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## NTE7046 Integrated Circuit Hybrid Switching Regulator

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

|   |                |
|---|----------------|
| TR1 Collector–Emitter Voltage (Note 1), $V_{CEX}$ .....     | 500V           |
| Applying Voltage, Pin4–2, $V_{2-4}$ .....                   | 12V            |
| Applying Voltage, Pin2–5, $V_{2-5}$ .....                   | 12V            |
| Applying Voltage, Pin5–9, $V_{5-9}$ .....                   | 30V            |
| Applying Voltage, Pin7–6, $V_{7-6}$ .....                   | 5V             |
| TR1 Collector Current, $I_{C(TR1)}$                         |                |
| Continuous .....  | 10A            |
| Pulsed .....  | 20A            |
| TR4 Collector Current, $I_{C(TR4)}$ .....                   | 500mA          |
| D2 Forward Current, $I_{IN(D2)}$ .....                      | 500mA          |
| D3 Forward Current, $I_{IN(D3)}$ .....                      | 100mA          |
| Maximum Power Dissipation (Note 2), $P_D$                   |                |
| No Fin .....  | 3.2W           |
| $T_{C1} = +100^\circ\text{C}$ .....                         | 2.7W           |
| TR1 Junction Temperature, $T_J$ .....                       | +150°C         |
| Frame Temperature Range (Operating, Note 3), $T_{C2}$ ..... | –20° to +125°C |
| Storage Temperature Range, $T_{stg}$ .....                  | –30° to +125°C |
| Maximum Output Current ( $V_O = 115\text{V}$ ), $I_O$ ..... | 1.7A           |

Note 1. Reference:  $V_{CEO} = 400\text{V}$  Min

Note 2.  $T_{C1}$  denotes the temperature of resin beneath the Power Transistor.

Note 3.  $T_{C2}$  denotes the internal frame temperature. Recommended  $T_{C2} = +100^\circ\text{C}$ .

**Electrical Characteristics (TR1 Characteristics):** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

| Parameter                           | Symbol           | Test Conditions                              | Min | Typ | Max  | Unit |
|-------------------------------------|------------------|--|-----|-----|------|------|
| Saturation Voltage                  | $V_{CE(sat)}$    | $I_C = 8\text{A}, I_B = 1.2\text{A}$         | –   | –   | 0.5  | V    |
|                                     | $V_{BE(sat)}$    | $I_C = 6\text{A}, I_B = 1.2\text{A}$         | –   | –   | 1.5  | V    |
| DC Current Gain                     | $h_{FE}$         | $I_C = 1\text{A}, V_{CE} = 4\text{V}$        | 15  | –   | 40   |      |
| Collector Cutoff Current            | $I_{CEX}$        | $V_{CE} = 500\text{V}, V_{BE} = 1.5\text{V}$ | –   | –   | 8    | mA   |
| Power Transistor Thermal Resistance | $R_{\theta JC2}$ | Between Junction and Internal Frame          | –   | 0.7 | –    | °C/W |
| Switching Time                      | $t_s$            |  | –   | –   | 10.0 | μs   |
|                                     | $t_f$            |  | –   | –   | 0.6  | μs   |

**Pin Connection Diagram**  
(Front View)

