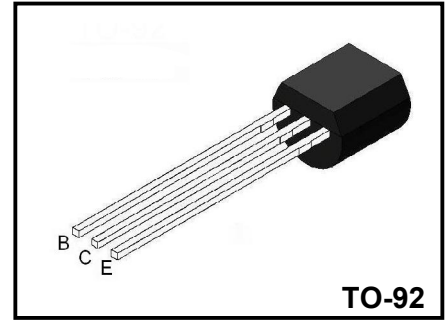


NPN Plastic-Encapsulate Transistors

High Voltage Mode Application

High speed Switching



Marking :YFW13003B

Absolute Maximum Rating (Ta=25°C)

| Parameter | Symbol | Value | Unit |
|-----------------------------|------------|---------|------|
| Collector-Base Voltage | BV_{CBO} | 700 | V |
| Collector-Emitter Voltage | BV_{CEO} | 400 | V |
| Emitter-Base Voltage | B_{VEBO} | 9 | V |
| Collector Current | I_C | 0.5 | A |
| Collector Power Dissipation | P_C | 0.9 | W |
| Junction Temperature | T_j | 150 | °C |
| Storage Temperature | T_{stg} | -55~150 | °C |

Electrical Characteristics (Ta=25°C)

| Parameter | Symbol | Conditions | Value | | | Unit |
|---------------------------------------|---------------|-----------------------------------------------------------------------------------|-------|-----|-----|---------|
| | | | Min | Typ | Max | |
| Collector-base breakdown voltage | BV_{CBO} | $I_C = 100\mu A, I_E = 0$ | 700 | | | V |
| Collector-emitter breakdown voltage | BV_{CEO} | $I_C = 1mA, I_B = 0$ | 400 | | | V |
| Emitter-base breakdown voltage | BV_{EBO} | $I_E = 100\mu A, I_C = 0$ | 9 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB} = 700V, I_E = 0$ | | | 100 | μA |
| Collector cut-off current | I_{CEO} | $V_{CE} = 400V, I_B = 0$ | | | 200 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB} = 9V, I_C = 0$ | | | 100 | μA |
| DC current gain* | h_{FE} | $V_{CE} = 5, I_C = 0.1A$ | 10 | | 40 | |
| Collector-emitter saturation voltage* | $V_{CE(sat)}$ | $I_C = 0.5A, I_B = 0.1A$ | | | 0.5 | V |
| Base-emitter saturation voltage* | $V_{BE(sat)}$ | $I_C = 0.5A, I_B = 0.1A$ | | | 1.2 | V |
| Transition frequency | f_T | $V_{CE} = 10V, I_B = 0.1A$ | 8 | | | MHz |
| Output Capacitance | C_{ob} | $V_{CE} = 10V, f = 1MHz$ | | 21 | | pF |
| Turn On Time | t_{on} | $V_{CC} = 10V, I_C = 0.1A$ $I_{B1} = 0.2A, I_{B2} = -0.1A$ $RL = 125\Omega$ | | | 1.1 | μs |
| Storage Time | t_{stg} | | | | 4.0 | μs |
| Fall Time | t_f | | | | 0.7 | μs |

* Pulse Test: Pulse Width=5ms, Duty Cycle≤10%

Typical Characteristics

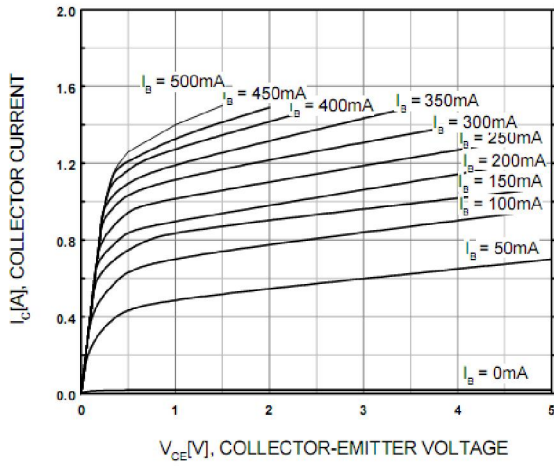


Figure 1. Static Characteristic

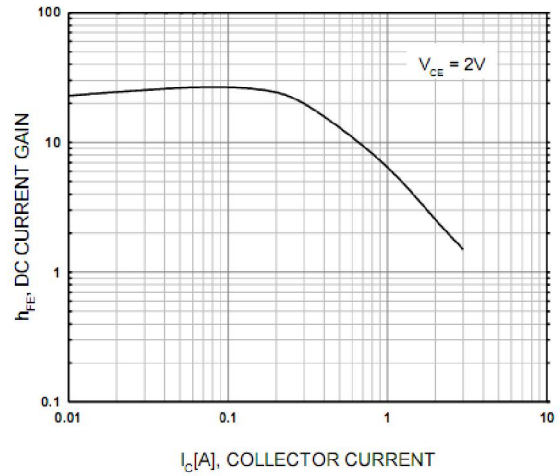


Figure 2. DC current Gain

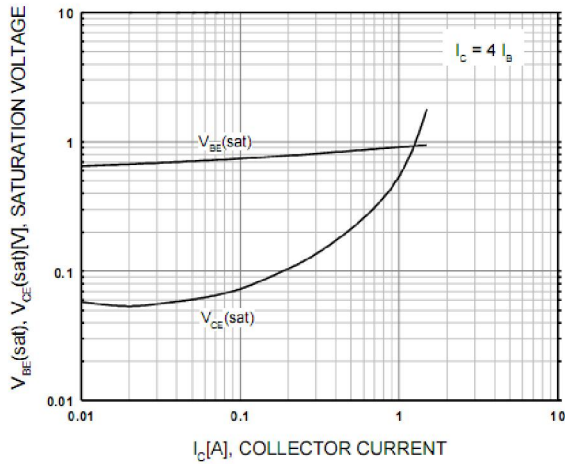


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

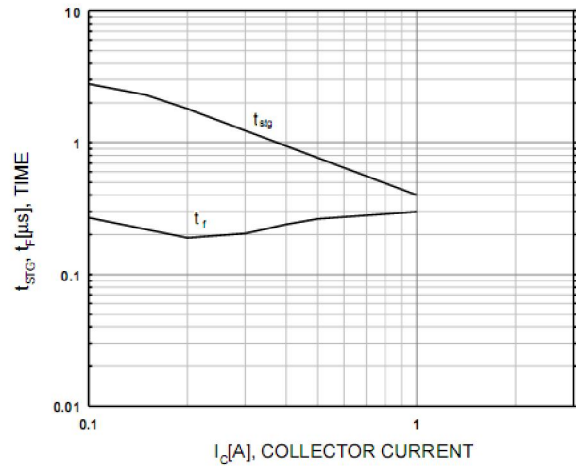


Figure 4. Switching Time

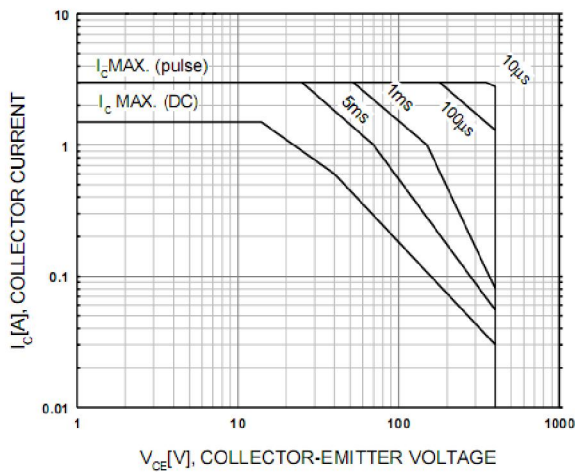


Figure 5. Safe Operating Area

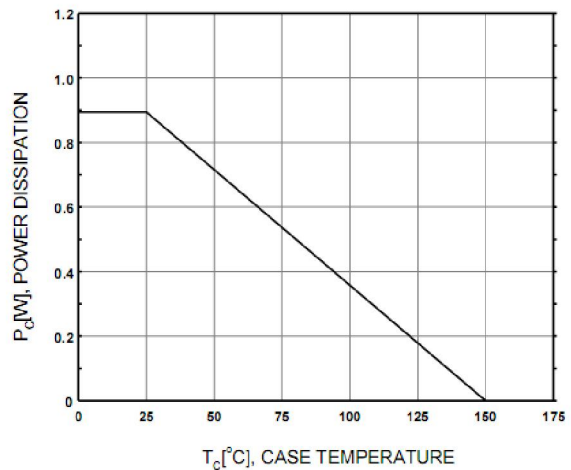


Figure 6. Power Derating

Package Dimensions

TO-92

| Symbol | Millimeter | | Inches | |
|--------|------------|-------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 3.30 | 3.70 | 0.130 | 0.146 |
| A1 | 2.30 | 2.70 | 0.091 | 0.106 |
| b | 0.40 | 0.50 | 0.016 | 0.020 |
| b1 | 0.50 | 0.70 | 0.020 | 0.028 |
| c | 0.35 | 0.45 | 0.014 | 0.018 |
| D | 4.45 | 4.70 | 0.175 | 0.185 |
| E | 4.40 | 4.65 | 0.173 | 0.183 |
| e | 1.17 | 1.37 | 0.046 | 0.054 |
| e1 | 2.34 | 2.64 | 0.092 | 0.104 |
| L | 13.50 | 14.50 | 0.531 | 0.571 |
| L1 | 1.80 | 2.20 | 0.071 | 0.087 |

| Package | Packing Method | Pack Quantity |
|---------|----------------|---------------|
| TO-92 | Bulk | 1000pcs/Bag |
| TO-92 | Tape | 2000pcs/Box |

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