

NPN SILICON TRANSISTOR 2SD1701

DESCRIPTION The 2SD1701 is NPN silicon epitaxial darlington transistor designed for pulse motor driver, printer driver, solenoid driver.

- FEATURES**
- High DC Current gain.
 - Zener Diode between Collector and Base for Absorbing Surge Voltage is built-in.
 - Reverse Diode between Collector and Emitter is built-in.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to +150 °C

Junction Temperature 150 °C Maximum

Maximum Power Dissipation (T_a = 25 °C)

Total Power Dissipation 750 mW

Maximum Voltages and Currents (T_a = 25 °C)

V_{CBO} Collector to Base Voltage 60±10 V

V_{CEO} Collector to Emitter Voltage 60±10 V

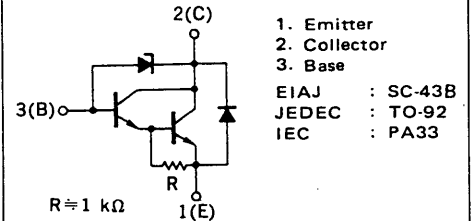
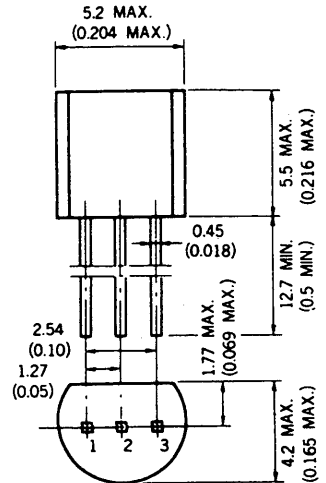
V_{EBO} Emitter to Base Voltage 8.0 V

I_{C(DC)} Collector Current ±0.8 A

I_{C(pulse)*} Collector Current ±1.2 A

* PW ≤ 10 ms, Duty Cycle ≤ 50 %

PACKAGE DIMENSIONS
in millimeters (inches)



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h _{FE1} **	DC Current Gain	4000		50000		V _{CE} = 2.0 V, I _C = 0.5 A
h _{FE2} **	DC Current Gain	1000				V _{CE} = 2.0 V, I _C = 0.8 A
t _{on}	Turn-on Time		0.5		μs	I _C = 0.5 A I _{B1} = -I _{B2} = 1.0 mA V _{CC} = 40 V, R _L = 80 Ω
t _{stg}	Storage Time		2.5		μs	
t _f	Fall-Time		1.0		μs	
V _{CE(sat)} **	Collector Saturation Voltage		0.9	1.2	V	
V _{BE(sat)} **	Base Saturation Voltage		1.5	2.0	V	I _C = 0.5 A, I _B = 1.0 mA
V _{CBO}	Collector Base Voltage	50	60	70	V	I _C = 0.1 mA, I _E = 0
V _{CEO}	Collector to Emitter Voltage	50	60	70	V	I _C = 5.0 mA, I _B = 0
I _{CBO}	Collector Cutoff Current			1.0	μA	V _{CB} = 40 V, I _E = 0
I _{EBO}	Emitter Cutoff Current			1.0	μA	V _{EB} = 5.0 V, I _C = 0

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

Classification of h_{FE1}

Rank	L	K
Range	4000 to 12000	8000 to 50000

Test Conditions: V_{CE} = 2.0 V, I_C = 0.5 A

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

