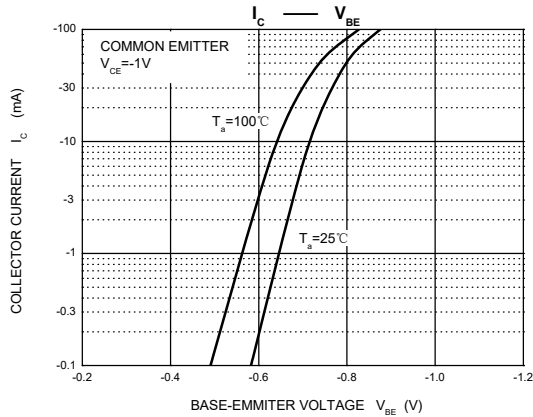
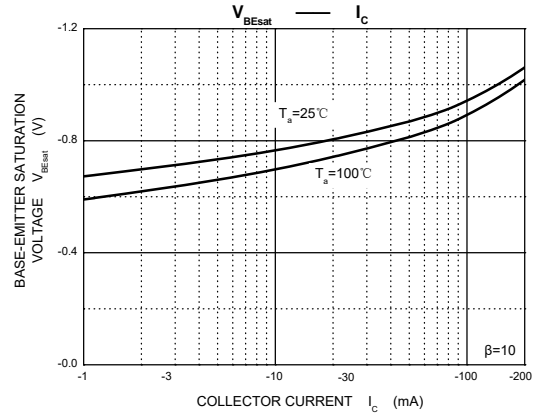
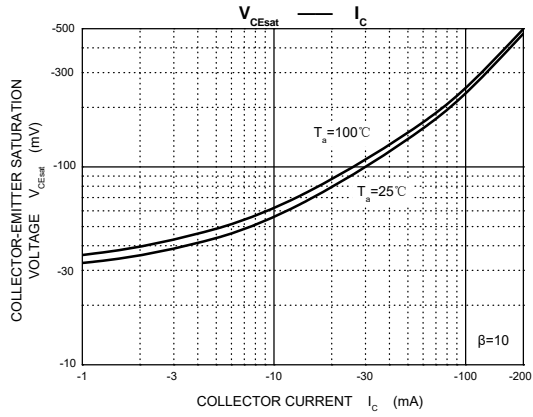
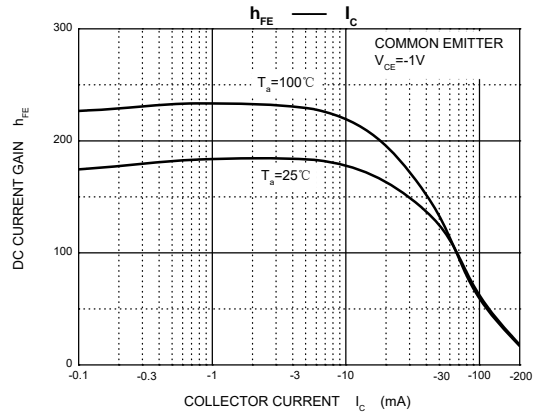
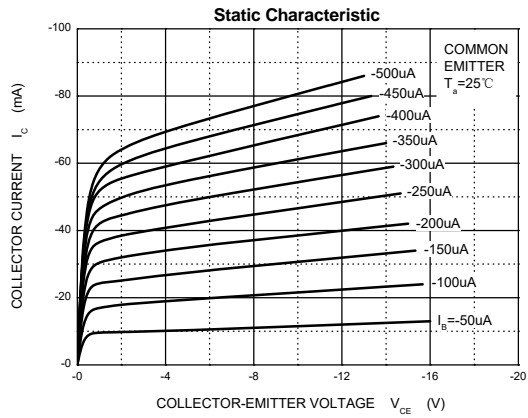
| Symbol         | Parameter  | Value    | Units |
|----------------|--|----------|-------|
| $V_{CBO}$      | Collector-Base Voltage                           | -40      | V     |
| $V_{CEO}$      | Collector-Emitter Voltage                        | -40      | V     |
| $V_{EBO}$      | Emitter-Base Voltage                             | -5       | V     |
| $I_C$          | Collector Current -Continuous                    | -0.2     | A     |
| $P_C$          | Collector Power Dissipation                      | 0.2      | W     |
| $T_J, T_{stg}$ | Operation Junction and Storage Temperature Range | -55~+150 | °C    |

ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise specified)

| Parameter                            | Symbol         | Test conditions                                | Min   | Typ | Max   | Unit |
|--------------------------------------|----------------|--|-------|-----|-------|------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$  | $I_C=-10\mu A, I_E=0$                          | -40   |     |       | V    |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$  | $I_C=-1mA, I_B=0$                              | -40   |     |       | V    |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$  | $I_E=-10\mu A, I_C=0$                          | -5    |     |       | V    |
| Collector cut-off current            | $I_{CEX}$      | $V_{CE}=-30V, V_{EB(OFF)}=-3V$                 |       |     | -50   | nA   |
| Base cut-off current                 | $I_{EBO}$      | $V_{EB}=-5V, I_C=0$                            |       |     | -50   | nA   |
| DC current gain                      | $h_{FE(1)}$    | $V_{CE}=-1V, I_C=-0.1mA$                       | 60    |     |       |      |
|                                      | $h_{FE(2)}$    | $V_{CE}=-1V, I_C=-1mA$                         | 80    |     |       |      |
|                                      | $h_{FE(3)}$    | $V_{CE}=-1V, I_C=-10mA$                        | 100   |     | 300   |      |
|                                      | $h_{FE(4)}$    | $V_{CE}=-1V, I_C=-50mA$                        | 60    |     |       |      |
|                                      | $h_{FE(5)}$    | $V_{CE}=-1V, I_C=-100mA$                       | 30    |     |       |      |
| Collector-emitter saturation voltage | $V_{CE(sat)1}$ | $I_C=-10mA, I_B=-1mA$                          |       |     | -0.25 | V    |
|                                      | $V_{CE(sat)2}$ | $I_C=-50mA, I_B=-5mA$                          |       |     | -0.4  | V    |
| Base-emitter saturation voltage      | $V_{BE(sat)1}$ | $I_C=-10mA, I_B=-1mA$                          | -0.65 |     | -0.85 | V    |
|                                      | $V_{BE(sat)2}$ | $I_C=-50mA, I_B=-5mA$                          |       |     | -0.95 | V    |
| Transition frequency                 | $f_T$          | $V_{CE}=-20V, I_C=-10mA, f=100MHz$             | 250   |     |       | MHz  |
| Collector output capacitance         | $C_{ob}$       | $V_{CB}=-5V, I_E=0, f=1MHz$                    |       |     | 4.5   | pF   |
| Noise figure                         | NF             | $V_{CE}=-5V, I_C=-0.1mA, f=1KHz, R_g=1K\Omega$ |       |     | 4     | dB   |
| Delay time                           | $t_d$          | $V_{CC}=-3V, V_{BE}=0.5V$                      |       |     | 35    | nS   |
| Rise time                            | $t_r$          | $I_C=-10mA, I_{B1}=-I_{B2}=-1mA$               |       |     | 35    | nS   |
| Storage time                         | $t_s$          | $V_{CC}=-3V, I_C=-10mA$                        |       |     | 225   | nS   |
| Fall time                            | $t_f$          | $I_{B1}=-I_{B2}=-1mA$                          |       |     | 75    | nS   |

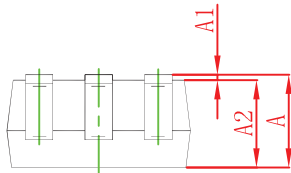
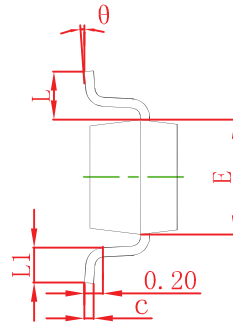
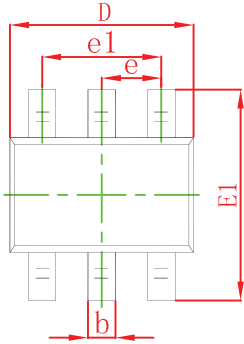


## Typical Characteristics



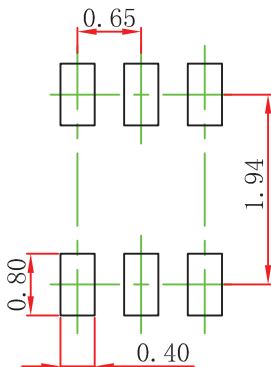


## SOT-363 Package Outline Dimensions



| 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: ± 0.05mm.
3. The pad layout is for reference purposes only.

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