

DESCRIPTION The 2SD1698 is NPN silicon epitaxial darlington transistor designed for pulse motor, printer driver, solenoid driver.

- FEATURES**
- High DC Current gain.
 - Includes a dumper diode at E-C.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to +150 °C

Junction Temperature 150 °C Maximum

Maximum Power Dissipation ($T_a = 25^\circ\text{C}$)

Total Power Dissipation 750 mW

Maximum Voltages and Currents ($T_a = 25^\circ\text{C}$)

V_{CBO} Collector to Base Voltage 100 V

V_{CEO} Collector to Emitter Voltage 80 V

V_{EBO} Emitter to Base Voltage 8.0 V

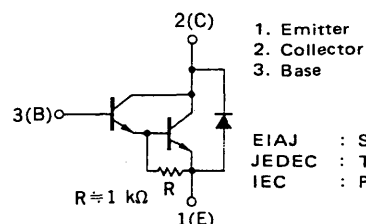
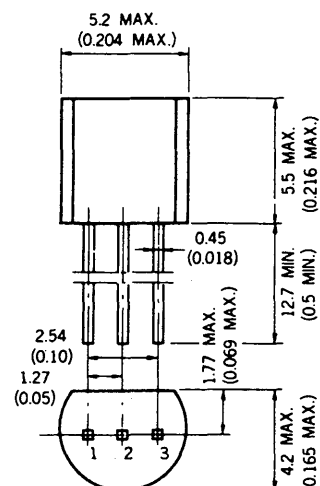
$I_{C(DC)}$ Collector Current ± 0.8 A

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

* $PW \leq 10$ ms, Duty Cycle $\leq 50\%$

PACKAGE DIMENSIONS

in millimeters (inches)



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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}^{**}	DC Current Gain	4000		50000		$V_{CE} = 2.0$ V, $I_C = 0.3$ 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, $R_L = 80\ \Omega$
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	$I_C = 0.5$ A, $I_B = 1.0$ mA
$V_{BE(sat)}^{**}$	Base Saturation Voltage		1.5	2.0	V	$I_C = 0.5$ A, $I_B = 1.0$ mA
V_{CBO}	Collector to Base Voltage	100			V	$I_C = 0.1$ mA, $I_E = 0$
V_{CEO}	Collector to Emitter Voltage	80			V	$I_C = 5.0$ mA, $I_B = 0$
I_{CBO}	Collector Cutoff Current			1.0	μA	$V_{CB} = 80$ V, $I_E = 0$
I_{EBO}	Emitter Cutoff Current			1.0	μA	$V_{EB} = 5.0$ V, $I_C = 0$

** Pulsed: $PW \leq 350\ \mu\text{s}$, Duty Cycle $\leq 2\%$

Classification of h_{FE1}

Rank	L	K
Range	4000 to 12000	8000 to 50000

Test Conditions: $V_{CE} = 2.0$ V, $I_C = 0.3$ A

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

