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|------------|------------|
| NPN | PNP |
| TIP100 | TIP105 |
| TIP101 | TIP106 |
| TIP102 | TIP107 |

60-80-100 VOLTS, 8 AMPERE

DARLINGTON COMPLEMENTARY SILICON POWER TRANSISTORS

HIGH CURRENT GAIN $h_{FE} = 4000$ typ. @ 3V, 4A
 LOW SATURATION VOLTAGE $V_{CE(SAT)} = 1.0V$ typ. @ 4A
 MONOLITHIC CONSTRUCTION WITH BUILT-IN
 (1) BASE-EMITTER RESISTORS AND
 (2) COLLECTOR-EMITTER DIODE

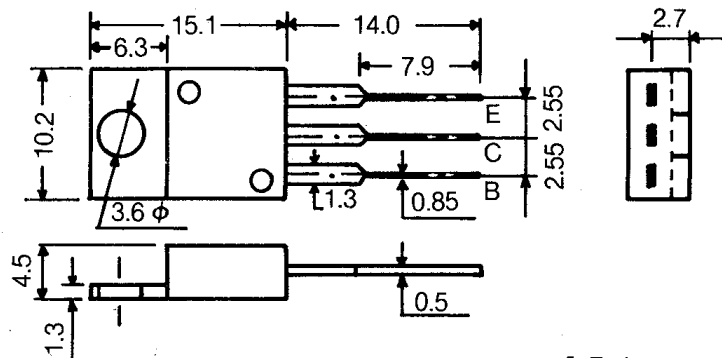
ABSOLUTE MAXIMUM RATINGS @ $T_a = 25^\circ C$

| RATING | SYMBOL | TIP100, TIP105 | TIP101, TIP106 | TIP102, TIP107 | UNIT |
|--|----------------|-------------------|-------------------|-------------------|-----------------|
| COLLECTOR-EMITTER VOLTAGE | V_{CEO} | 60 | 80 | 100 | Vdc |
| COLLECTOR-BASE VOLTAGE | V_{CB} | 60 | 80 | 100 | Vdc |
| EMITTER-BASE VOLTAGE | V_{EB} | 5.0 | | | Vdc |
| COLLECTOR CURRENT- CONTINUOUS PEAK | I_C | 8.0 15 | | | A _{dc} |
| TOTAL POWER DISSIPATION @ $T_C = 25^\circ C$ | P_D | 80 | | | W |
| TOTAL POWER DISSIPATION @ $T_A = 25^\circ C$ | P_D | 2.0 | | | W |
| OPERATING AND STORAGE JUNCTION TEMPERATURE RANGE | T_J, T_{stg} | - 55 to + 150 | | | $^\circ C$ |

OUTLINE DIMENSION

JEDEC: TO-220

UNIT: mm



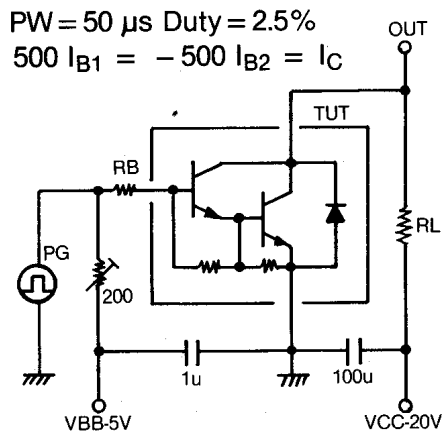
JEDEC: TO-220AB
 EIAJ: SC-46

E: Emitter
 C: Collector
 B: Base

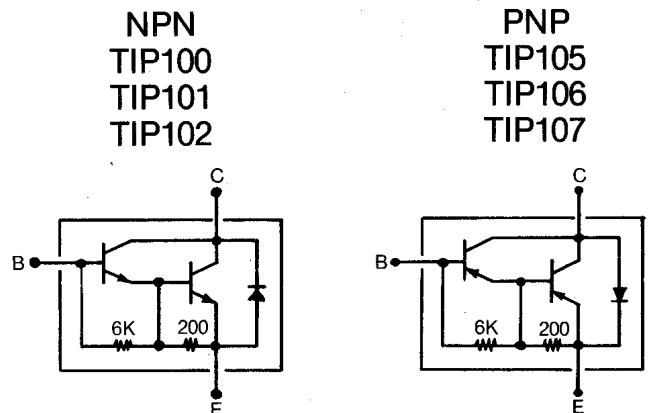
ELECTRICAL CHARACTERISTICS @ Ta = 25°C

| CHARACTERISTIC | SYMBOL | MIN | MAX | UNIT |
|--|-----------------------|-----------------|----------------|------------------|
| COLLECTOR-EMITTER SUSTAINING VOLTAGE (I _C = 30 mA _{dc} , I _B = 0) | V _{CEO(SUS)} | 60 80 100 | — — — | V _{dc} |
| COLLECTOR CUTOFF CURRENT (V _{CE} = 30 V _{dc} , I _B = 0) (V _{CE} = 40 V _{dc} , I _B = 0) (V _{CE} = 50 V _{dc} , I _B = 0) | I _{CEO} | — — — | 50 50 50 | μA _{dc} |
| COLLECTOR CUTOFF CURRENT (V _{CB} = 60 V _{dc} , I _E = 0) (V _{CB} = 80 V _{dc} , I _E = 0) (V _{CB} = 100 V _{dc} , I _E = 0) | I _{CBO} | — — — | 50 50 50 | μA _{dc} |
| EMITTER CUTOFF CURRENT (V _{BE} = 5.0 V _{dc} , I _C = 0) | I _{EBO} | — | 8.0 | mA _{dc} |
| DC CURRENT GAIN (I _C = 3.0 A _{dc} , V _{CE} = 4.0 V _{dc}) (I _C = 8.0 A _{dc} , V _{CE} = 4.0 V _{dc}) | h _{FE} | 1000 200 | 20,000 — | — |
| COLLECTOR-EMITTER SATURATION VOLTAGE (I _C = 3.0 A _{dc} , I _B = 6.0 mA _{dc}) (I _C = 8.0 A _{dc} , I _B = 80 mA _{dc}) | V _{CE(SAT)} | — — | 2.0 2.5 | V _{dc} |
| BASE-EMITTER ON VOLTAGE (I _C = 8.0 A _{dc} , V _{CE} = 4.0 V _{dc}) | V _{BE(ON)} | — | 2.8 | V _{dc} |
| GAIN BANDWIDTH PRODUCT (I _C = 4.0 A, V _{CE} = 5V) | f _T | 20 typ. | | mHz |
| OUTPUT CAPACITANCE (V _{CB} = 10V, I _E = 0, f = 1mHz) | C _{ob} | | 200 300 | pF pF |

SWITCHING TIME TEST CIRCUIT

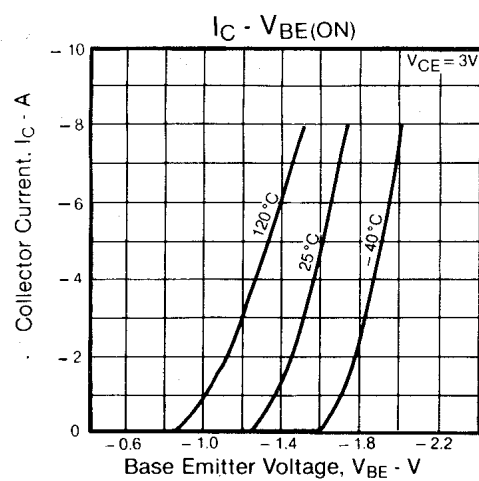
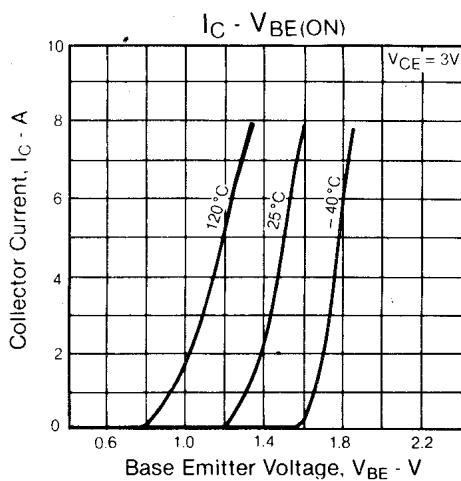
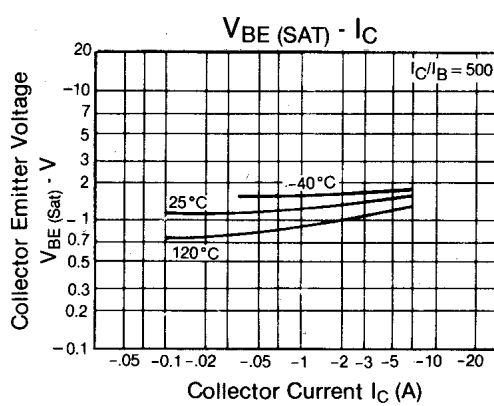
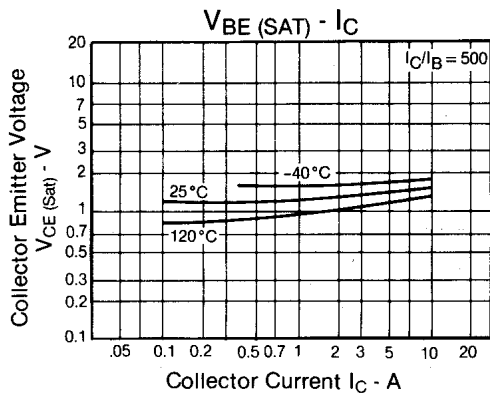
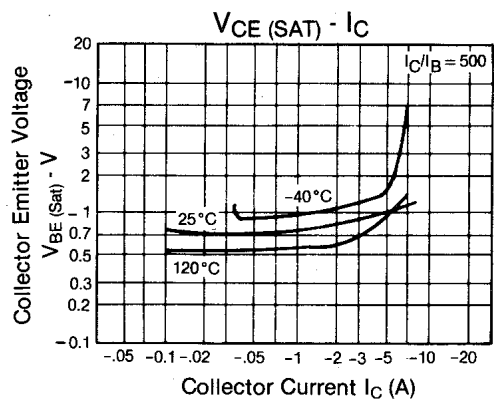
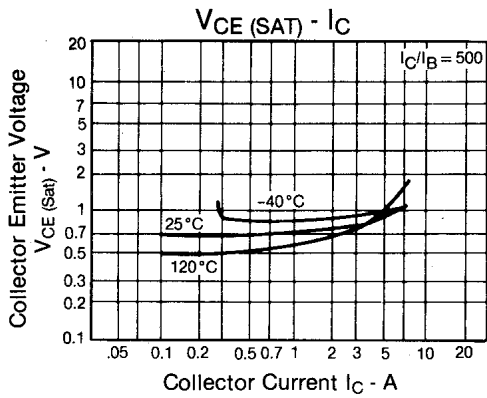
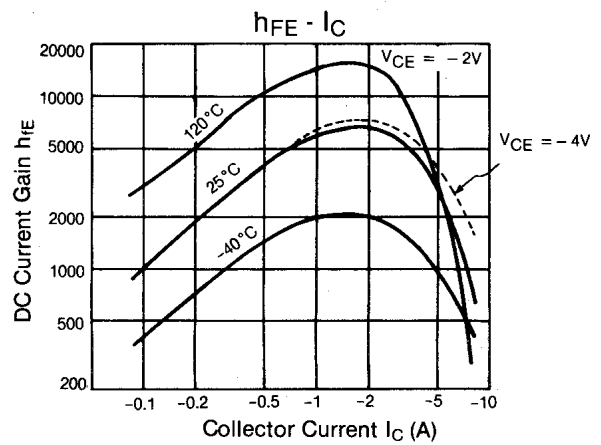
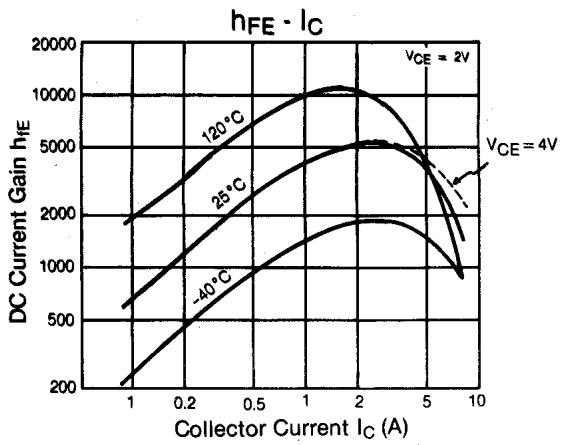


DARLINGTON SCHEMATIC

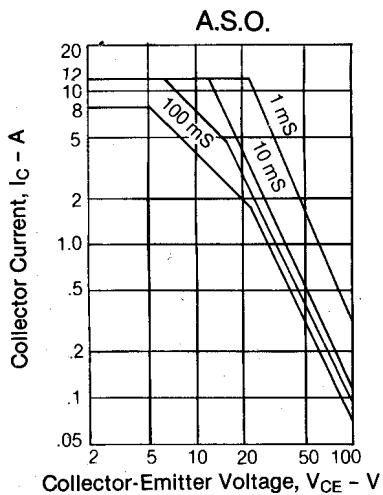
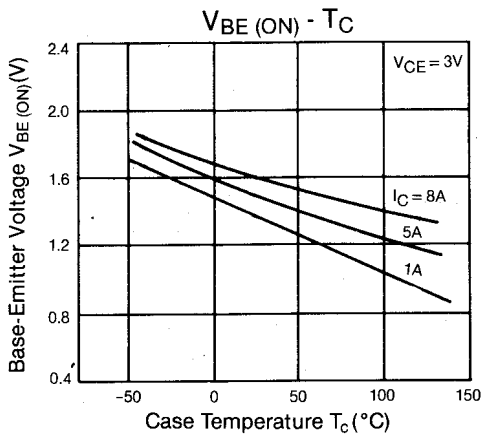
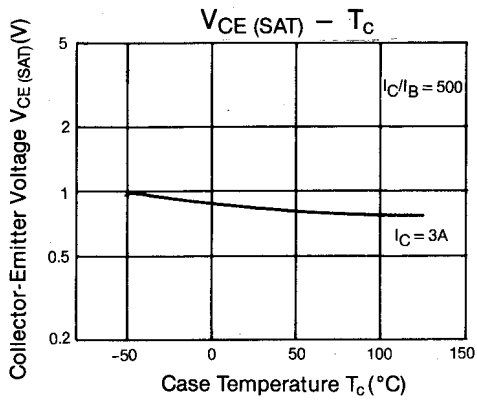
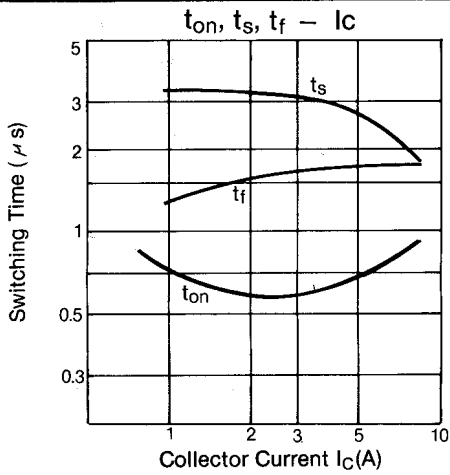


NPN
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