Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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2SD1645

Silicon NPN epitaxial planar type darlington

For low frequency amplification

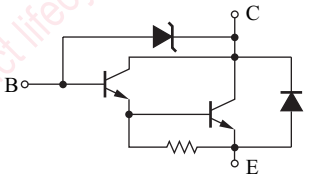
■ Features

- Built-in zener diode (60 V) between collector-base and collector-emitter
- Small variation in withstand pressure
- Darlington connection
- Extremely satisfactory linearity of the forward current transfer ratio h_{FE}

■ Package

- Code
  TO-126B-A1
- Pin Name
  1. Emitter
  2. Collector
  3. Base

■ Internal Connection



■ Absolute Maximum Ratings $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	60±10	V
Collector-emitter voltage (Base open)	V_{CEO}	60±10	V
Emitter-base voltage (Collector open)	V_{EBO}	5	V
Collector current	I_C	1.0	A
Peak collector current	I_{CP}	1.5	A
Collector power dissipation	P_C	1.2	W
		5.0 *	
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	–55 to +150	°C

Note) *: With a 100 mm × 100 mm × 2 mm Al heat sink at $T_a = 25°C$

■ Electrical Characteristics $T_a = 25°C±3°C$

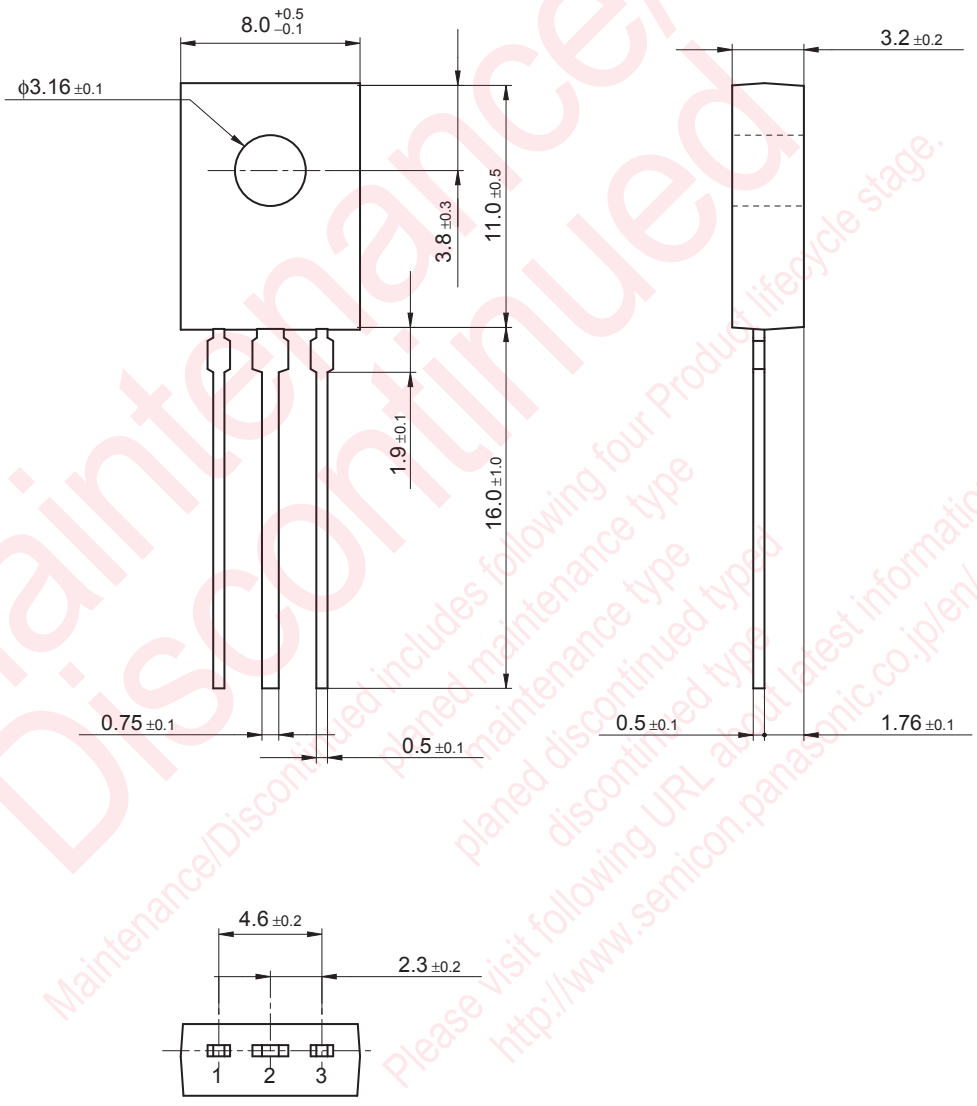
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = 100\ \mu A$, $I_E = 0$	50		70	V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 1$ mA, $I_B = 0$	50		70	V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = 100\ \mu A$, $I_C = 0$	5			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 25$ V, $I_E = 0$			1	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 4$ V, $I_C = 0$			1	μA
Forward current transfer ratio *1	h_{FE} *2	$V_{CE} = 10$ V, $I_C = 1.0$ A	4000		40000	—
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_C = 1.0$ A, $I_B = 1.0$ mA			1.8	V
Base-emitter saturation voltage *1	$V_{BE(sat)}$	$I_C = 1.0$ A, $I_B = 1.0$ mA			2.2	V
Transition frequency	f_T	$V_{CB} = 10$ V, $I_E = -50$ mA, f = 200 MHz		150		MHz

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. *1: Pulse measurement
*2: Rank classification

Rank	Q	R	S
h_{FE}	4000 to 10000	8000 to 12000	16000 to 40000

TO-126B-A1

Unit: mm



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