

NPN PRE-BIASED SMALL SIGNAL SOT-363 DUAL SURFACE MOUNT TRANSISTOR

NEW PRODUCT

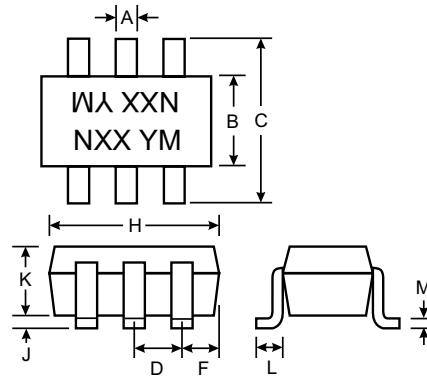
Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (DDA)
- Built-In Biasing Resistors

Mechanical Data

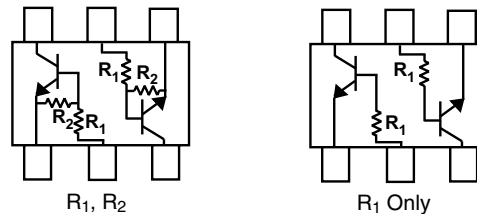
- Case: SOT-363, Molded Plastic
- Case material - UL Flammability Rating 94V-0
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.006 grams (approx.)

UNDER DEVELOPMENT



| SOT-363 | | |
|----------------------|--------------|------|
| Dim | Min | Max |
| A | 0.10 | 0.30 |
| B | 1.15 | 1.35 |
| C | 2.00 | 2.20 |
| D | 0.65 Nominal | |
| E | 0.30 | 0.40 |
| G | 1.80 | 2.20 |
| H | 1.80 | 2.20 |
| J | — | 0.10 |
| K | 0.90 | 1.00 |
| L | 0.25 | 0.40 |
| M | 0.10 | 0.25 |
| All Dimensions in mm | | |

| P/N | R1 | R2 | MARKING |
|----------|------|-----|---------|
| DDC124EU | 22K | 22K | N17 |
| DDC144EU | 47K | 47K | N20 |
| DDC114YU | 10K | 47K | N14 |
| DDC123JU | 2.2K | 47K | N06 |
| DDC114EU | 10K | 10K | N13 |
| DDC143TU | 4.7K | - | N07 |
| DDC114TU | 10K | - | N12 |



SCHEMATIC DIAGRAM

Maximum Ratings @ T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|--|------|
| Supply Voltage, (3) to (1) | V _{CC} | 50 | V |
| Input Voltage, (2) to (1) | V _{IN} | -10 to +40 -10 to +40 -6 to +40 -5 to +12 -10 to +40 -5 V _{max} -5 V _{max} | V |
| Output Current | I _O | 30 30 70 100 50 100 100 | mA |
| Output Current | I _C (Max) | 100 | mA |
| Power Dissipation | P _d | 200 | mW |
| Operating and Storage and Temperature Range | T _j , T _{STG} | -55 to +150 | °C |

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic (DDC143TU & DDC114TU only) | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---------------|-----|-----|-----|---------------|---|
| Collector-Base Breakdown Voltage | BV_{CBO} | 50 | — | — | V | $I_C = 50\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | 50 | — | — | V | $I_C = 1\text{mA}$ |
| Emitter-Base Breakdown Voltage | BV_{EBO} | 5 | — | — | V | $I_E = 50\mu\text{A}$ |
| Collector Cutoff Current | I_{CBO} | — | — | 0.5 | μA | $V_{CB} = 50\text{V}$ |
| Emitter Cutoff Current | I_{EBO} | — | — | 0.5 | μA | $V_{EB} = 4\text{V}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | — | — | 0.3 | V | $I_C/I_B = 2.5\text{mA} / 0.25\text{mA}$ DDC143TU $I_C/I_B = 1\text{mA} / 0.1\text{mA}$ DDC114TU |
| DC Current Transfer Ratio | h_{FE} | 100 | 250 | 600 | — | $I_C = 1\text{mA}, V_{CE} = 5\text{V}$ |
| Gain-Bandwidth Product* | f_T | — | 250 | — | MHz | $V_{CE} = 10\text{V}, I_E = -5\text{mA}, f = 100\text{MHz}$ |

| Characteristic | | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------|--|--------------|----------------------------|-----|-------------------------------------|---------------|--|
| Input Voltage | DDC124EU DDC144EU DDC114YU DDC123JU DDC114EU | $V_{I(off)}$ | 0.5 | 1.1 | — | V | $V_{CC} = 5\text{V}, I_O = 100\mu\text{A}$ |
| | DDC124EU DDC144EU DDC114YU DDC123JU DDC114EU | | — | — | 1.9 | | |
| Output Voltage | DDC124EU DDC144EU DDC114YU DDC123JU DDC114EU | $V_{O(on)}$ | — | — | 0.1 | V | $I_O/I_I = 10\text{mA} / 0.5\text{mA}$ $I_O/I_I = 10\text{mA} / 0.5\text{mA}$ $I_O/I_I = 5\text{mA} / 0.25\text{mA}$ $I_O/I_I = 5\text{mA} / 0.25\text{mA}$ $I_O/I_I = 10\text{mA} / 0.5\text{mA}$ |
| | DDC124EU DDC144EU DDC114YU DDC123JU DDC114EU | | — | — | 1.9 | | |
| Input Current | DDC124EU DDC144EU DDC114YU DDC123JU DDC114EU | I_I | — | — | 0.36 0.18 0.88 3.6 0.88 | mA | $V_I = 5\text{V}$ |
| Output Current | | $I_{O(off)}$ | — | — | 0.5 | μA | $V_{CC} = 50\text{V}, V_I = 0\text{V}$ |
| DC Current Gain | DDC124EU DDC144EU DDC114YU DDC123JU DDC114EU | G_I | 56 68 68 80 30 | — | — | — | $V_O = 5\text{V}, I_O = 5\text{mA}$ $V_O = 5\text{V}, I_O = 5\text{mA}$ $V_O = 5\text{V}, I_O = 10\text{mA}$ $V_O = 5\text{V}, I_O = 10\text{mA}$ $V_O = 5\text{V}, I_O = 5\text{mA}$ |
| Gain-Bandwidth Product* | | f_T | — | 250 | — | MHz | $V_{CE} = 10\text{V}, I_E = 5\text{mA}, f = 100\text{MHz}$ |

* Transistor - For Reference Only

UNDER DEVELOPMENT