

NTE2635 Silicon NPN Transistor Horizontal Deflection ^w/Internal Damper Diode

Description:

The NTE2635 is an enhanced performance, new generation, high-voltage, high-speed switching NPN transistor with an integrated damper diode in a full-pack envelope intended for use in horizontal deflection circuits in color TV receivers. This device features exceptional tolerance to base drive and collector current load variations resulting in a very low worst case dissipation.

Absolute Maximum Ratings:

| | |
|--|----------------|
| Collector-Emitter Voltage ($V_{BE} = 0V$), V_{CESM} | 1500V |
| Collector-Emitter Voltage, V_{CEO} | 700V |
| Collector Current, I_C | |
| Continuous | 8A |
| Peak | 15A |
| Base Current, I_B | |
| Continuous | 4A |
| Peak | 6A |
| Reverse Base Current, $-I_B$ | |
| Continuous (Average over any 20ms period) | 100mA |
| Peak (Turn-Off Current) | 5A |
| Total Power Dissipation ($T_C = +25^\circ C$), P_{tot} | 35W |
| Operating Junction Temperature, T_J | +150°C |
| Storage Temperature Range, T_{stg} | -65° to +150°C |
| Thermal Resistance, Junction-to-Case (With Heat Sink Compound), R_{thJC} | 3.6K/W |
| Typical Thermal Resistance, Junction-to-Ambient, R_{thJA} | 55K/W |

Electrical Characteristics: ($T_C = +25^\circ C$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--|------------|---|-----|-----|------|------|
| Isolation Limiting Value | | | | | | |
| RMS Isolation Voltage from all Three Terminals to Case | V_{ISOL} | $f = 50-60\text{hz}$, Sinusoidal Waveform, R.H. $\leq 65\%$, Clean and Dustfree | - | - | 2500 | V |
| Capacitance from T2 to External Heat Sink | C_{ISOL} | $f = 1\text{MHz}$ | - | 10 | - | pF |
| Static Characteristics | | | | | | |
| Collector Cutoff Current | I_{CES} | $V_{CE} = 1500V, V_{BE} = 0$, Note 1 | - | - | 1.0 | mA |
| | | $V_{CE} = 1500V, V_{BE} = 0, T_J = +125^\circ C$, Note 1 | - | - | 2.0 | mA |

Note 1. Measured with half sine-wave voltage (curve tracer).

Electrical Characteristics: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--|----------------|---|-----|------|-----|---------------|
| Static Characteristics (Cont'd) | | | | | | |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = 7.5\text{V}, I_C = 0$ | 140 | – | 390 | mA |
| Emitter–Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_B = 600\text{mA}$ | 7.5 | 13.5 | – | V |
| Base–Emitter Resistance | R_{be} | $V_{EB} = 7.5\text{V}$ | – | 33 | – | Ω |
| Collector–Emitter Sustaining Voltage | $V_{CEO(sus)}$ | $I_B = 0, I_C = 100\text{mA}, L = 25\text{mH}$ | 700 | – | – | V |
| Collector–Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 4.5\text{A}, I_B = 1.1\text{A}$ | – | – | 5.0 | V |
| | | $I_C = 4.5\text{A}, I_B = 1.29\text{A}$ | – | – | 1.0 | V |
| Base–Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = 4.5\text{A}, I_B = 1.7\text{A}$ | – | – | 1.3 | V |
| DC Current Gain | h_{FE} | $I_C = 1\text{A}, V_{CE} = 5\text{V}$ | 7 | 13 | 23 | |
| | | $I_C = 4.5\text{A}, V_{CE} = 1\text{V}$ | 4.0 | 5.5 | 7.5 | |
| Diode Forward Voltage | V_F | $I_F = 4.5\text{A}$ | – | 1.6 | 2.0 | V |
| Dymanic Characteristics | | | | | | |
| Collector Capacitance | C_C | $I_E = 0, V_{CB} = 10\text{V}, f = 1\text{MHz}$ | – | 80 | – | pF |
| Turn–Off Storage Time | t_s | $I_C = 4.5\text{A Peak}, I_{B(end)} = 1.1\text{A},$ $L_B = 6\mu\text{H}, -V_{BB} = 4\text{V},$ $(-dI_B/dt = 0.6\text{A}/\mu\text{s})$ | – | 5.0 | 6.0 | μs |
| Turn–Off Fall Time | t_f | | – | 0.4 | 0.6 | μs |

