

NPN SILICON DARLINGTON POWER TRANSISTORS 2SD985, 2SD986

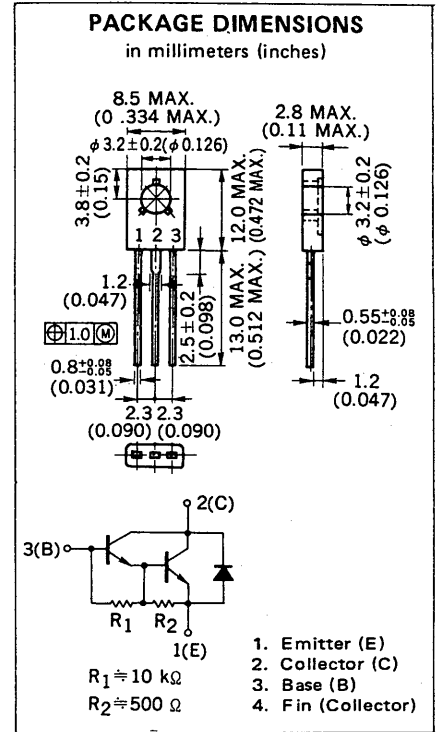
DESCRIPTION The 2SD985, 2SD986 are darlington transistors built-in dumper diodes at E-C. They are suitable for use to operate from IC without predriver, such as hammer driver.

- FEATURES**
- High DC Current Gain.
 - Low Collector Saturation Voltage.
 - Built-in a dumper diode at E-C.
 - Complementary to the NEC 2SB794, 2SB795 PNP Transistors.

ABSOLUTE MAXIMUM RATINGS

| | |
|--|---|
| Maximum Temperatures | |
| Storage Temperature | −55 to +150 °C |
| Junction Temperature | +150 °C Maximum |
| Maximum Power Dissipations | |
| Total Power Dissipation (T _a = 25 °C) | 1.0 W |
| Total Power Dissipation (T _c = 25 °C) | 10 W |
| Maximum Voltages and Currents (T _a = 25 °C) | |
| 2SD985 2SD986 | |
| V _{CB0} | Collector to Base Voltage... 150 150 V |
| V _{CE0} | Collector to Emitter Voltage... 60 80 V |
| V _{EBO} | Emitter to Base Voltage... 8.0 V |
| I _{C(DC)} | Collector Current... ±1.5 A |
| I _{C(pulse)*} | Collector Current... ±3.0 A |
| I _{B(DC)} | Base Current... 0.15 A |

* PW ≤ 10 ms, Duty Cycle ≤ 50 %



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

| SYMBOL | CHARACTERISTIC | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS |
|-------------------------|------------------------------|------|------|-------|------|--|
| h _{FE1} ** | DC Current Gain | 1000 | | | — | V _{CE} = 2.0 V, I _C = 0.5 A |
| h _{FE2} ** | DC Current Gain | 2000 | | 30000 | — | V _{CE} = 2.0 V, I _C = 1.0 A |
| t _{on} | Turn On Time | | 0.5 | | μs | I _C = 1.0 A, R _L = 50 Ω I _{B1} = −I _{B2} = 1.0 mA, V _{CC} = 50 V See Test Circuit |
| t _{stg} | Storage Time | | 1.0 | | μs | |
| t _f | Fall Time | | 1.0 | | μs | |
| I _{CBO} | Collector Cutoff Current | | | 10 | μA | V _{CB} = 60/80 V, I _E = 0 |
| I _{EBO} | Emitter Cutoff Current | | | 1.0 | mA | V _{EB} = 5.0 V, I _C = 0 |
| V _{CE(sat)} ** | Collector Saturation Voltage | | | 1.5 | V | I _C = 1.0 A, I _B = 1.0 mA |
| V _{BE(sat)} ** | Base Saturation Voltage | | | 2.0 | V | I _C = 1.0 A, I _B = 1.0 mA |

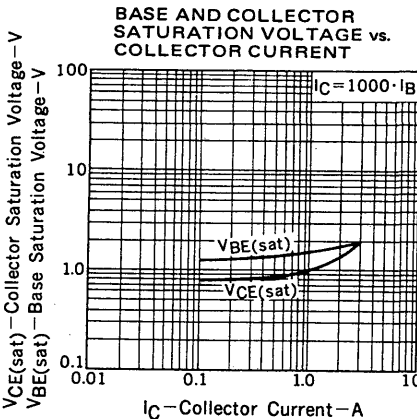
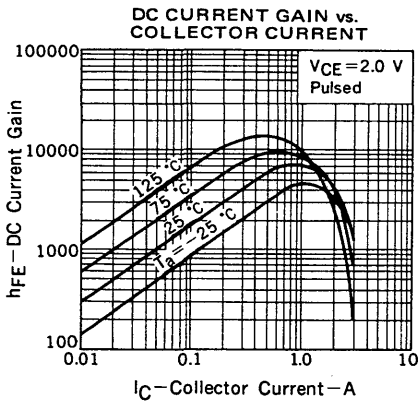
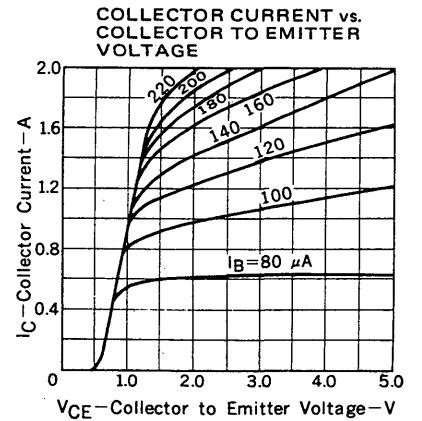
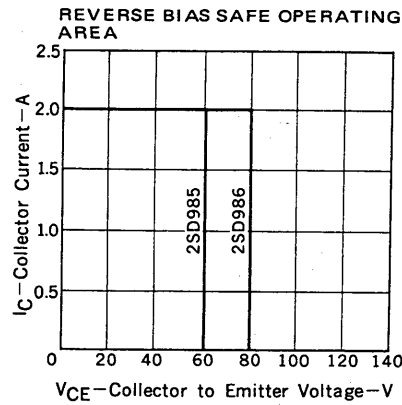
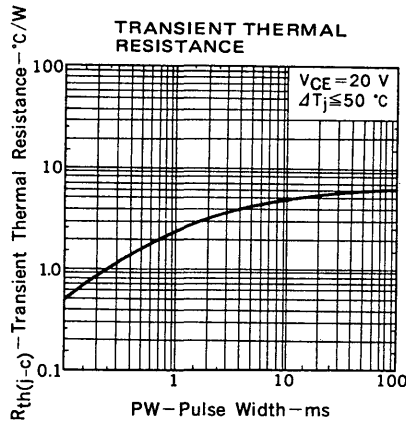
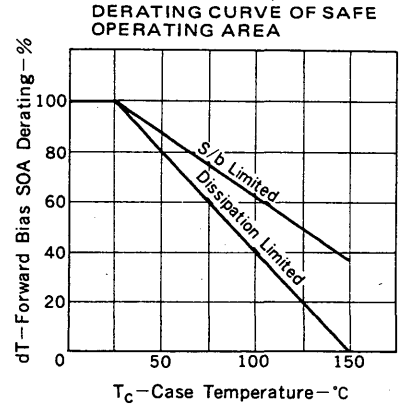
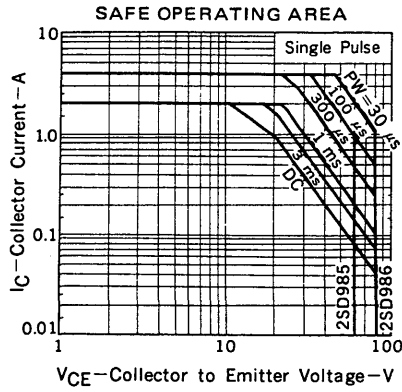
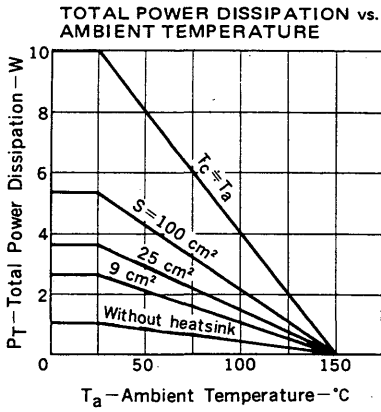
** Pulsed / PW ≤ 350 μs, Duty Cycle ≤ 2 %

Classification of h_{FE2}

| Rank | M | L | K |
|-------|--------------|---------------|---------------|
| Range | 2000 to 5000 | 4000 to 10000 | 8000 to 30000 |

Test Conditions: V_{CE} = 2.0 V, I_C = 1.0 A

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



SWITCHING TIME (t_{on} , t_{stg} , t_f) TEST CIRCUIT

