

NPN SILICON DARLINGTON POWER TRANSISTORS 2SD985, 2SD986

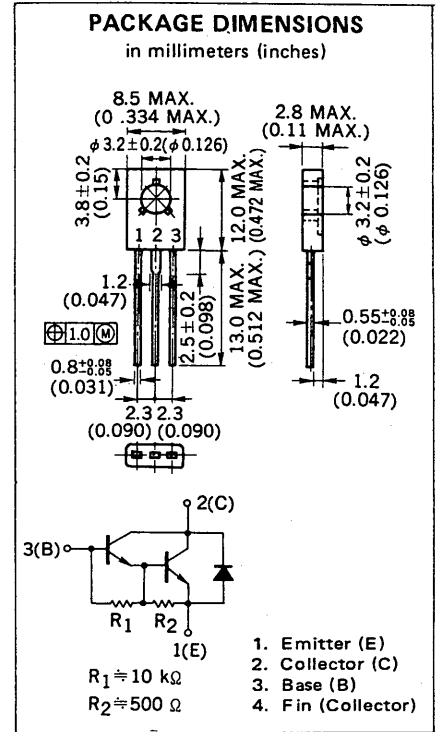
DESCRIPTION The 2SD985, 2SD986 are darlington transistors built-in dumper diodes at E-C. They are suitable for use to operate from IC without predriver, such as hammer driver.

- 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

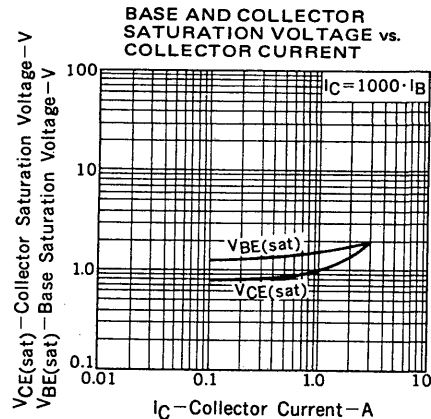
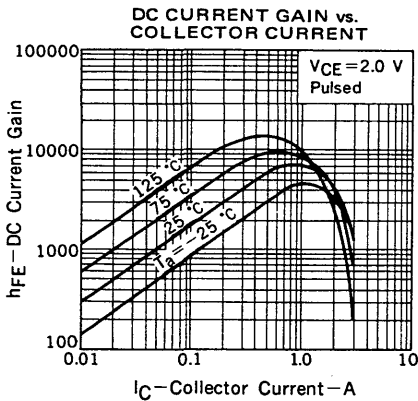
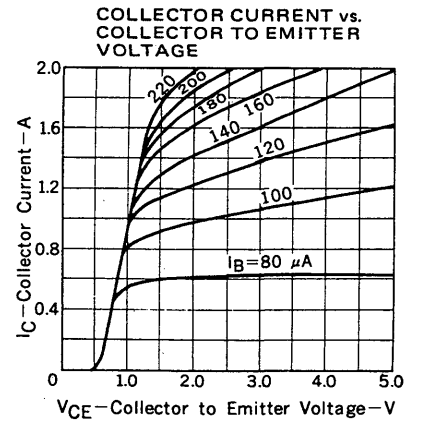
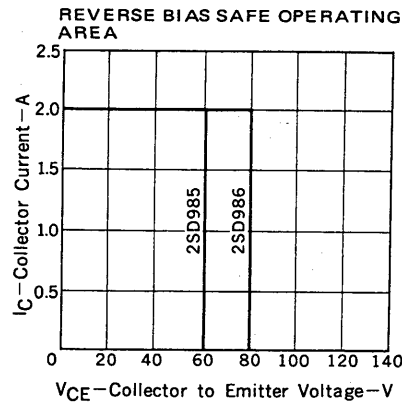
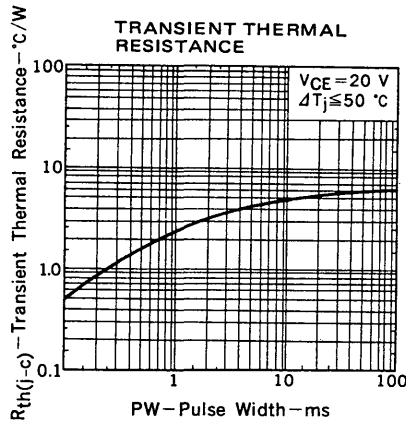
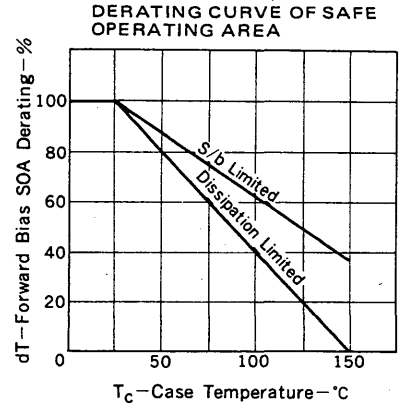
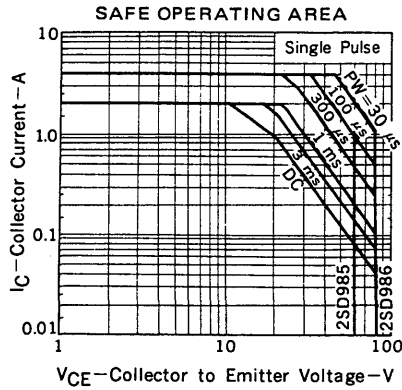
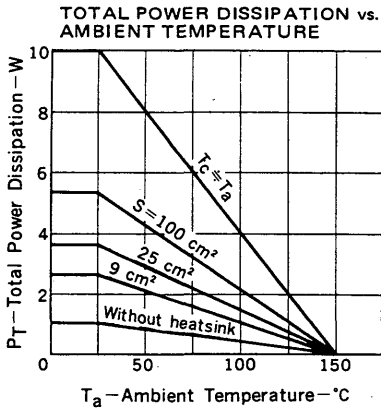
** Pulsed / PW ≤ 350 μs, Duty Cycle ≤ 2 %

Classification of h_{FE2}

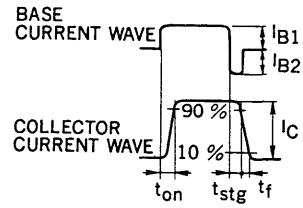
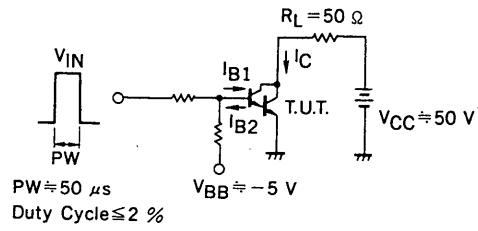
Rank	M	L	K
Range	2000 to 5000	4000 to 10000	8000 to 30000

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



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