## DATA SHEET

# DARLINGTON POWER TRANSISTOR 2SD1843

## NPN SILICON EPITAXIAL TRANSISTOR (DARLINGTON CONNECTION) FOR LOW-FREQUENCY POWER AMPLIFIERS AND LOW-SPEED SWITCHING

The 2SD1843 is a Darlington connection transistor with on-chip dumper diode in collector to emitter and zener diode in collector to base. This transistor is ideal for use in acuator drives such as motors, relays, and solenoids.

#### **FEATURES**

NEC

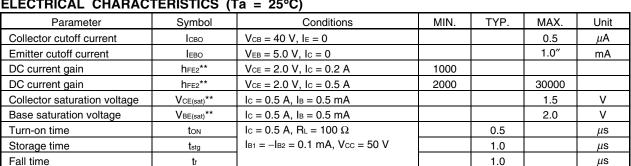
- High DC current gain due to Darlington connection
- High surge resistance due to on-chip protection elements: C to E: Dumper diode C to B: Zener diode
- Low collector saturation voltage

Parameter	Symbol	Ratings	Unit	
Collector to base voltage	Vсво	60±10	V	
Collector to emitter voltage	VCEO	60±10	V	
Emitter to base voltage	VEBO	7.0	V	
Collector current (DC)	IC(DC)	±1.0	А	
Collector current (pulse)	C(pulse)*	±2.0	А	
Total power dissipation	PT(Ta = 25°C)	1.0	W	
Junction temperature	Tj	150	°C	
Storage temperature	Tstg	–55 to +150	°C	

#### ABSOLUTE MAXIMUM BATINGS (Ta = $25^{\circ}$ C)

\* PW  $\leq$  10 ms, duty cycle  $\leq$  50%

#### ELECTRICAL CHARACTERISTICS (Ta = 25°C)



\* \*Pulse test PW  $\leq$  350  $\mu$ s, duty cycle  $\leq$  2%

#### **hfe CLASSIFICATION**

Marking	М	L	К
hfe2	2000 to 5000	4000 to 10000	8000 to 30000

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availability and additional information.

7.0 MAX 21 MAX. 9.6 MAX  $\textbf{0.8}\pm\textbf{0.1}$ MIN 0.6+0.1  $0.6 \pm 0.1$ 0  $0.6 \pm 0.1$  $0.55 \pm 0.1$ Electrode Connection MAX. 1. Emitter 2. Collector 3. Base 2(C) 3 (B)

R<sub>2</sub>

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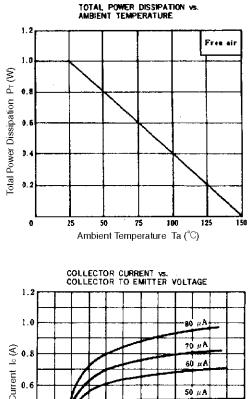
R

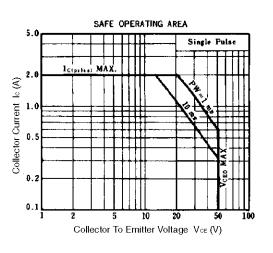
 $R_1 \approx 20 \ k\Omega$ 

 $R_2 \Rightarrow 1.4 k\Omega$ 

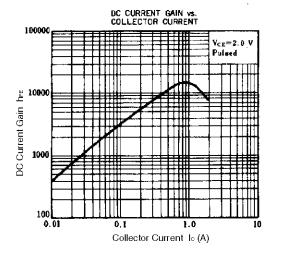
PACKAGE DRAWING (UNIT: mm)

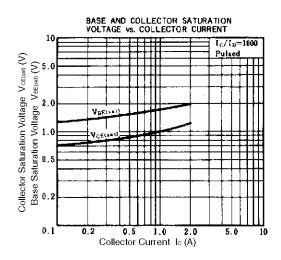
#### **TYPICAL CHARACTERISTICS (Ta = 25°C)**



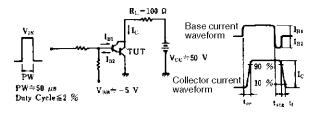


Collector Current Ic (A) 40 µA 1 = 30 #A 0.2 0 1.0 2.0 3.0 4.0 5.0 6.0 Collector To Emitter Voltage VcE (V)





### SWICHING TIME (ton, tstg, tf) TEST CIRCUIT



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